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KNOWLEDGE PRODUCTION AND TRANSMISSION
IN AN AGRICULTURAL INDUSTRY CLUSTER:
THE POULTRY BUSINESS IN SOUTH CENTRAL PENNSYLVANIA

A Dissertation in
Lifelong Learning and Adult Education

by

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ABSTRACT

In this study based in the poultry industry in south central Pennsylvania, I used a qualitative methodology and an ethnographic model to investigate three research questions...

- Among the people who are involved in the poultry industry in south central Pennsylvania, what is the impact of vertical integration on the knowledge production of producers?
- What is the nature of the community of practice that exists for the producer within the poultry industry?
- In general, how do practitioners construct and apply knowledge that is produced inside and outside the community of practice?

Using a general interview guide, I conducted seven in-depth interviews, which I recorded and transcribed. I used NVivo to identify nodes and, eventually, themes that reflected the development of a practitioner: The Contract Broiler Business, Learning the Business, Being Successful in the Business, Managing Change and Learning from It, and Planning for the Future of the Business.

Even with a business practice (contracting) that strictly defines many roles and responsibilities, the practitioners who make up the community of practice in this industry use knowledge that is codified as a base for the additional development of tacit knowledge through personal experience and innovation and for the integration of other knowledge derived from their participation in various social networks.

Excerpts from interviews show some degree of acceptance, if not comfort with the process. They also show a wide-ranging community of practice with many participants as well as the use of these and other resources as the practitioners confront profitability, change, and sustainability of their farming operation.

These findings have direct connections back to theories of industry clusters, competitiveness, codified and tacit knowledge, formal and informal learning, social capital, social networks, and communities of practice.

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Chapter 1

INTRODUCTION

Coming to the Question

My interest in the problem to be explored in this study comes out of my own professional practice. For the last 15 years, I have been engaged in planning and implementing programs that address the talent development needs of key industry segments in regional economies. This is at a point where economic development systems meet the K-12 and higher education systems as well as the formal workforce development system.

In the geographical areas in which I have worked, the agriculture and food industry is and has been one of the major clusters of economic activity. It is an industry with a broad reach that extends from food production to food processing to food distribution but which also includes connections to the lumber and wood industry, horticulture, and other animal-related activities (equine, horse racing, pets). The industry has an extensive supply and distribution chain that extends to the energy, transportation, construction, and manufacturing industries. Jobs are many and varied. Some occupations are unique; others share career pathways with the other industries with which agriculture and food industry connects.

Within the agriculture and food processing industry, I am most interested in the career pathways that lead to the development of farmers (producers or growers). Virtually every farmer that I have met has grown up on a farm, which means that they have learned about farming from the inside out as a part of the social network that includes their family and many others. Most learned the basic skills of the occupation and the soft skills that complement them as a part of their everyday life. The formal education system offers vocational agriculture programming that includes more skill-based training as well as FFA, which encourages experiential learning around both hard and soft skills.

Some people who intend to become farmers engage other skill development pathways that eventually lead back to farming. In Pennsylvania, some of those options involve higher education. Two schools – Penn State University and Delaware Valley University – offer degrees in agriculture as do many other schools around the country. Some people pursue other degree options in accounting, management, and

other business topics. Some people work off of the farm initially in related or different occupations before they come back to farming later in life. Some folks begin their careers as a part of their family farming operations; others work for other people as farmers.

Regardless of how one ends up in farming and at what level of education farmers find themselves, there is always more to learn. Those learning tasks are not always self-evident. They are mostly experiential and confronted on the job. The ability of farmers to learn those things and be productive, however, is of great consequence because that knowledge and skill directly impacts on their ability to make a living and support their family.

Statement of the Problem

Whether they see themselves as such or not, farmers are users and producers of knowledge. They acquire a great deal of knowledge as they grow up in farm families; participate in FFA and other youth activities; take vocational agriculture programs in school; in some cases, pursue higher education; and get practical experience working on a farm.

Skill standards and curriculum give us an idea of the kinds of formal knowledge and skills that the budding farmer acquires in their formative years. However, adult educators know very little about how farmers, as active practitioners who are engaged in an economic enterprise which requires them to be knowledgeable and productive, learn and adapt. This project explores that problem and expands our knowledge of how farmers learn over their lifetime.

Purpose of the Study

Overall, then, the purpose of this study is to understand how farmers who are active practitioners use and produce knowledge. I chose broiler production, a segment of the agriculture and food industry, as the focus of the study because it is complicated by a business practice (contracting) that adds additional dynamics to the process of knowledge transfer and application. The design of the project engages the farmer in a discussion of these dynamics.

From this information, adult educators can learn more about the process of how producers learn, individually and as members of a community, over a lifetime.

Research Questions

In this study, the research questions are...

- Among the people who are involved in the poultry industry in south central Pennsylvania, what is the impact of vertical integration on the knowledge production of producers?
- What is the nature of the community of practice that exists for the producer within the poultry industry?
- In general, how do practitioners construct and apply knowledge that is produced inside and outside the community of practice?

Importance of the Study

For most farmers, formal agriculture education ends where their high school vocational agriculture program ends (even though, there are some potential farmers who are involved in higher education). Many who are tasked with defining the needs of the agriculture and food industry for the future see industry trends around increasing scale and the growing use of technology as directly related to the increasing need for more knowledge and skills beyond what the formal agriculture education system offers.

This study, which approaches the problem from the viewpoint of adult informal education, offers new understanding about the actual ways that farmers acquire and use information in their practice that can be used to develop ways to better support that learning. Part of that will involve a better understanding of the communities of practices in which s(he) is engaged.

Scope of the Study

As mentioned above, I have focused the current study on broiler production with its common practice of contracting (where farmers grow the poultry for companies (integrators) that provide many supply chain inputs) as a way of narrowing its scope. However, in the course of the study, I explored the ways that these enterprises are imbedded in a broader farm operation as well as ways that the farmer is a part of a broader community of practice.

Definition of Terms

In this study, there are certain key concepts that I use because they have very intentional meanings that are grounded in the theory bases that I touch for the overall framework of this work. Each of the key terms will be explained later in the context of the theory base from which it comes. For now, what follow are some working definitions.

From the economics literature, I use industry cluster to refer to a group of companies in a certain geographical area that ultimately delivery a product or service through an integrated process that involves the supply chain, production processes, and a distribution system. As a result of their being in close proximity to one another, the companies are positioned to share a common set of knowledge and skills that typically comes through its workforce.

Competitive advantage has to do with the unique ways that industries in a country are able to innovate and upgrade beyond the natural endowments that brought the industry into the global marketplace in the first place and make them competitive.

As the basis of competition has shifted more and more to the creation and assimilation of knowledge, the role of the nation has grown. Competitive advantage is created and sustained through a highly localized process. Ultimately, nations succeed in particular industries because their home environment is the most forward-looking, dynamic, and challenging. (Porter, 2008, p. 171)

Within the workforce, most of the learning that takes place is informal. Tough (2002) and Livingstone (2002a) talk about formal learning as the visible part of the iceberg whereas informal learning is much larger but below the surface and out of sight. Informal learning is “any activity involving the pursuit of understanding, knowledge, or skill which occurs without the presence of externally imposed curricular criteria (Livingstone, 2001, pp. 4-5). Conceptually, it is very close to the idea of tacit knowledge that seems to be a term used in economic circles to describe knowledge production that occurs outside of formal education institutions.

When people pursue a common enterprise and engage in their pursuit together, they interact with each other and the world and tune their relations with each other and the world accordingly. This is the heart of a social theory of learning that has come from the world of cultural anthropology and sociology.

Over time, this collective learning results in practices that reflect both the pursuit of our enterprises and the attendant social relations. These practices are thus the property of a kind of community created over time by the sustained pursuit of a shared enterprise. It makes sense, therefore, to call these kinds of communities...communities of practice. (Wenger, 1998, p. 45)

In south central Pennsylvania, the community of practice that supports the poultry industry consists of farmers (or producers or growers), technical experts (poultry expert from Cooperative Extension), representatives of the supply chain (feed dealers and poultry wholesalers also known as integrators), and agricultural lenders. Integrators manage the supply and distribution chains and, typically, own the birds. The social system that supports the community involves church, 4-H, farm shows, and agricultural education programs at high school and Penn State. I identify the dimensions of the community of practice in the course of the study.

Within communities of practice, learning happens in a social context and knowledge is co-produced by the participants. Knowledge can be produced from experts who are outside or inside the community (the extension agent, the feed salesperson, the consultant from the integrator), from trade publications, or increasingly from the Internet. That is the way that I use the idea of knowledge production in this paper. This knowledge then needs to be applied to practice in the life of the community. This is tacit knowledge or know-how or applied knowledge that is produced by people who are close to the production process of the shared enterprise. This knowledge may or may not be codified in a way that makes it reproducible outside of the community.

Finally, I use knowledge transmission to specifically refer to the way that a community of practice helps individuals develop an identity as they move from newcomer to old-timer, increasing their voice as a knowledge producer in the community, but, more importantly, allowing the community to sustain itself over time.

Chapter 2

REVIEW OF THE LITERATURE

In this Review, I look at the literature on industry clusters, the components of clusters around knowledge, and the connection of industry clusters to knowledge clusters while underscoring the importance of knowledge as competitive advantage. I review the writings on the type of knowledge at work in clusters and its relationship to diffusion.

From this summary of more theoretical economics and epistemological topics, I move to a review of the literature related to how people, particularly those involved in pursuits that require more specialized knowledge and skills, learn. Here I document literature related to formal and informal education, the specific issue of knowledge production at work, and the characteristics of practice in a profession.

Finally, I conclude by looking at the literature on communities of practice and how learning operates in social settings where community and the social capital that comes with it facilitate learning.

There is a large body of literature on industry clusters and their application to economic development. I prefer to note this but not review it in detail in this Review. My focus is on the role of knowledge in industry clusters, the role of people and institutions as creators and users of knowledge, and the way social networks and communities of practice facilitate the process of knowledge diffusion at various points.

Industry Clusters

Definition of Industry Cluster

Porter (2008, p. 215) defines an industry cluster as “a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities”. Doeringer and Terkla (1995, p. 225) simply say that clusters are “geographical concentrations of industries that gain performance advantages through co-location.” Rosenfeld (1997, p. 10) expands on these, defining an industry cluster as “a geographically bounded concentration of similar, related, or complementary businesses with active channels for business transactions, communications, and

dialogue that share specialized infrastructure, labor markets, and services and that are faced with common opportunities and threats.”

Identifying Competitive Clusters

Quantitative techniques are at the heart of cluster definition strategies as evidenced by the processes used by Bergman, Feser and Sweeney (1996), Hill and Brennan (2000), Porter (1990b), Rosenfeld (1997), and the State and Local Policy Program at the University of MN (1998)..

Hill and Brennan (2000, pp. 67-68) define a competitive industry cluster as “a geographic concentration of competitive firms or establishments in the same industry that either have close buy-sell relationships with other industries in the region, use common technologies, or share a specialized labor pool that provides firms with a competitive advantage over the same industry in other places”.

In this model, the researchers identify the “drivers” of the local economy and tie these to supplier and customers located in the same area to form industry clusters. Competitive advantage is tied to the competitive position of that grouping of industries in the national marketplace. Most economists find competitive advantage on “the supply side of product markets in its endowments and costs of the factors of production – location, labor specialization, natural resources, technologies, attitudes toward entrepreneurship, and management competencies. However, in the real world, products are not homogeneous, and it is products that are traded, not a set of factor endowments. Competitive advantage is revealed through product development and production processes in which the various factors of production are combined, genius is harnessed, and business strategies are executed” (Hill & Brennan, 2000, pp. 65-66).

Contribution of Porter

From his writing beginning in the latter part of the last century to date, Porter incorporated insight from his field of business strategy and merged it with “emerging (or reemerging) theories of entrepreneurship, creative destruction (Joseph Schumpeter), institutional economics (Mancur Olson, Douglass North), and the importance of social relationships and social capital (Robert Putnam and Mark

Granovetter) (Munnich, et. al., 2002)”. The resulting synthesis led to the modern theoretical base around industry clusters.

Porter’s (1990a) unique contribution to industry cluster theory revolves around his articulation of the idea that competition drives innovation that, ultimately, leads to increased productivity, which, in turn, spurs further competition. Successful industry clusters exploit local competitive advantages that may include business environment, location, local infrastructure, local markets, intense local rivalry with competing firms, variety of local suppliers and other inputs to the core industry, a skilled local workforce that is attuned to the needs of the industry, and a local knowledge base that is embedded in the workforce and local institutions.

Local knowledge rises to the top as a local factor that sustains competitiveness. “These factors are more scarce, more difficult for foreign competitors to imitate – and they require sustained investment to create. (p. 79)”

In later work, Porter also writes about the “socio-economy of clusters” (2008, p. 241). “Social glue binds clusters together, contributing to the value creation process. Many of the competitive advantages of clusters depend on the free flow of information, the discovery of value-adding exchanges or transactions, the willingness to align agendas and to work across organizations, and strong motivation for improvement. Relationships, networks, and a sense of common interest undergird these circumstances. The social structure of clusters thus takes on central importance.”

Knowledge as Competitive Advantage

Researchers from the State and Local Policy Program (Munnich, 2002, p. 7) at the University of MN used the term “rural knowledge cluster”, defined as “specialized networks of innovative, interrelated firms centered outside of major metropolitan areas, deriving competitive advantages primarily through accumulated, embedded, and imported knowledge among local actors about highly specific technologies, processes, and markets”, to describe the role of local knowledge in rural industry clusters.

“This framework augments the traditional industry cluster model by placing added emphasis on the instrumental role of knowledge as the driver of innovation and competitive advantage...and is consistent

with the idea of knowledge as the fundamental basis of competitive advantage in the globalized economy.” (p.7)

Tacit and Codified Knowledge

When a piece of knowledge is generated with a person having an idea, it is purely tacit. However, as it evolves, it often goes through a process where it becomes more codified. Other people explore it, use it, and understand it better so that less of it remains idiosyncratic to one person or a few people. It gradually gets transformed into some systematic form that facilitates its communication to even more people at a low cost. As principles underlying the piece of knowledge are better understood, they can be written down and can be interpreted as parts of broader phenomena. In some cases, processes or procedures become repeatable and capable of being taught to other people or routinized through technology. (Cowan and Foray, 1997, p. 595)

While economists typically see the process of converting knowledge from tacit to codified in relation to the production process, Smith (2001) and others (Burawoy, 1985; Clement, 1981; Dunk, 1991; Kusterer, 1978; Shostak, 1969; Vallas & Beck, 1996) see the gradual rationalization of working class knowledge as contributing to the destruction of working class communities. The technological transformation, which radically reduces the reliance of the production process on the informal skills of workers, and the use of technologies that extract the informal skills and tacit knowledge of workers and codify them are threats to working class participation in industrial processes.

Codification and Diffusion of Knowledge

Eliasson, 1990; Abramowitz and David, 1996; OECD, 1996, and Soete, 1996 write from a macroeconomic point of view about this cumulative expansion of the codified knowledge base and its impact on the “form and structure of economic growth, modifying dramatically the organization and conduct of economic activities” (Cowan & Foray, 1997, p. 596). Other authors (Arora & Gambardella, 1995; Cowan & Foray, 1995; Dasgupta & David, 1995; David & Foray, 1995; Ergas, 1991;) have explored the “microeconomic implications of knowledge codification as entailing changes in technological learning and in the institutional structure of innovative activities”.

While economists seem to be coming to some consensus about the importance of the codification of information in a knowledge economy, there are still many questions to answer such as the actual magnitude and scope of diffusion of the tendency towards knowledge codification; who is bearing the costs and who is sharing in the benefits; and what kinds of characteristics (size, space, coordination) a system whether a firm, an industry, or an industry cluster must show in order to increase the value of codification for the group and the conduct of its activity. (Cowan & Foray, 1997, p. 596)

“Knowledge codification – the process of conversion of knowledge into messages which can be then processed as information – changes some fundamental aspects of the economics of knowledge generation and distribution. The codification process entails high initial fixed costs but allows agents to carry out certain operations at very low marginal costs” (Cowan & Foray, 1997, p. 596). Codification reduces the costs and improves the reliability of information storage and recall. Knowledge that is codified becomes “transferable independently of the transfer of other things, such as people, in which the knowledge is embedded. This facilitates market transactions in knowledge that are difficult to enact when knowledge is tacit” (p. 597).

Knowledge that is tacit resides in people, institutions, or routines. If the number of people is small, this makes tacit knowledge more difficult to transport. If many people possess the tacit knowledge, there will be a labour market that can be used to transfer the knowledge from firm to firm. It can also make it difficult to find since there will often be only a single instantiation of it. But codified knowledge is easy to reproduce, and thus there can be many copies of it (pp. 596-597). Codification can reduce the costs of knowledge acquisition by those who are interested in gaining the knowledge that has been grown (Ergas, 1991; Simon, 1982).

Other important conditions must be in place for these potential benefits to be fulfilled. Stable systems where there has been a substantial initial investment to build a community of agents who can understand the codes by which the knowledge flows and networks to communicate, coordinate and preserve the knowledge inputs will fully realize increased productivity through codification. A complicating factor will always be the difficulty of moving knowledge from one actor to another. Some aspects of knowledge

are sticky and not free flowing. All knowledge has important elements of tacitness. Some things are just difficult to write down and codify. (Cowan & Foray, 1997, p. 598)

Also, the discussion above assumes the will to share codified knowledge on the part of actors in a knowledge system. “Codification is a strategic instrument available at a certain cost of agents (or groups of agents) to pursue any strategy” (Cowan & Foray, 1997, p. 599). Putting knowledge into a code allows sharing of the information among those who know how to read the code but it also functions, intentionally or unintentionally, to keep those uninitiated in the language from using the knowledge base. Economists believe that the high costs required to produce a language to protect the knowledge discourage a strategy of private codification and increase the incentives to make the codes public or semi-private but there are other ways to block the public dissemination of knowledge that become a part of microeconomic strategy. The pervasive struggle over the ownership of intellectual property in a knowledge economy leads one to believe that many factors, economic and otherwise, block the spread of knowledge in the public realm.

Knowledge Diffusion and Clusters

Botkin and Seeley (2001) explain the difference between information and knowledge in relation to clusters. Modern technology allows for the dissemination of information over greater distances and at greater speeds but knowledge tends to cluster geographically because it is more complex and embedded in individuals. Most knowledge is tacit, perhaps, accounting for the impact of proximity on the ability of an industry to innovate (Porter & Stern, 2001). A number of studies (Cabral & Leiblein, 2001; Cowan & Foray, 1997; Crone & Roper, 2001) emphasize the role of tacit knowledge in successful local or regional clusters. Capturing indigenous knowledge that is specific to an area and to a business context is difficult (Jarboe, 2001).

In a study (Munnich, 2002, p. 9) by the State and Local Policy Program at the University of Minnesota, researchers suggested that rural knowledge clusters have some sort of existing local competitive advantage, that there is a historical evolution to the local knowledge base, and that “both formal and informal institutions...have fostered the creation, diffusion, and renewal of the local

knowledge base”. Their resulting case study methodology asked three questions of respondents as the research team studied rural knowledge clusters in four Minnesota cities through them: “What is the history of this cluster and how has the knowledge base relating to these activities developed over time? What are the present sources of competitive advantage for this cluster? What institutions have been instrumental in the development of the knowledge base?” The results indicated a role for both formal and informal institutions in the four clusters that were studied.

Evers (2008) differentiates knowledge clusters from knowledge hubs. *Knowledge clusters* are agglomerations of organizations that are product-oriented. Their production is primarily directed to knowledge as output or input. Knowledge clusters have the organizational capability to drive innovations and create new industries. They are central places within an epistemic landscape, i.e. in a wider structure of knowledge production and dissemination. Examples for organizations in knowledge clusters are universities and colleges, think tanks, government research agencies, and knowledge-intensive firms. *Knowledge hubs* are local innovation systems that are nodes in networks of knowledge production and knowledge sharing. They are characterized by high connectedness and high internal and external networking and knowledge sharing capabilities. As meeting points of communities of knowledge and interest, knowledge hubs fulfill three major functions: to generate knowledge, to transfer knowledge to sites of application, and to transmit knowledge to other people through education and training. (pp. 9-10)

In agriculture, the actors in knowledge hubs are much more important to practitioners.

Representatives of integrators, consultants in feed, operations, and marketing; cooperative extension programs; equipment, seed, feed, and vendors of various kinds provide a great deal of knowledge transfer while embedded in an array of relationships in the social and economic system.

The Challenges of Vertical Integration to Knowledge Diffusion

An important microeconomic overlay to clusters that relates to the strategy of firms is vertical integration. Vertical integration has become a common business practice in the broiler industry and in other parts of agriculture production.

Within their supply and distribution chains, companies may choose to buy other companies that produce all or some of the inputs used in production of its products (backward vertical integration) or that are part of its distribution network. They do this to lower transaction costs, synchronize supply and demand, lower uncertainty, control the market, and be more independent strategically.

Porter (1980, pp. 322-323) argues the “illusions in vertical integration decisions” and concludes that a false sense of security growing out of the proximity of the business can lead to the destruction of the new upstream or downstream business, simply by the process of applying historical managerial approaches.” In 2006, Porter (p. 336) wrote “the new paradigm of productivity competition raises cautions about extensive vertical integration. Vertical integration consumes resources and creates inflexibilities, and should be restricted to activities tightly connected to overall strategy....a company may be better served by developing strong relationships with local suppliers....”

Hen and egg production were common on most farms at the turn of the century and production was primarily for home use. Before the 1950s, most farms raised chickens, but meat was a byproduct of the egg enterprise.

Perry et al. (1999) estimated in 1999 that about 12,000 specialized farms produce more than 900 million birds for meat and 72 billion eggs per year. Poultry and poultry products account for \$19.1 billion, or about 10 percent of all farm receipts.

Since mid-century, the industry has moved almost completely from a home industry to one dominated by contract production. Broiler production accounted for 62% of all receipts from poultry and poultry products in 1995.

Vertical integration through production and marketing contracts has become the dominant model for livestock production in the US. Growers raise animals owned by integrators. Farm contracts contain detailed conditions for growers, who are paid based on how efficiently they use feed, provided to the integrator, to raise the animals. The contract dictates how to construct the facilities; how to feed, house, and medicate the animals; and how to handle manure and dispose of carcasses.

In the poultry industry, chicks are hatched at company-owned hatcheries, vaccinated against poultry diseases, and delivered to the grower's farm, where they are housed in large, specialized structures called growout houses. The company also provides feed as needed. When the birds reach market age and weight in six to seven weeks, the farmer is paid on the basis of weight gained by the flock, which is seen as a measurement of the farmer's skill and good management.

The National Chicken Council (2015) counts the benefits of the contract system to growers and the public as...

- Less man hours to produce more chickens, due to improved technology and larger flock sizes;
- A reduction in the amount of feed required to produce a pound of broiler meat, due to continual discoveries in genetics and nutrition;
- A reduced growing period to produce a market broiler chicken, meaning reduce space, labor, equipment, and a much smaller environmental impact;
- Better health programs for the welfare of birds; and
- Being able to go to the market at any time of the year and buy a tender, flavorful chick product at a price that is very kind to your budget.

Not everyone sees contracting as positive. Harris (referenced in Perry et al., 1999, 110-113) suggests that contracting reduces entrepreneurial capacity by removing opportunities for human capital development on the part of grower. Kolmer et al. (1963) worry about the possibilities for exploitation of growers in the presence of unequal bargaining power.

Nowicki (2001, p. 83) goes further...

...A farmer is an economic agent, who seeks to identify a particular production range that he has an adequate knowledge – and interest – to pursue, and for which he can recognize adequate market outlets. In principle, he will seek to maximize his net revenue by controlling the relationship between the primary factors of production (seed, land and its quality, machinery) and the variable factors of the production process (inputs and labour).

To the extent that he loses control over any of the primary or variable factors of his production process, he loses independence in his agricultural production strategy; and to the extent that he has no market outlet to choose from, he equally loses his autonomy.

Informal Learning

Educational researchers and theorists have sought to differentiate and connect formal and informal learning as well as ground informal learning in issues related to learning at work.

Formal and Informal

Distinguishing between formal and informal learning has been one of the common themes of the theorists from the various aspects related to informal learning. Beckett and Hager (2002), Billett (2002), Eraut (2000), Hodkinson and Hodkinson (2004), Livingstone (2001), and Stern and Sommerlad (1999) approach the task in different ways ranging from lists of characteristics of formal learning to questions about the significance of even making the comparison.

Colley, Hodkinson, and Malcolm (2003) suggest that it is really not possible to distinguish “formal from informal learning in such a way that all instances fall on one side or other of the boundary” (quoted from Hager & Halliday, 2009, 28) while Hager and Halliday are more willing to venture a definition.

Formal learning typically applies to a situation that includes these three items: a specified curriculum, taught by a designated teacher, with the extent of learning attained by individual learners being assessed and certified....Typically, it follows a prescribed framework whether or not actual attendance at the institution is necessary....In all cases, however, those partaking of courses of formal learning have an idea of what they are likely to learn and they accept that learning will to some extent be under the control of the institution. (pp. 29-30)

Their six key features of informal learning – organic/holistic, contextual, activity and experience based, arising in situations where learning is not the main aim, activated by individual learners rather than by teachers/trainers, and often collaborative/collegial - provide a useful platform for theory-building and a framework for locating informal learning in educational theory, in general.

Metaphors of Learning

In a way that is very helpful in understanding the epistemological and ontological assumptions behind various theories of learning, Hager and Halliday (2009, 121-131) use the idea of metaphors to survey the landscape. They accept the notion mentioned above that learning as acquisition and as participation are two of the metaphors that have been at the base of much education thought. They observe that the learning as acquisition metaphor dominates “formal education ideology...(and) the general public’s understanding of education” (p. 115). They define four metaphor clusters “each with their own assumptions and subsidiary metaphors” to bolster their idea that there is “no single general account of learning” (p. 121).

- The propositional learning metaphor cluster is acquisition based with transfer as an associated concept. Fundamental assumptions include that what is learned is independent of the learner, that learning involves moving knowledge from place to place, and that what is learned is separate from the context in which it is learned (p. 121).
- The skills learning metaphor cluster is very similar to the propositional learning metaphor in its assumptions. However, the focus is on skills rather than knowledge (p. 124).
- The emphasis of the learning through participation in human practices metaphor is on successful action in the world as opposed to understanding and recalling propositions. It suggests that “the knower is a part of what is known as a participant in it” (p. 126). What is learned is a social construction that is independent of the learner, learning involves movement of the learner from less knowledge to greater knowledge as they engage the practice, and what is learned is “significantly shaped by the context in which it is learnt.”
- The learning as development (or transformation) metaphor cluster involved the “emergence of new entities, encompassing both the learner being changed as well as alteration in the environment in which they are immersed” (p.129). Here, the learner is an integral part of the

learning and what is learned, learning is seen as an evolving process that includes the learner, and learning involve the emergence of novelty as new contexts are formed.

These metaphors or theories connect directly with the approaches to understanding that adult educators see in workplace learning.

Product or Process in Workplace Learning

Theories of workplace learning fall into two categories - learning as a product or learning as a process. (Hager & Halliday, 2009)

Acquisition (product) theories line up with theories that dwell on learning as the acquisition of specified products with human capital theory and its emphasis on the individual learner. They find their roots in organizational psychology and management theory and the works of Argyris and Schon (1974, 1978), Marsick and Watkins (1990), and Schon (1983, 1987). They focus on individual learners and the cognitive aspects of work. Reflection and its application are important parts of the process. Workplace learning is like formal learning. These theorists downplay the role of social and cultural factors.

On the other hand, participation-oriented theories see workforce learning and performance as phenomena that are significantly shaped by social, organizational, and cultural factors that extend beyond the individual. They include situated learning theories (Lave & Wenger, 1991) which focus on learning taking place in a network of relationships and activity theory (Engestrom, 2004) which sees learning happening with activity systems comprised of components such as workplace rules, the division of labor, and mediating artifacts.

Various other theorists (Billett, 2004a, 2004b; Eraut, 1994; Eraut et al., 1998; Fuller & Unwin, 2003, 2004; and Hodkinson & Hodkinson, 2004) have worked on ideas about the kinds of knowledge employed in the practice of work and how these kinds of knowledge can be brought together with more formal approaches; creating an environment in the workplace which promotes learning; the importance of bringing individual and social learning together; and the learning of apprentices.

Within the field of workplace learning, the importance of informal learning is being increasingly recognized (Evans, Hodkinson, & Unwin, 2002) as are the connections to social and cultural capital (Ecclestone & Pryor, 2003). I'll address both topics in greater detail below.

The Learning of Tacit Knowledge

Eraut (2000, p. 12) makes the point to differentiate learning on the basis of intent to learn: implicit, reactive, and deliberate. Implicit learning involves no intention to learn and no awareness of the learning at the time it occurs. Deliberative learning has planned learning goals with time set aside to work on them. Reactive learning is where the learning is explicit but takes place spontaneously in response to emerging situations.

Tacit knowledge is the outcome of implicit learning. Horvath et al. (1996) provide a framework of the mental processes involved in this process. Eraut (2000) further develops the themes of how one becomes aware of tacit knowledge and how it is represented. The discussion directly informed the methodology addressed below. It specifically relates to the question of how to get respondents to talk about tacit knowledge and its generation.

Eraut (2000, p. 22) accepts the Skill Acquisition Model developed by Dreyfus and Dreyfus (1986) as a way to talk about how tacit knowledge is acquired. Tacit knowledge appears in the Model as tacit understanding, tacit procedures, and tacit rules. Situation understanding is developed in the early and middle stages based on experience. Standard procedures develop as explicit procedural knowledge and become tacit through repetition. Increasingly intuitive decision-making is based on the tacit application of tacit rules. People move to more intuitive forms of thinking as their competence grows.

He also reminds us that not all knowledge is individual and that an important part of working with others is the "distributed" knowledge of intentional and coincidental networks of tacit knowledge within social settings including work.

We learn that others know things that we do not know and that we can rely on others to contribute to certain aspects of a situation and save our mental effort. So the individual process of making

personal sense of the situation is likely to draw on a much wider range of cognitive resources, whether this is recognized or not. (p. 27)

Hager and Halliday (2009) emphasize the key roles of judgment and context in developing a model that describes a process, which is consistent with the process-oriented metaphors of participation and transition, of what happens as one moves from a novice to an experienced practitioner who operates with wisdom. “Learning of many different kinds produces knowledge which is integrated in judgments, which reflect a capacity for successful acting in and of the world; underpins choices of how to act in and on the world since such choices flow from the exercise of judgment; includes not just propositional understanding, but cognitive, conative and affective capacities as well as other abilities and learned capacities...; is not all expressed verbally or written down; ... alters both the learner and the world (since the learner is part of the world); resides in individuals, teams, and organizations; and may be significantly particular and contextual, rather than general and abstract.” (p. 145)

Application of Scientific Knowledge

Eraut (2000) concludes with remarks on the “application of scientific knowledge, which is publicly available if not widely understood, to practical situations” that are very appropriate to the study being proposed. He describes a process where scientific there is “resituated” into the depth of knowledge of the practitioner and lifts that up as an example of knowledge creation. “Transfer is the learning process involved in resituating some aspect of one’s knowledge into a new context, and that such a process subtly changes the meaning cluster of the knowledge being transferred.”

This set of concepts was very appropriate to this study of the way technical information is transferred into a traditional community of practice and then used by practitioners in what they do day-in and day-out, reinventing the cluster as the knowledge is applied.

Practice

Hager and Halliday (2009) provide a discussion of practice as a further way of describing the journey to becoming a wise practitioner that makes context sensitive judgments. They discuss the contribution of

Lave and Wenger (1991), MacIntyre (1981), and others to the discussion but I believe that their greatest contribution is their exposition of the idea of the how contextuality and practice are related.

...Practices form part of a nest of concepts, which range from the particular to the more general, and that practices are layered in the sense that they overlap to differing extents. One practice is located within one nest. At a particular level, there is an activity which is nested within a practice at another level, which is nested within a tradition at another level which is nested within some narrative unity of a life overall. An activity may also be nested within alternative practices and traditions. In that sense, activities and practices are layered.

...People are not inducted into just one practice, but into a number, and through such induction they come to see their practical engagements from alternative perspectives. They come to be able to stand back from those engagements and evaluate at a distance, as it were. While tradition is important, traditions evolve as practices evolve. Evolution occurs, in part, because people can stand back from their practical engagements and examine them from alternatives. (p. 180)

Overall, informal education stresses a number of important themes: many opportunities for learning happen in everyday settings; informal learning happens through relationships and, in turn, supports more fulfilling relationships; democracy, justice, and respect for others are enduring concerns for informal educators; experiences and feelings are important; and people need to deepen their understandings and commitments...and act on them.

Research on Informal Learning

Attempts to define the breadth and depth of adult informal learning began with a major survey of adult informal learning activities in 1961-62 in the United States (Johnstone & Rivera, 1965). The work of Tough (1971, 1979) in the late 1960's found that virtually all adults are regularly involved in deliberate, self-directed learning projects (Livingstone, 2001, p. 7). Additional studies (Beinart & Smith, 1998;

Blomqvist, Niemi, & Ruuskanen, 1998; LaValle & Finch, 1999; Livingstone, Hart, & Davie, 1999; NALL, 1998; and Penland, 1977) confirm the overwhelming participation by adults in informal learning.

Work and Informal Learning

An interesting by-product of the survey work cited above is some additional information on the extent of informal learning at work. A number of commentators raise questions about the undervaluing of worker knowledge in business and industry. Ethnographic work around expert-novice relationships such as apprenticeships adds additional qualitative color to the context.

Employment-Related Informal Learning

Several U.S. and Canadian national surveys have found that over 70% of the job training received by employees is informal (Ekos Research Associates, 1993; U.S. Department of Labor, 1996). The most recent in-depth U.S. study of over 1,000 workers in seven states (Center for Workforce Development, 1998) found a similar percentage and concluded that “informal learning was widespread and served to fulfill most learning needs. In general, we noted that informal learning was highly relevant to employee needs and involved knowledge and skills that were attainable and immediately applicable.... Workers constantly learn and develop while executing their day-to-day job responsibilities, acquiring a broad range of knowledge and skills” (p. 1).

A 1989 Australian survey (OECD, 1991, pp. 142, 149) which explored both structured and unstructured training activities found that participation in organized company training programs differed according to position in the company with university graduates much more involved than those with less schooling. Participation in informal training was more evenly distributed. Over two-thirds of those at all levels of formal education indicated that they had engaged in informal job-related training with a year. A subsequent Australian survey in 1997 (Australian Bureau of Statistics, 1997) found that 54% of wage and salary earners participated in formal training while 72% participated in informal training over the course of the previous year.

In spite of this extensive surveying, Livingstone (2002b) reports that “we currently have very limited knowledge in Canada or elsewhere of the extent, modes, and effectiveness of people’s acquisition of new skills and knowledge in relation to the changing nature of work” (p. 3).

Recovering Worker Knowledge

Darrah (1992, 1995) and Kusterer (1978) are some of the ethnographic studies that have looked at the workplace as a site of learning and found extensive informal social learning among manual workers about their work practices, styles and local knowledge beyond individual skills. Much of this informal learning is unrecognized and taken for granted by the workers themselves, beyond the comprehension of management, and usually collective rather than individual learning (Livingstone, 2001, p. 19).

Smith (2001) very effectively describes how, over the years, technology and moves to codify the tacit knowledge of workers has changed the value of worker-based knowledge to companies and undermined the communities of practice where that knowledge was produced and reproduced.

...The great working-class communities of the past were engines reproducing manual skills, both those that created a generalized level of manual accomplishment in the male working class popular...knowledge of the use of tools including increasingly manual tools of considerable technological sophistication as these were developed for home use; a culture according respect to men who excelled in skills and knowledge, both those relevant to non-workplace activities...home renovation and repair, automotive repair and reconstructions, and so on...and those produced and reproduced in the workplace, relying to considerable extent on an experiential process of learning often over considerable periods of time. (Smith, 2001, p. 3)

Beyond the information uncovered in the survey projects cited above related to worker access to formal training, Livingstone (2002a, 2003) writes about underemployment of workers in relation to their knowledge and skills. He finds strong participation among workers in informal education on the job but also a general unwillingness among employers to reward the knowledge that is developed in terms of greater participation in organizational processes, decision-making, and compensation.

Livingstone and Sawchuk (2000) move beyond the negative implications of knowledge codification and speak to the possibilities of worker knowledge production.

The increased availability to working class people of...socialized forces of knowledge production represents a continual challenge to private capitalist efforts...to appropriate the social relations of knowledge production....Working class and other subordinated groups continue to exercise their own creative learning capacities both within and outside dominant class forms of knowledge. The knowledges that they produce and reproduce continue to constitute oppositional cultural forms both within the realm of education per se as well as in the broader sphere of individual and collective informal learning (p. 3-4).

Community and Social Capital as a Foundation for Learning

Community first appears as a concept in the social science literature in the early twentieth century. Definitions focused on community as a geographical area, as a group of people living in a specific place, and as an area of common life. Community can also be approached as a descriptive category or set of variables (Smith, 2001, p. 2).

Social networks are what many people describe when they are asked to describe community. “For most of us, our deepest sense of belonging is to our most intimate social networks, especially family and friends. Beyond that perimeter lie work, church, neighborhood, civic life, and [an] assortment of other weak ties” (Putnam, 2000, p. 274). Such informal relationships “enable us to navigate our way around the demands and contingencies of everyday living” (Allan, 1996, p. 2). Social scientists (Bott, 1957; Wenger, 1984, 1989, 1995) have studied the nature of these social networks believing that their connectedness or density help explain key aspects of the experiences of people.

To judge the quality of life within a particular community, researchers explore the shared expectations or “habits of the heart” that develop within a community regarding the behavior of its members. Tolerance (respect, a willingness to listen and learn), reciprocity (willingness to do for another now with the expectation of help when needed in the future), and trust (that allows people to cooperate and learn) are three commonly mentioned traits that build community.

Within Putnam's work (2000), there is ample evidence to conclude that communities high in social capital are good places to learn. Trust, networks, and norms of reciprocity within a child's family, school, peer group, and larger community have far reaching effects on their opportunities and choices, and hence on their behavior and development (pp. 296-306). Where trust and social networks flourish, individuals, firms, neighborhoods, and nations prosper economically. Social capital can mitigate the effects of socioeconomic disadvantage (pp. 319-325).

Folks who seek to explain the role of community and social capital in cultures provide informal education with powerful information that validates its role and underscores some processes that have been important throughout its history. The very act of joining and being regularly involved in organized groups enhances an individual's health and well-being. Developing the trust and tolerance that is involved in the development of social networks and using them to strengthen democracy are traditional emphases of informal education. Dialogue and conversation and the cultivation of places where people can work together are processes familiar to informal educators (Smith, 2001, pp. 11-12).

"I think anybody can be taught anything but they have to be in a community where it's necessary information, in a community where the information adds value to their life, and in a community where they are accepted, where they are not judged, where they can ask stupid questions and where they can learn about what's important to them, and not necessarily what's important for us to have them know." (Young woman public sector worker quoted in Livingstone & Sawchuk, 2000, p. 12)

Communities of Practice

In the late 1980s and early 1990s, Jean Lave and Etienne Wenger proposed a model of situated learning that suggested that learning involves a process of engagement in a community of practice rather than a process "best separated from the rest of our activities and that is the result of teaching" (1998, p. 3). Learning is social and comes largely from the participation of the learner in daily living. Communities of practice are everywhere and people are normally involved in a number of them.

Being alive as human beings means that we are constantly engaged in the pursuit of enterprises of all kinds, from ensuring our physical survival to seeking the most lofty pleasures. As we define these

enterprises and engage in their pursuit together, we interact with each other and with the world and we tune our relations with each other and with the world accordingly. In other words, we learn.

Over time, this collective learning results in practices that reflect both the pursuit of our enterprises and the attendant social relations. These practices are thus the property of a kind of community created over time by the sustained pursuit of a shared enterprise. It makes sense, therefore, to call these kinds of communities, communities of practice. (Wenger, 1998, p. 45)

Communities of practice vary greatly. Some are formal and embedded in organizations while others are informal and quite fluid. Some have names, many do not. A community of practice is different from a community of interest or a geographical community in that it involves a shared practice. Members are brought together by common activities and by “what they have learned through their mutual engagement in these activities” (Smith, 2003, p. 3).

According to Wenger (1998), a community of practice defines itself along three dimensions: what it is about (its joint enterprise as understood and continually negotiated by its members); how it functions (the norms by which members engage one another); and what capabilities it has produced (the shared repertoire of communal resources that have been developed over time). Members are involved in a set of relationships over time (Lave & Wenger, 1991, p. 98). Communities develop around issues that matter to people (Wenger, 1998). The fact that people organize around some particular area of knowledge and activity gives members a feeling of joint enterprise and identity (Smith, 2003, p. 3).

For a community of practice to function, it needs to generate and appropriate a shared repertoire of ideas, commitments, and memories. It also needs to develop various resources such as tools, documents, routines, vocabulary, and symbols that in some way carry the accumulated knowledge of the community. It involves practice, ways of doing and approaching issues and problems about which members care. (Smith, 2003, p. 3)

This is a substantially different approach to learning. “Rather than asking what kind of cognitive processes and conceptual structures are involved, they (Lave and Wenger) ask what kinds of social engagements provide the proper context for learning to take place” (1991, p. 14). It is not so much that

learners acquire structures or models to understand the world, but they participate in frameworks that have structure. Learning involves participating in a community of practice and that participation “refers not just to local events of engagement in certain activities with certain people, but to a more encompassing process of being active participants in the practices of social communities and constructing identities in relation to these communities” (Wenger, 1999, p. 4).

As new people join communities, they learn at the periphery, moving to the center as they become more competent. Learning is more a process of social participation rather than the acquisition of knowledge by individuals.

Learners inevitably participate in communities of practitioners and...the mastery of knowledge and skill requires newcomers to move toward full participation in the socio-cultural practices of a community. “Legitimate peripheral participation” provides a way to speak about the relations between newcomers and old-timers, and about activities, identities, artifacts, and communities of knowledge and practice. A person’s intentions to learn are engaged and the meaning of learning is configured through the process of becoming a full participant in a socio-cultural practice. The social process includes, indeed it subsumes, the learning of knowledgeable skills. (Lave & Wenger, 1991, p. 29)

This way of thinking about learning is concerned with the actor in community learning to speak, act and improvise in ways that make sense in the community. “For newcomers, the purpose is not to learn from talk as a substitute for legitimate peripheral participation; it is to learn to talk as a key to legitimate peripheral participation” (Lave & Wenger, 1991, pp. 108-9). Situated learning involves learners being full participants in the world and in generating meaning (Tennant, 1997, p. 73).

Smith (2003, pp. 7-8) suggests that three important points for informal education emerge from the work of Lave and Wenger. First, learning is in the relationships between people.

Learning traditionally gets measured as on the assumption that it is a possession of individuals that can be found inside their heads...[Here] learning is in the relationships between people. Learning is in the conditions that bring people together and organize a point of contact that allows for particular pieces of information to take on a relevance; without the points of contact, without the system of

relevancies, there is not learning, and there is little memory. Learning does not belong to individual persons, but to the various conversations of which they are a part. (Murphy, 1999, p. 17)

Second, educators work so that people can become participants in communities of practice. The challenge revolves around how to do that in formal educational systems that value knowledge acquisition over social relationships and in everyday life where associational ties (social capital) seem to be decreasing. Third, there is an intimate connection between knowledge and activity. This reemphasizes a traditional concern of education that runs from Dewey through Lindeman and Freire...education involves informed and committed action.

Chapter 3

METHODOLOGY

For this study, I chose a qualitative methodology and used an ethnographic model to collect information using in-person interviews. I analyzed the narratives for themes, compared those themes to my research questions, and, through them, connected my findings with the literature.

Research Questions

In this study, the research questions and sub-questions are...

- Among the people who are involved in the poultry industry in south central Pennsylvania, what is the impact of vertical integration on the knowledge production of producers?
 - How do practitioners incorporate the requirements of the integrators with which they work in every day practice?
 - To what level have practitioners found ways to “work around” problems that are not addressed in the contracts?
 - Do they create new knowledge in the process of daily operations in this relatively rigid environment?
- What is the nature of the community of practice that exists for the producer within the poultry industry?
 - What is the role of experts in the community?
 - Where and how do the conversations among producers that promote learning occur?
 - What institutions play a role in generating the social capital that allows learning to occur?
- In general, how do practitioners construct and apply knowledge that is produced inside and outside the community of practice?
 - How does new information find its way into the community?
 - How do practitioners apply knowledge internally that is generated outside of the community?
 - How do practitioners contribute to innovation and knowledge production?

I chose a qualitative methodology because the purpose of the study is primarily descriptive, that is, to document or describe a phenomenon of interest (Yin, 1984, as quoted in Marshall & Rossman, 1995). I used an ethnographic research model as I searched for meanings and descriptions of experience through first-hand accounts (Moustakas, 1994).

Merriam and Simpson (1995) talk about ethnographic techniques as the "methods researchers use to uncover the social order and meaning a setting or situation has for the people actually participating in it" (p. 104). They specifically mention participant observation, life history, documentary analysis, investigator diaries, and in-depth interviewing as five commonly used procedures associated with ethnography. I focused on in-depth interviewing when interacting with respondents.

The Researcher's Role

Following Patton (1990, pp. 55-58), I take a neutral stance with regard to the research questions while, at the same time, trying to build a relationship with the person being interviewed. I report as much information as possible for the benefit of those using the findings of the study (p. 472) so that they can draw their own conclusions.

In the end, the qualitative method embraces the idea that the research process can never be value-free (Denzin, 1989). The interpretation of data by the researcher and the subsequent interpretation of results by the reader/user will be value laden. I recognized the hermeneutical problem and tried to make it as easy as possible for the reader/user to follow my thought processes.

Past Experience of the Researcher

Above, I go into some detail about how I came to the questions and why I am interested in the connection between industry clusters, knowledge systems, communities of practice, business practices, and the flow of knowledge through them.

In my professional practice over the last three years, I have been extensively involved in the analysis of labor market information. These analytic processes have a distinctly quantitative dimension to them. However, my coursework in the adult education program has taught me the value of using qualitative methods to increase the depth of information and to assist in the interpretation of the numbers.

Setting

In south central Pennsylvania, the poultry business is clearly one of the drivers of the Agriculture and Food Processing industry cluster. It exports heavily but still sells a significant amount of its product locally. It is a vertically integrated industry with farmer, feed supplier, product distributor, and public sector infrastructure providers working closely together.

Two factors influenced the development of the poultry business in south central Pennsylvania as a major generator of economic activity. South central Pennsylvania has an agricultural heritage that relates to the richness of the natural resources in the area, the interest of its German settlers in farming, and the continued involvement of its Plain population in the industry over the years. It is also located in a place where it has had and continues to have easy access to some of the major markets on the East Coast. Agricultural heritage and access to markets have been the source of the traditional competitive advantages enjoyed by this industry.

As the industry moved into more modern times, the knowledge infrastructure that supports the industry, the skills of the workforce of the industry, and the ability to introduce technology in a way that it increases innovation and improves productivity have been the new sources of competitive advantage that have allowed the local industry to increase its national share.

Knowledge – the ability to generate new knowledge, to reinvent past knowledge, and to apply knowledge to business practices – is the new source of competitive advantage for this industry.

Entry to the Setting

In my recent capacity as Executive Director of the Lancaster County Agriculture Council and now Special Assistant to the PA Secretary of Agriculture, I have had close contact with many of the folks who are technical experts that support the communities of practice in the poultry industry in the region. The County extension agent and the faculty member in poultry sciences in the area, the Chief Operating Officer of the largest feed mill in the County that services the poultry industry, and the Production Manager of one of the large feed providers helped me identify a list of poultry farmers in south central Pennsylvania.

I used the contacts identified by these “gatekeepers” (Creswell, 1994, p. 148) to introduce me and the project through e-mails and telephone contacts. The people that I contacted were enthusiastic about being involved and my list of participants filled quickly.

Marshall and Rossman (1995, p. 60) note that "the researcher may plan a role that entails varying degrees of "participantness" - that is, the degree of actual participation in daily life. At the one extreme is the full participant, who goes about ordinary life in a role or set of roles constructed in the setting. At the other extreme is the complete observer, who engages not at all in social interactions and may even shun involvement in the world being studied. And, of course, all possible complementary mixes along the continuum are available to the researcher."

In this study, I leaned toward the observer end of the continuum. The heart of my interaction with participants was interviews with poultry farmers. I initially started with all poultry farmers as prospective participants but, eventually, narrowed the prospect pool to farmers who have contractors with integrators in the broiler industry for the sake of consistency. Interviews varied from 45-75 minutes and occurred in a mutually agreed upon location that was appropriate with regard to confidentiality and comfort.

Marshall and Rossman (1995) observe, "The ideal site is where (1) entry is possible; (2) there is a high probability that a rich mix of the processes, people, programs, interactions, and structures are present; (3) the researcher is likely to be able to build trusting relations with the participants in the study; and (4) data quality and credibility of the study are reasonably assured" (p. 51).

Data Sources and Collection

Sampling

Using a sampling approach that focused on purposeful sampling, I eventually found "information-rich cases" (Patton, 1990, p. 181) to examine in depth.

I began with poultry producers who are a part of the poultry industry in the south central region of Pennsylvania and who have a contract with a vertical integrator in the broiler industry. I looked for older and younger producers. I wanted participants with a more considerable level of involvement in the industry. I further attempted to find large and small operations with some geographical diversity around

the region. The gatekeepers that assisted me in identifying prospective participants were very helpful in connecting me with people who met the characteristics described above.

When I received a lead directly from the gatekeeper or as a result of an e-mail communications, I contacted the person responding by telephone and did a brief interview to assure that the farmer met the general requirements for the study, contributed to the diverse elements for which I was looking, and was open to the interview process.

Since "there are no rules for sample size in qualitative inquiry" (Patton. 1990, p. 184), I used the rule of thumb recommended by Lincoln and Guba (1985, p. 202) for size, which is redundancy. "In purposeful sampling the size of the sample is determined by informational considerations. If the purpose is to maximize information, the sampling is terminated when no new information is forthcoming from new sampled units; thus redundancy is the primary criterion."

Following that rule, I found redundancy happening very quickly. I knew that I was there after the fifth interview but added two more for a total of seven to be sure.

Participants

I had seven interviews with eight respondents. One interview had a father and son present. They were all white males. One is over 65; two are 55-65; three are 45-55; and two are 35-45. Two have bachelor's degrees; one has an associate's degree; three are high school graduates; and two did not finish high school. Their farms are in different areas of the region. All but one of the respondents has been in the broiler production business for more than 20 years.

Every story of each respondent is a little different but they do have some things in common. All of them grew up on farms. All but one worked in agriculture when they decided to get into contract broiler production. The exception was in the building contracting business. Several were involved in the dairy industry and continued in dairy, adding broiler production as a sideline; several went directly into broiler production, which became the mainstay of their career. Others were in beef or pork production. Five of the seven respondents started with an integrator in the 1990's. There was broad agreement that these were the golden years; contracts at that time favored them and were "lucrative".

Most went into the business with the emotional if not financial support of family. A few used land that had been in the family. One actually went against his parents' wishes, farming instead of going to college. One started his business with relatives while in college; another college graduate got into broiler production later in life when his farming operation bought a property that had chicken houses on it.

The quotes that follow are from the interviews and illustrate the perception of the respondents as to their situation when they went into the business.

When I went to high school, my parents were adamant about me taking college courses, and I had to because they told me I had to. I didn't want any part of it. As soon as I got out of school, I started farming on the side, and I knew that's what I wanted to do. As a matter of fact, when my wife and I bought that farm in 1982, I didn't tell my parents I had bought the farm until after I bought it. Not that there was any friction, because my dad was right there after we did it and was helping. But it was just the idea that you couldn't make it. (R1, p. 103)

"Well, the way I got involved is it would've been around at that time about 1989, 1990. I graduated from Penn State. I decided to decline on some other job offers and come back to the family farm. At that time, dad and uncle were in a partnership together, and I was working for them, but decided I wanted to get involved in something myself. So I built a single broiler house on contract with a large company.... So I built the first broiler house then shortly thereafter". (R2, p. 104)

"Feeding beef cattle and growing tobacco, and then the tobacco price crashed and I worked away part time. And then to look for something to replace more outside job/tobacco, I was looking at contract...layers or broilers and I got in. I kind of decided I liked the broilers. And then about 10 years ago, I got in the organic end of broilers." (R3, p. 121)

"So my brother and I got together. And I also had another friend who had a farming background and poultry background and grown up on a poultry farm. So the three of us formed a partnership and decided that we wanted to build some additional houses." (R4, p. 132)

"We did it part time. When we first started here, we were two houses, and I had pretty much a full time job. My wife took care of it. It was supplemental income at that time." (R5, p. 145)

“We bought into it I guess is the best way to describe it. Back in I think it was about 2003 we purchased the farm that was already set up with four broiler houses and with a contract with (an integrator).” (R6, p. 162)

“I grew up on the farm. I've known it ever since I was young. When I was a senior in high school, we expanded the operation to accommodate me coming of school. It gave me an opportunity to stay on the farm.” (R7, p. 174)

Data Collection Process and Techniques

In-depth interviews with a sampling of the participants were the primary source of data collection in this study because of the ability of this method to "uncover the participant's meaning perspective" (Marshall and Rossman, 1995, p. 80). Interviewing or "conversation with a purpose" (Dexter, 1970, p. 136) is firmly established in ethnographic research. Guba and Lincoln (1981, p. 155) emphasize the importance of this method when they write, "The ability to tap into the experience of others in their own natural language, while utilizing their value and belief frameworks, is virtually impossible without face-to-face and verbal interaction with them."

Following Patton (1990, p. 280), I used a "general interview guide approach" to interviewing. I put together an interview guide in advance of the contact with the interviewee to function as a framework for the topics that I covered in an effort to bring some standardization to the information that I request from folks. I used the guide flexibility with regard to wording, timing, and the order of the questions while taking the time to probe further if the situation warranted it.

In this study, the issue of building rapport quickly and getting to the more important question of the study regarding the actions of the participant in relationship to their contract with the integrator seemed to be a key one. The selection process that I used, which relied on gatekeepers as key facilitators, built a certain degree of personal credibility related to my trustworthiness. I put questions into the early part of the interview guide (Appendix A) that encouraged the interviewee to talk about themselves and their experience in getting started as a producer before moving to more specific questions about their practice.

Other questions in the guide explored the interviewee's sense of success and failure, their perception of change and crisis, their perceived involvement in innovation, the way they are preparing to bring new family members in to the business, and their overall perception of the direction of the industry. I wanted to get interviewees talking about the people to whom they turned for help along the way, in general, and around more specific issues that come up in practice (animal health, environmental concerns, animal welfare, marketing, and construction).

I found the guide to be very important in providing consistency in the issues that I explored with the producer while, at the same time, allowing for flexibility of response on the part of the interviewee.

As I got into the interviews, I actually found that getting the respondents to talk about their relationship with their integrators was really not much of a problem. They usually brought it up as a part of their answer to the question of how they got started in the business.

Every interview was tape-recorded and transcribed verbatim. In order to guard the anonymity of the respondent, I edited some potential identifying information from the transcript. These items included the name of the integrator, the location of the farm, and the nature of the side businesses in which the producer is engaged. I used a professional transcriptionist for the sake of consistency of the narrative record and found her to be overall very accurate.

Data Analysis Procedures

I used the NVivo tool as a way of helping me to organize the data and do some of the tasks mentioned by Marshall and Rossman (1995) electronically. They include "organizing the data; generating categories, themes, and patterns; testing the emergent hypotheses against the data; searching for alternative explanations of the data; and writing the report." (p. 113)

NVivo allowed me to define nodes, which are reflective of thoughts that occur in the narrative. I developed nodes freely, at first, not knowing initially whether they would connect with thoughts expressed at other points in the interviews. Gradually, in reading through the interviews, it was clear that the thoughts in some of the nodes were much more prevalent than in others. There were 24 nodes that

emerged which had thoughts, which crossed across more than two interviews. They are the ones that I chose to use to organize themes.

Using my three research questions and the questions from my interview guide, I began to think about how to organize the nodes into themes.

One of the eventual themes revolves around information that the respondents shared about the business itself. I called that The Contract Broiler Business. It has contains specific information on the business itself, including the terms of the contract, the life of the growing cycle, the financial arrangements, the differences between conventional and organic chicken, and the role of competition among companies in the industry.

Another theme addressed a variety of topics regarding how a producer enters the business. This included information on how that particular person got into the business. However, it also included a great deal of information on the relationship with the integrator including what information and technical assistance was provided and the source of technical information beyond the integrator as well as the perception of the interviewee of the relative advantages and disadvantages of the contract relationship.

A third theme seemed to be concerned with how one becomes and stays successful in the business once they are established. The nodes here were wide-ranging but the common theme was overcoming threats and doing the things that ensure success. Topics include the role of energy, best management practices, dealing with conflicts with the integrator, handling things that are out of one's control, and meshing the poultry operation with other aspects of the farm. Interestingly enough, learning was a specific node that was highlighted in this theme.

Change and learning from it was another theme. Here, the nodes focused on where does the producer get good information, what is the relative value of formal knowledge providers (Cooperative Extension and agriculture education), and things that that farmers themselves have added to the knowledge base through inventions and new best practices.

Finally, those being interviewed were very eager to talk about the future. They talked about their business, the integration of the next generation into the business, and the future of the poultry business, in general.

Appendix B contains the themes and the accompanying nodes in chart form.

This follows Patton (1990) who writes that the first step in data analysis involves looking for categories, which reflect patterns in the data. Categories are then pulled into the analysis by looking at "internal homogeneity" or the way that data in a category converge and at "external heterogeneity" or the extent to which the differences between categories are "bold and clear" (p. 403). Prioritizing among categories normally follows based on any number of criteria. Finally, the category system that emerges is tested for completeness.

Also, Babbie (1998, p. 297) mentions that finding patterns of similarity and dissimilarity is the most important part of data analysis. Lofland and Lofland (1995, pp. 127-45), as quoted in Babbie, suggest that looking for frequencies, magnitudes, structures, processes, causes, and consequences is another way to make sense of the mass of data, which has been collected.

In Chapters 4 and 5, I use the themes presented above as the outline for reporting findings and for drawing conclusions based on the findings and their comparison to the literature included in Chapter 2.

Methods for Verification

As I planned the study, I designed it so that the issues of researcher credibility and objectivity were addressed at a number of points. I used a diverse theory base with multiple lenses through which to see the data. I used interviewing in the data collection. The interviews were transcribed and I used extensive quotes in the narrative. I was fully aware of the importance of my own feelings and intuition in the interpretative process.

I was also aware of the issue of dependability or the extent to which the design and findings of the study make sense to other researchers (Guba, 1978, p. 65) as I did the design. The extent to which the process is documented, the dependability of the process itself, and the level of fairness in representing and

examining the data contribute to an internally coherent study that makes sense to other researchers. The procedures that I documented show a clear audit trail of data collection and interpretation.

In its use of many in-depth sources, this study has been designed to make it useful to the potential future user of the information that is gleaned from it. Ultimately, that user will determine the usefulness of the information gathered in this study to other settings.

This is the issue of transferability or the ability to generalize findings to other settings. Marshall and Rossman (1995, p. 144) talk about the importance of "multiple cases, multiple informants, or more than one data gathering method" can enhance the usefulness of the findings for other venues.

Merriam and Simpson (1995, p. 103) believe that ultimately it is up to the user of the information from the study to decide whether it fits in the context in which he is involved. They suggest that thick description and a multi-site design, similar to that which is used in this study, contribute to helping the user make those decisions.

Ethical Considerations

To the extent that participation in this study was voluntary, that there was little possibility for physical or psychological harm as a result of participating, that steps will be taken to preserve the anonymity of the participants, and that there is no intention or need to deceive participants about the purpose of the study, this study seemed to cover most of the ethical bases (Babbie, 1998, p. 438-443).

On a practical level, I have followed the recommendations of the Institutional Review Board in relation to confidentiality. All of the interviews use pseudonyms to identify the respondents. All of the recordings have been encrypted and the hard copy transcripts are being stored in a locked cabinet for the require period.

In the course of the interviews, however, I found that several of the respondents had some fears about their integrator taking exception to their participation in the study and retaliating in some way. Therefore, I have added some other ways to decrease the ability of an outside reader to identify the respondent. I have not included any information on the location of the farm (instead talking about a broader region);

about the other businesses that the farm operates (instead talking about this important factor in more general terms); and on the names of any integrators.

Since the unit of analysis here is not individual farmers but the group of broiler producers in a region, I had no problem making these changes after consulting the Institutional Review Board. The impact of these changes on the findings is minimal.

Chapter 4

RESEARCH FINDINGS

The purpose of this study was to further understand how farmers who are active practitioners use and produce knowledge. I chose broiler production, a segment of the agriculture and food industry, as the focus of the study because it is complicated by a business practice (contracting) that adds additional dynamics to the process of knowledge transfer and application. The design of the project attempted to engage the farmer in a discussion of these dynamics.

The Contract Broiler Business

In this study, I received a great deal of information on the way the contract broiler business works from the respondents. All seven respondents agreed on these details.

A contract between the integrator (the company) and the farmer defines the roles and responsibilities of each party. The integrator provides the young stock, the feed, vaccinations, supplements, and litter and litter additives. It also provides specifications on how the buildings are to be built, how to care for the chickens (ventilation, temperature, feed, and other factors), and how animal health problems are to be handled. The integrator also delivers the chicks and collects that mature birds at the end of the cycle.

“They tell you how to take care of them. They figure out the feed program, supply the feed, supply the chicks, supply the vaccine. Actually, they do the vaccine work. I don't have to do any of that.” (R3, p. 121)

For their part, the farmers house the broilers, regularly monitor the flock, and provide for the care of the birds. A high priority for everyone concerned relates to maintaining the biosecurity of the chicken houses to prevent the spread of animal disease. All of those interviewed mentioned the threat of disease, which would wipe out a flock, as one of their biggest concerns. Between flocks, the farmers follow the procedures specified by the integrator to change the bedding, dispose of the manure from the flock that just left, and sanitize the building in various ways.

“I have to supply the building and the labor to take care of the birds. They supply the birds to feed, and personnel to check them once a week or call if you think there's something wrong. They'll come out and evaluate and figure out what to do for corrective measurements.” (R3, p. 121)

There was some variation on the details of whether and how the contract deals with the farmer being paid for his efforts. Most of the integrators involved use metrics that often include feed conversion (feed usage compared to weight gain) as the primary factor used to determine payment. Sometimes, they also include the health of the bird, the livability (survival rate), and fuel conversion.

“So we're compared in several different areas of our production. One is feed conversion, so how many pounds of feed per pound of chicken that we're making. Very important. That's probably the number one most important thing is that we're efficient with our feed. Then, a few other areas would be the health of the bird. One would be livability – the percent of birds that are going to the plant compared to the number of birds that were put in initially. The percent condemned – if they go to the plant but they have some other health issue, we're also ranked on that. What else are we ranked on? Those items would be the big items. So we're compared in each of those categories with the other ones. And then the better we do, the higher we get paid for each of those categories.” (R2, p. 108)

Integrators normally work with a cohort of producers (10-15) when starting a production cycle. Each producer receives their chicks at the same time with the idea that doing this holds the quality of the stock and the weather constant among those in the cohort. The cohort is then judged on the metrics described above. There is an average as well as above and below. Those above receive a premium; those below receive a deduction. Obviously, most farmers want to maximize their profits.

“Every time we go out, and most contracts are similar, they're not all the same – basically, it's almost like grading on a bell curve. You are paid on a bell curve, basically. There's always an average pay rate that you receive. If we go out say this week, there may be say 15 farms that go out this week. It usually varies in that neighborhood – 10 to 15 or so. So if there are 15 farms that go out this week, they will rank each and every farm based on how well they did on feed conversion, how well they did on their propane usage, how well they did on livability. The top of the bell curve is kind of the average

pay the way I look at it, and then essentially you're going up or down based on whether you're better or worse than the average grower in that particular week." (R4, p. 134)

"Per house, it will hold 26,000 birds. It could easily vary depending on the spread of performance. If everyone's really close in performance in the group, it may only vary \$1,500 if all the houses were the same number of birds between the top and the bottom. But if there's a real poor performer and a really excellent performer, that could go up to four thousand dollars' difference in pay per flock." (R2, p. 109)

There was some variation among the respondents relating to the amount of time that it takes to raise a flock, much of that depending on whether the bird is being raised organically or not. Most are in the 45-49 day range and produce 5-7 flocks per year. The time between flocks also varies depending on the market needs of the integrator. Producers know when the market is soft or booming.

"The birds are in anywhere from at the low end 46 up to about 54 days. That would be really long. And your down time in between is anywhere from minimum one week to three, four weeks I guess at the maximum." (R6, p. 165)

"We'll do a lot of heating that first 14 days of that chick. Once that bird hits 10 to 14 days, we need to give them more room. Competition for the feed and water is a big indicator at the end of the flock whether or not you stressed them out. If they have any resistance to feed or water, it will show up at the end of the flock. So I'd say between 9 and 14 days, they move into the extra area where they can start growing. We only use half the barn to try to conserve a little heat. We only heat half that barn to start. We move them at 9 to 14 days into the rest of the barn, and then just make sure that their stress levels are nonexistent. We constantly have to move the waters up as they grow. Feeders have to go up as they grow. Ventilation increases. In about 47 to 49 days the majority of the time is when they move out." (R7, p. 180)

All of the respondents agreed that the primary advantage of contracting is its reliability and stability as a money-maker. However, one respondent also mentioned the considerable information that the integrator provides in its "52 page" manual.

“By raising chickens on contract, the pros, the benefits of it is it’s steady. It’s steady. You’re always making some money. So you can count on the income if you’re with a reliable company. You can count on the income year in and year out. And it’s very systematic. You follow the protocol. You do the same thing. As long as you sense the chickens that they’re healthy and everything, you should be able to consistently bring in a fairly set income, but not totally set.” (R2, p. 106)

“So that vertical integration that happens in the poultry industry really allows for a lot of the things to be extremely organized. And it takes some of the volatility out of the business as well.” (R4, p. 133)

“It’s been a stable business. I think one thing with broilers, I have family in dairy and I’ve got family in construction. And what I see watching the dairy and construction, they have their tremendous years and then they have years where it’s thin. And with broilers, it’s hard sometimes to watch that because you don’t have those huge years. You can fluctuate your income maybe 20% from year to year. But at the end of the year, as long as there isn’t AI or avian influenza, you know at the end of the year where you’re going to be which is a good thing. But sometimes, as just entrepreneurs, you want to have that better year. So that’s a big difference with broilers or contract farming compared to being independent. We always call it boom or bust.” (R7, p. 184)

On the other hand, all of the interviewees had comments about the downside of the business. The one most mentioned was fear of losing the contract because of disagreements between the integrator and the producer over the way the contract is being fulfilled. The questions related to relations with the integrator raised negative feelings among every one of the respondents including several that reflected a kind of helplessness. Some respondents tied this situation to the lack of competition in the business.

“If you’re not with a reputable company, maybe making a big investment and losing your contract. We didn’t ever feel threatened with the company that we were working with on losing the contract. But if we read the language of the contracts that we sign, it basically leaves an out there that if you’re not performing, they can cancel you. They’re not committed to you for 10 years or whatever you need to pay your house off. If they define your management as being poor or low-quality, you could be dropped. So that could always be a threat.” (R2, p. 107)

“One thing I have learned with the integrators, and understand why they do it, they're constantly tweaking and changing and so on, and many times we are the Guinea pigs, and sometimes to our detriment. So I've learned to be a little cautious when making a big leap. I fight that a little bit more than maybe I did in the beginning wanting to do everything they asked. Now I'm a little cautious because they'll tell you to do something, and then six months later they'll scrap that idea after you've invested X amount of dollars in it that you essentially wasted because it didn't work. Well, that doesn't work so well.” (R6, pp. 162-163)

“Not really because they holler at you – they want it their way. I'm actually kind of a slave to them.” (R3, p. 123)

“But the downside is increasingly there's been a lot of consolidation in the industry. So these companies you're working with now are huge and multibillion dollar corporations. So what they say pretty much goes. So you don't have a tremendous amount of input. In fact, that's been a frustration I'd say of producers and farmers in the industry. And that has kind of had its ups and downs over the years, depending on the environment and the market cycle.” (R4, p. 136)

Producers are acutely aware that competition among integrators in the region improves their situation. There are four broiler integrators in the region; two support conventional birds while two are organic. Some of the farmers have changed integrators. They all know fellow growers that have made changes.

“And over the years, there are some growers that jump ship and go to another company which, hey, that keeps companies honest. They realize a few guys are gone, so they realize they'd better step it up if they want to keep people.” (R2, p. 115)

“We don't have choice integrators like the Eastern Shore. We used to have no choice, I felt, until (integrator) and (integrator) expanded. We felt like we were tied in. Now we have a little bit and it definitely feels different that the integrators want you, they want the grower. That has felt different that it had in the last 15, 20 years. There's a little competition among housing right now, and that's a good place for a farmer to be.” (R7, p. 183)

“It has been a good thing, though. Lately, there's been some competition come in with different integrators, and that's been healthy.” (R1, p. 93)

Learning the Business

In the early days, many of the respondents were attracted by the turnkey nature of the operation, by the experienced-based guidance of the integrator, and by the ability to get started with a minimum of complication. The codified knowledge offered by the integrator was a positive.

“Then once the house was built, then the serviceperson from the broiler company would train me on first of all how to set the house up, how to place the feeders, where to put extra feed out to get the chicks started, and how to do that, the height of the water line, and how much bedding, and how to distribute it, how to set the fans, how to set the heaters, how to... Get the most efficiency out of your feed by their temperature control (second respondent). Right. They had guidelines, exact charts where we'd set our computer controller up to change the temperature in the chicken house every day to match the age of the chicken.” (R2, p. 104)

“The company was really good at training us and working with us, holding our hand to get us started. And that not only benefited us, it benefited the company.” (R2, p. 105)

“By the time we got involved in the industry, it was very organized. And they had specs on exactly how they wanted the houses built, how they should be built, specs on exactly what your income would be on average, and what type of work you needed to do. So it's very helpful. It's almost like a franchise type environment where they come in and help you with all of the big things. And to the large extent, the whole meat bird industry was moving in that direction such that you couldn't really go out – it would be very difficult to have a meat bird industry on your own. So you had to work with a company that was in that business to be able to be participating in the meat bird industry.” (R4, p. 133)

Each of the contractors had other sources of information that came from their social network as they got started in the business. Builders, equipment vendors, and other growers were among those that the respondents felt were most important.

“Well, the integrator would contact us. And then there might have been some help from Extension, but not a lot. Basically, you had to do your own research. You went to other growers, asked them, saw their operation, asked questions. Just like anything, you've got to research it yourself.” (R1, p. 92)

“Well, there were a few other people that I knew that were growing broilers at that time, so I had some questions for them whether it was something that I really wanted to get involved with initially, and that was helpful, basically other growers.” (R2, p. 104)

“My brother is a good bit older than I – he's 7 years older than I, and the other gentleman we were working with was older than he. Both had some business experience and business backgrounds, so it was good opportunity for me to really learn and be able to work with someone else who had a good bit of business experience. So I was able to really gain a tremendous amount of learning through that relationship.” (R4, p. 132)

“I always say it's very rare that you're the first one to do it. I feel like I have a circle of friends. Fortunately enough, I have three guys – I have friends from high school that are in the business. I have a circle of friends that several of us are doing broilers. So a lot of times, we'll bounce stuff off of each other.” (R7, p. 178)

Being Successful in the Business

I asked producers how to be successful in a business that has so many rules. They told me a variety of things that they have learned over the years as they shared their experiences. So many of these items involved a willingness to learn from experience and from others. They included dealing with conflict with the integrator; using good management practices; innovating, particularly related to energy costs; and adapting to change.

Managing Conflict with the Integrator

Every interviewee had examples of conflict with the integrator where the service technician was often at the flash point of the disagreement. Several spoke to the absolute power of the integrator (summarized above under The Contract Boiler Business) but several others spoke to the ways that they worked individually or with other growers to communicate with the company.

“We had different service men with different ideas. But usually they're right because they have the upper hand...Yeah, you have to somewhat follow what they say.” (R3, p. 127)

“Hey, here's what we're seeing. We'd like to try this. Would you let us try this and see if we can do a better job? Everybody wants to do a better job. But we have to get the blessing of the integrator....” (R1, p. 99)

“ Sometimes the company would ask you to do an extra thing that would require more of your labor that they felt would somehow benefit the chicks that maybe you didn't totally agree with that. And also it was requiring more labor, and you didn't really get paid for it. So you always had to work through some things like that.” (R2, p. 115)

“I've never had an issue where we actually went to the company and filed a grievance but I have already gone above that person and questioned it with their superior, and they were pretty noncommittal on it which I guess I kind of expected. But it generally got results. With the current integrator we have, the person that you talk to that's kind of overhead is fairly responsive. Even if you may not agree with each other, he's more than willing to explain their point of view and so on. I can't say that I have a huge problem there.” (R6, p. 164)

“And with anything, you're going to have differences. But you work through them, sometimes not to your benefit but you just suck it up and move on and realize that you do have a contract that's steady. ” (R2, p. 115)

Using Good Management Practices

When I posed the question of how they differentiate themselves from the other producers in their cohort, all of the respondents had specific suggestions for how they make that happen. They tend to refer to these as management practices. Some of them are technical and some of them are more experiential, based on what they have learned in their practices over the years.

“You have to do a good job managing it. It's like any business, it's the fine details that put you at the top. So if you pay attention to details, you're going to do alright.” (R1, p. 94)

“There are some things. You can to learn a certain amount from your contract company and your service man. But sometimes you like to share with other producers what tricks they’re doing or what management schemes they’re doing that are making good birds all the time. And some of that can be in your litter management. Most broiler guys with our company recycle their litter. So you don't totally clean out every time.... Finding that exact recipe of ventilation, that's sort of a customized thing on each farm depending on your fan’s setup and the way you have come to learn the way air flows through your house. There are some management tricks that you can learn over the years to improve that. I've totally changed some ventilation things over the years just due to what I've learned, probably more so from other growers than the company. (R2, p. 110)

“Yeah, we basically had guidelines the whole way through as to how to adjust the temperature of the heat, and how to not only have a chart on how to set the fans and the ventilation, but also be able to tell by smell. If you had need to get a little bit more ammonia out of the chicken house and get the air fresher, you sort of learn over time by your nose as well. So you use a combination of technology, but there’s still, you want to always use your own senses too to know if the chicks’ eyes are going to be watering or if you’re going to be burning their eyes. So those are things you learned as you went.” (R2, p. 105)

“What I always tell the guys is feed conversion is huge. But when you go in there, you've got three things that you're thinking about when you go in a chicken house and are walking through and looking at it. You've got ventilation, feed, and water. Those are the essential three things for a chicken. Ventilation and environment kind of covers a lot of different things. There have been countless books and articles written on it and studies done by it. University of Georgia does a study every month where they release findings. There are so many things that tie into that, but essentially it boils down to those three main things – your ventilation environment, and then feed and water.... So it gets very, very scientific. Some of it's learning, a feel for what that looks like. There is a cost and a cost benefit with every decision you make and how much feed you put out for a chicken. Do you put feeder trays out, do you put extra feed out? Do you adjust the height of the feeders? You want them to

have ample access to feed, but you don't want them to waste feed by kicking it into the litter. There are these cost benefits that you have to do constantly and make judgment calls.” (R4, p. 135)

“What I've found out in transitioning managers is pay attention to the details. Be in the houses three or four times a day or more. When an issue comes up, take care of it now, not later. Just constantly be adjusting and making sure that everything is right. It's just a matter of paying attention to the details.” (R6, p. 164)

“We think it comes back to *doing a thousand little things right (emphasis added)*. It's not one thing. We've learned that over the years. We've tried this and we've tried that and it's hard to put your finger on it. I think any integrator or any farmer will tell you that. And the top growers, I think they're honest with you when you talk to them on what they're doing. They don't know what they're doing. But at the end of the day, you talk to their service man and their service man says they just know their chicken. They know, they can see stress on a chicken when they're walking through. They're constantly changing ventilation. They're always adjusting. You're always tweaking something. And at the end of the day, you're not going to be on top of every flock because there are some things out of your control. But consistently at the end of the year, it seems the same guys are at the top.” (R7, p. 175)

Two of the respondents reminded me of the things that you cannot control no matter how good the management practices of the producer might be.

“But there are a lot of times when you may just get a crappy batch of chicks from the hatchery and you've got to deal with them. That sometimes can be the frustrating thing. From one flock to the next, you can do the exact same thing management wise and you have a number one flock and you're down low on the list the next flock, and you did the exact same thing. It's just sometimes due to things out of your control – the quality of the chicks or it could be some weather events if you don't properly manage through them.” (R2, p. 109)

“A lot of it is difficult because every flock is different because the weather is different, the environment is different. By the time next year rolls around – we have three-week-old birds for example right now to the home farm. Next winter, we may have a cold spell when we have one-day-

old chicks. Well, that's a totally different set of circumstances that you're going to have to manage for. That's what makes the difference. There are so many variables and there are so many different things that interplay that you've got to constantly be adjusting and changing and tweaking to get to the optimum level of performance. “ (R4, pp. 135-136)

Innovating

In the group of respondents with whom I worked, most of the folks were positive when I asked specifically whether they had ever invented anything. A few were more reticent and talked about their innovation in the course of describing how they cope with change or in lessening its value (as in just tweaking).

“And we get out a lot in other operations, and if there’s something interesting happening somewhere, we like to go see it so that we can learn. We're learning all the time. And if we see something good, we say that's great. But if I had it, I'd just tweak this a little bit. So we'll take that back and we'll tweak a little something and do it on the farm here to make something pretty neat. But I can't claim it as an original because a lot of times, we're borrowing other ideas I guess.” (R2, p. 118)

“Just maybe tweaked some things to make them work better. I never really looked at myself as an inventor.” (R3, p. 128)

“I think the greatest success has been the fact that we've been able to be creative. We've been able to take some of these regulations, for example, and think creatively outside the box. We've put in a gasification system that turns our poultry litter into an energy generator. So we're turning a liability into an asset. And so some of those things that have perhaps been threats have become opportunities. So we're trying to view those things outside the box.” (R4, p. 139)

“Oh, definitely. Yeah. Definitely we tweak stuff. I would say some philosophy that we kind of have is we're not out to be the first person to do it. We like to be second. The first person spends a lot of time and a lot of money going through trial and error to figure something out. We're early adopters but not the first adopters, put it that way. With the diversified operation we have, it's probably we don't

have the extra time to be doing some of that stuff. We like to have the latest and greatest, but we'd like to have it if it's proven.” (R6, p. 171)

“Farmers, we always think we can figure it out some way or another. We like the trial and error. We're not scared to try something new. Even now, we still try something new. That's hard to put a finger on whether it works or not, but it always feels like you're trying if you're willing to do something different.” (R7, p. 178)

Specifically, I was very interested in the innovations in energy generation, usage, and conservation that the respondents shared. Most of this revolved around the interest of the producer to cut costs and increase his profitability in an area where there was some flexibility in their contract. The producers where energy was not a part of their contract were more aggressive in pursuing energy innovation.

“Well on both our chicken houses, we have solar power. Quite frankly, the solar power is probably more income than the chickens.” (R1, p. 94)

“Another thing for more profit is what you're after is what are you paying for electricity, who are you buying your gas from. We just put in natural gas lines, so we're going to change over to that. That should make a difference in profits.” (R2, p. 110)

“Every broiler company may handle utilities a little bit differently. Our utilities are not paid for by our contract company. So anything we can do to save on heat costs or on electric costs is a benefit to us. So we always strive for energy efficient light bulbs whenever we upgrade anything as far as fans. We try to go energy efficient with the motors. Now we're looking at, of course, on the heaters, they're converting from propane to natural gas for a long-term cheaper fuel source, cheaper heat.” (R2, p. 110)

“I'm still learning. For the time I put in and what I get reimbursed in propane, it's about to break even. It's not a profit-making machine. But that's what I'd like to see with having a market for my ash, and a nutrient credit market which is all something that isn't established yet.” (R3, p. 123)

Managing Change and Learning from It

When I asked about changes in the boiler contracting business over the last 20 years, the list that was gleaned from the participants tended to focus around these themes: less profitability, longer time to

recover one's investment, integrator responding to the consumer with a better quality product, more efficiencies in the production process, increased biosecurity, less use of vaccines and antibiotics, and an increased size of broiler (and other) operations.

“Over time, we got one pay raise in 20 years. And we got stuff taken away from us. They used to pay our fuel. They no longer pay our fuel. We pay our fuel. So if it wasn't for the fact that the houses are paid for, I'm not sure I would build today.” (R1, pp. 92-93)

“The downside, the biggest thing I've noticed over the 25 years that I've been raising chickens is, now, it takes a higher investment to get started in building the building and putting the equipment in. And now unfortunately the state puts higher requirements on us as far as storm water management and all the other things that go into building a building. So now, the total cost to get started is higher in relation to the income. So what it does, in essence, makes a longer period of payback for your investment. So we're only talking about just a small steady income with broilers. So if you're pushing the pay back from 10 years to 15 or even 20 years to pay off your initial investment, that does not make it as attractive.” (R2, p. 106)

“A lot more bio security, animal welfare audits. Being since I'm in the organic business, I go through a couple of animal welfare audits, an organic audit.” (R3, p. 122)

“They have actually just changed breeds here. And with the new breed, it's done a lot better. So I'm thankful that they're doing what they can to make things better.” (R5, p. 149)

“Ventilation for sure. The tunnel ventilation was huge. When we built our third and fourth barn, we put tunnel ventilation in all the barns, the first two in '91. That totally changed how we handle our summer time. The other thing would be the water nipples. I wasn't around when we did that, but my dad talks about that just totally changed growing chickens – much drier barn, our weights improved, just the health of the bird, a lot less work. So that was huge. So ventilation and the water definitely changed. Feed delivery has not changed a whole lot. Probably the computers – the computers that control the farm, every fan used to be on their own thermostat. Now the ventilation and heat all work together, and that's been huge. You can really manage a barn.” (R7, p. 177)

“In specifically the broiler industry, one trend is phasing out vaccinations and antibiotics. Twenty some years ago, we would always vaccinate every flock. And if the birds looked at us funny, we were running penicillin or something to them to knock it out before it happened. Now, we don't always vaccinate every flock. They come in whenever they decide to vaccinate. Like the flock we have in now – well, the last flock was not vaccinated. And they made it okay. This is a vaccination at the farm. Now, there's still a vaccination going on at the hatchery. Now the trend is those birds have to be really getting ugly to treat them with an antibiotic in the house because our company is striving to be more of a natural bird. So it's been a long time since we ran any antibiotics in the water lines. That's a big trend.” (R2, p. 110)

“The trend has been to larger farms in general. Back when we started, most farms were one or two-house farms. There were a few multi-house farms, but now it almost seems like the one or two-house farms are the minority. Now there are a lot of four, six, eight, I know one farm that has 17 houses. So the trend's been a little bit bigger, but it's all to gain economies of scale. With one person, you can check a lot of chicken houses if that's their fulltime job. If you have a windrower, you can do 17 chicken houses with that windrower and spread that investment out, versus two. So guys are finding that they can set up and hire a full time guy to do the chickens or something if you have enough houses to do that. So you can specialize a little bit more. Whereas, if you have one or two chicken houses, 90% of the time somebody has another at least part time job or another thing going on off the farm work or other work on the farm.” (R2, pp. 110-111)

“I would say one of the big things that changed from the last integrator, it went from them pretty much taking care of all the costs. The return was fairly good. And that slowly got whittled away and actually precipitated the change to organic and the new integrator who kind of took back more of the costs that they were handling. I would say it's definitely been a good move, but there are challenges. There are challenges with organic. You have some enteritis issues that were easily taken care of with medications and not so easy without. So you have to allow kind of the process to take place and you sometimes lose – we haven't had a big issue, but I know folks that have.” (R6, p. 166)

“If I look at the last 20 years, it seems everyone's marching and getting bigger, and the smaller guys really have a struggle in getting started now. Towards 20 and 25 years ago when I was starting, there were a lot of single one-horse farmers. That's really changing here in this area – bigger operators that farm more acres. They have all their animals at one place. I see the trend continuing for that.” (R3, p. 129)

“I'd say margins have gotten tighter over the years as well which requires more volume which happens I guess in a lot of industries that the challenge is in agriculture that sometimes big is viewed as bad. So if you want to continue to grow and expand and do well in agriculture, you're going to have to continue to expand because margins just continue to get squeezed. It's just the name of the game.” (R4, p. 138)

I also probed the respondents to find out what experts outside of their operations that they rely on to assist them in confronting unique situations including animal health, environmental regulations, construction of buildings, and others. They told me about a broad network of people who are a source of knowledge that they tap almost constantly.

Animal Health

With the threat of avian influenza (AI) on the mind of every poultry producer in the country after the recent major outbreak in the Mid-West, animal health – preventing it, stopping it if it occurs, and recovering from it – is on the mind of every poultry farmer in the country, including the respondents in this study.

“It's mostly integrator, but it's basically what you read about. A lot of it comes out of Extension. I think Extension is doing a pretty good job. But what people don't realize, well most people don't realize, there's never been in this last go around, this past year out in the mid-west, there has been no broiler flocks affected. It's all layers and turkeys. So it's a different strain. Not that we don't need to take precaution, but it's not as big and blown up as we make it out to be for the broiler industry.” (R1, p. 95)

“With AI, we get a steady flow of information by email alerts and what not from our broiler contract company. But we're also in tuned with the department of agriculture, and I'm happy to say Pennsylvania is very proactive on that, and Russell and all you guys up there.” (R2, p. 112)

“From my integrator, and I'll read what the Lancaster Farming says.” (R3, p. 126)

“They are probably the primary source. They're sending us email updates all the time. Penn Ag locally, I'm linked in with Penn Ag online so we get email updates on them. I'm also linked in with some veterinary people, so they send out periodic updates. So a lot of it is technology driven, email updates, that sort of thing.” (R4, p. 140)

“Pretty much from the meeting we had at the Farm and Home Center. I appreciate that, that those guys shared with us what needs to be done and gave us a heads up on the severity of what this could be. So it was really nice to hear that. I had seen a lot of people I knew in there that were grateful that that happened.” (R5, p. 153)

“Well, I would say definitely the Pennsylvania Department of Ag is the organization that's leading that. They seem to be out ahead of that. Pennsylvania many years ago of course had Avian flu and I think learned from that, and also had the opportunity to watch the folks in the Midwest make a lot of mistakes and learn from that. So I think we're ready for it. We'll never be ready for it, but if it comes I think we'll be more prepared than maybe we would have been. I'm not fearful of it, but I understand that it's a possibility. One thing we are lucky is we are fairly isolated with our operation.” (R6, p. 167)

Construction

Many producers put poultry houses on land that they already control which means that the construction of the houses is one of the major expenses they face in getting started. An important part of the industry cluster is a segment of the construction industry, which specialized in building these facilities to the specifications of integrators.

“As far as building chicken houses or dairies, I could probably name off three or four different builders that are your primary chicken house builders. Do you want names? As far as building ag facilities and working your way through all the permitting that's involved right now, there are two

companies that I would work with before anybody else that deal strictly with agriculture and working there as opposed to going to more of a commercial type or non-agricultural developer type firms, surveyors, or engineers. I would try to stay clear of them when it comes to setting up ag facilities. Now, I've come to learn over the years I've been in business just a lot of great contacts when you're going to build something to help you, walk you through it.” (R2, p. 112)

“A lot of the contractors that are building these houses are familiar with the houses and have built a good many of them. So it does change a little bit, and there are some options that you can kind of pick and choose from, and you can come up with some creative ideas. But kind of the major tenants of the main systems of heating and the dimensions of the building, that sort of thing, are all pretty well spec'd out.” (R4, p. 141)

“They give us guidelines of what the building needs to look like when it's done. There are two or three local companies that I use that we've got onto that do the building. I buy the supplies and we get them in here and do the construction. That's been really good. We've been fortunate enough to run across a couple of construction crews that are familiar with what they're doing and they do a good job.” (R7, p. 179)

Compliance with Regulations

One of the major concerns with animal agriculture is its effect on water quality. Most farmers take these responsibilities seriously. Government regulators are always present to see that they do. The increasing amount of paperwork that is required requires farmers to either acquire the knowledge to do it themselves or to hire the expertise through an environmental contractor.

“That is not the fun part of my job but I try to stay as educated as I can on most of these things and making sure records and everything are up to date. But I do work with a firm that does my nutrient management plan that writes my plan, I, along with that company, of course have to work with the Department of Environmental Protection to comply with permits to get them approved and all of that.” (R2, p. 113)

“I'd say I fall back mostly on my agronomist. It starts with my agronomist with soil tests and field plans for fertilizer and insecticide and chemicals and stuff. I would say primarily the agronomist. (R1, p. 95)

“Four years ago, we build a litter shed for the poultry houses. That was the PENNVEST program. There were a lot of regulations with that, but it turned out well. We're storing our litter inside, which you should be. But a lot of ridiculous regulations. I will tell you unless you want to know.” (R1, p. 96)

“So that's where you have to go to one of the other two firms. Both of these firms, they'll work with building permits and storm water, ENS plans, and they both do nutrient management plans. They're sort of a one stop shop for permitting and compliance basically. So there are a lot of other individuals that do pieces of that work, but they're two big ones and I'm sure you know them, in Pennsylvania, that do a lot. For me, it makes sense to work with one that can do more than one thing. Then I'm not dealing with a million different people.” (R2, p. 114)

“We do a combination. We do a combination. We used to do a good bit ourselves. We're using consultants a little bit more, but that is something that's continuing to increase. Some things, you almost have to use a consultant for now. Whereas, before, we used to try to do as much as possible ourselves. But it's become increasingly difficult to do that, so yeah, we do have a team of people we consult with. We have a main kind of environmental consultant that we work with.” (R4, p. 140)

“We certainly have some outside consultants we work with that have a ton of expertise. But we also have folks in house that can write manure management plans through conservation plans and so on. But we also understand that they're doing other things. It's not their whole focus, so we rely on some other experts mainly not in the public arena, more so in the private consulting type folks.” (R6, p. 168)

Extension, 4-H, FFA

Within the community of practice are organizations that have a formal role in knowledge transmission. Cooperative Extensions has a mandate to bring research from agriculture laboratories to the agriculture

practitioner. 4-H and FFA offer a similar knowledge transfer function to young people. Many of the respondents have engaged these organizations at some point in their career.

“I think there's a real value to the Extension work and what they do as maybe just one rung in the wagon wheel. When it comes the poultry, I think maybe some more value comes out of Penn Ag. When it comes to poultry education, then the Extension.” (R2, p. 116)

“I think they're good feeder grounds in terms of getting people's interests piqued for agriculture because I grew up on a farm, but there's going to be a continued need for farm workers well beyond those who grew up on farms. So it allows for others to learn about agriculture and get a hands on feel for it and develop an interest in agriculture, what all is involved with it. I've had a number of workers and employees who've worked at the farm who have really been active in FFA. I think that's what's really led them to the desire to want to work on a farm is because they've either been in 4-H or FFA. So it allows young people the opportunity at an early age to get connected with agriculture and develop some interest and passion for it.” (R4, pp. 141-142)

“We have many employees that have gone through more so FFA probably than 4-H. And I definitely think that it's been a positive experience. It's given them exposure to some different things, and also given them an opportunity maybe to get involved in speaking a little better or whatever. I would have to say it's a positive influence. It hasn't been a necessary influence, of course.” (R6, p. 170)

“Probably FFA was probably just more as a unity, more camaraderie that you're in agriculture. I wouldn't necessarily say it motivated me in the poultry business. When I was in FFA, it was probably more general Ag. We were pretty diverse. We pretty much hit all the topics and did things together as a group.” (R7, p. 181)

Business Advisors

With the complexity of business matters these days, particularly financial and legal issues, nearly all of the participants engage professionals in these field to support their farming operations.

“I think in today's business, you have to have a team. So we have an accountant, an attorney, and a financial adviser, and they all have to work together. Sometimes if they don't work together, you have

to weed out the ones that don't want to work with the other one. I think that's very important today. People don't realize it, but agriculture is a big financial business like any other business. There's a lot of overhead and a lot of assets that you need to protect to go from one generation to another. So you need that team of experts.” (R1, pp. 100-101)

“As a management team, we try to go out and go to conferences. Even if it's a one-day leadership conference, you can always learn something. Any time you go to something, you can learn something, if you have to pay for it, to get the value out of it, and you can.” (R1, p. 103)

Other Producers

Clearly, one of the main sources of information outside of integrators for the participants in this study was other people in the agriculture industry. This could include family, friends, and/or acquaintances. They tend to meet informally. Much of the communication is directly related to the experience of the person being engaged in conversation with an issue of concern to the farmer. That can be uncomfortable when the parties are also competitors.

“I would say it's mostly you might pick up the phone and say, hey, to your other producer, hey, what do you see and hear? What do your birds look like this time? Did you get good chicks? Or you got bad chicks? What's your service guy telling you to do about this? So I think the relationship you have with other growers, you can ask freely, hey, how are you handling this situation.” (R1, p. 101)

“Unfortunately, you're in competition with other producers. So some producers don't like to talk to one another or give them their little secrets. But I have a good relationship with a lot of growers and we share equipment. We buy equipment together and then we share ideas, and that's healthy to do that. You kind of learn a lot from each other if you're willing to share. You have to read the latest stuff coming up, go to trade shows, see what's out there. Some of it makes sense. Some of it doesn't make economical sense.” (R1, pp. 100)

“As far as in the broiler industry, we have friends at church that have a whole bunch of houses. We have just different friends in the community. The guy that runs a combine on our farm has a couple of broiler houses. So we're sitting in there harvesting corn. We're picking our brain how to raise better

birds. So just different people we know – sometimes, you're sitting around the table for some reason or in the pickup and you just aren't saying, hey, what are you doing there with neighbors. We have neighbors in broilers too.” (R2, p. 117)

“So just conversations like that, you learn so much. It's nice to have a network that you can call. If we're having an issue with the broilers, we probably have 4 to 6 people that we could call and they'd share anything with us. And they're good growers. So that's important.” (R2, p. 117)

“Sometimes it's nice to have just a viewpoint independent of the company. I'm not trying to say anything negative about the company but usually servicemen basically have to relay what they've been told from headquarters or the person above them which that's their job. That's what they've got to do. But sometimes we can learn from other guys as well.” (R2, p. 117)

“It's kind of informal. You drive around the country and observe, hey, that guy is doing this or that and that's interesting. You meet up with them, you ask, and you go to different Penn State meetings or so, you meet different people and you hear different ideas, and you come home and think about them, and maybe that's something that I should could try.” (R3, p. 128)

“I think the whole industry is wasting a chance to learn from each other, we really are. If we could sit down and say this works for me... But you know the fact is, you're crazy. If you've got something that works, you're crazy if you share it with your neighbor. And that's a shame. In this day and age, I hope this makes your highlighted – in this day and age, that's just stupid to not learn from each other.” (R5, p. 152)

“What I've learned is you need to talk to more than one person. You'll get the directive generally from the integrator, and you need to kind of ask a little bit why. To be honest, the current integrator has been pretty good about that. You need to ask why and then kind of ask the question who else has been doing it and what's their response been, and then talk to those people. It's good to know the other growers and talk with them if they've tried it, especially the ones that maybe have been doing it a little longer. So you talk with them. Some of them, it is kind of comical sometimes. If they think they might be closing out the same week that you are, they don't want to share of good information with you. That

hasn't been a real problem. That's just been a minor problem. But for the most part, the other producers have been very helpful. That's probably your best thing because they're down on the ground. They're seeing the results, and if they've already done it, they're going to tell you, yeah, it worked. They're going to tell you one of three things – it worked, it didn't work, or I'm not sure. So if it worked, you're ready to go ahead. If it didn't work, you're going to fight it. And if you're not sure, you're going to be cautious because pretty much the jury is not out yet.” (R6, p. 167)

“Yeah, at church another guy raises broilers and he's with a different integrator, so we compare notes a little bit there. It's a little bit different, but it comes down to a meat bird and it's somewhat similar. The other guys, they raise the same with the same integrator. Yeah, if there's an issue, sometimes when we're renting equipment from each other, we're on each other's farm, we'll stop and we always catch up with each other a little bit, what they're doing, and if they've tried something, if it worked or not.” (R7, p. 180)

Other Sources of Information

Producers also read, use the Internet, and research their questions using more formal sources of knowledge acquisition.

“I think it requires an intentionality to try to learn and find those new things that are coming out. So it requires reading publications, reading research articles. I'm signed up for a number of university research articles that are released. We get quite a number of publications, periodicals. Of course, right here, a big one is Lancaster Farming. It has a huge amount of information dissected every week. And then universities, they certainly provide a lot of good information. And then just communicating with others in the industry is another, just creating that dialogue and having a mentality of wanting to be proactive. Thankfully in this area, there are a lot of people in that boat who want to do well and who want to really be at the top of their game. So it allows you for the opportunity to dialogue with those really good producers. Lancaster County is known for that.” (R4, p. 140)

“If there's an issue, I start my research. My research starts probably with a Google search, and then I'll begin to call folks that I know were connected to the issue and begin down either a rabbit trail or

they'll send me maybe to someone. I think the industry – if you're willing to do some work, you can get the answers. But you can't be afraid to initiate contacts and do some work. There's definitely a lot of good information, good advisers, knowledgeable people out there I've talked to on many issues. I've talked to folks – a lot of them in academia in other institutions across the nation, and certainly here at Penn State as well.” (R6, p. 171)

“If you have a specific question or something and you put it out there, you'd be surprised. That question, you could throw it out there through that big internet, it narrows down pretty quickly to a few resources. And most people are more than willing to talk to you and get you some good information.” (R6, p. 171)

I was interested in knowing that at least three of the respondents with whom I talked are a part of self-organized (with other growers in the region) groups. These groups meet regularly and offer the participants an opportunity to review their operations with people outside of their immediate context. The groups often have a paid facilitator but the participants drive the agenda and the goal is learning.

“Our small peer group that we call our discussion group is just basically organized by just that group of farmers and one facilitator consultant. That facilitator consultant, he's the one that sort of organizes the meetings. But we wanted to be independent of any other organizations and independent of any sales people. We didn't want it to become a group, you know, somebody come in and try to sell you on their product. We wanted it just to be a group that we break down our numbers and share them in a confidential way among each other that we can gain knowledge to better each of our operations. Once in a while, we'll pull in somebody. If we have a specific topic, we'll pull in an expert to talk about it. (R2, p. 119)

“Or we see a guy, his feed cost went way up. We put the graphs, the PowerPoint right in front of us, all the farms. If one's out of line, we're like what happened dude. What's going on? That's some story, you know. But we learn so much from it. It's a good group. But unfortunately, you have to have a small group to do such a thing. But it is a model that could be duplicated I think on some other farms

too, but you have to have a certain group of people that are willing to open up, share some numbers that they normally wouldn't share, and keep it confidential within the group.” (R2, p. 120)

The Future of the Business

When I brought up the question of the future of the contract broiler business, it was interesting to see the respondents talk in detail about their moral and ethical responsibilities. The majority have a good feeling about the business and the contribution that it makes to the health and well-being of the consumer world-wide. They seem to take pride in their role in the process. In general, they are positive about the future.

“There's all kinds of opportunity out there in agriculture, unlimited. So any young person that wants to get into agriculture, it's an open opportunity. You have to be creative. You may not be able to do the traditional type farming, but you can find a niche market that you can make it. If you put your heart to it, and your heart's into it, there's great opportunity.” (R1, p. 102)

“In poultry, we have to watch videos on occasion that our contract company sends to us and requires us to watch these videos on how to handle chickens and how not to handle chickens. So we do have some training there. And just this year, we had to watch two videos because there was a farmer in another state – they were a very good grower, but unfortunately somebody caught them mishandling their chickens on video and they lost their contract like that. And they were one of the top growers. So we don't want either of those things to happen. We don't want to mishandle our chickens, and we don't want to lose our contract either.” (R2, p. 113)

“Well, kind of along on the regulations side, you need to be a good steward of your land and you need to file your nutrient management plans. And the way you dispose of your mortality or your chicken litter is very important as well, not only to yourself. You don't want to over plow your fields. You don't want to get in waterways, etc. Also, your neighbors around you – if you're piling your dead chickens out back right next to the neighbor's backyard or if you're somehow creating flies that you could otherwise avoid by just better management, it's important to do that.” (R2, p. 114)

“The push behind the animal welfare is the food chain. They want responsibility and they want to know where it comes from. That's probably more than the integrator. The integrator is forced to do it.” (R3, p. 126)

“The ability to just grow and expand, I'd say, is an opportunity that we've had in the northeast here because there is a lot of growth in the industry. There's a lot of people eating chicken. The world consumption of chicken continues to increase. We grow the safest food in the world, and chicken is one of the most efficient proteins to grow. Between beef and pork and chicken, chicken far exceeds all the other big proteins in terms of efficiency. So it's cheaper, it's healthier, and the world continues to eat more chicken, and developing countries continue to import more. As the incomes go, there's a direct correlation between income growth and protein consumption, chicken consumption per capita. So we've gone from whatever it was 40 years ago probably I think less than half of what it is today. Today, we're around 91 pounds per year per capita consumption of chicken in the United States. That has all been an opportunity because it has allowed us to continue to grow and expand and be in a business that we feel good about, we feel bullish on for the future.” (R4, p. 139)

“I think there's going to continue to be great opportunity. I think it's going to continue to be specialized. It's not all going to be organic but I think the organic is going to probably continue to grow. There will be some other specialty. At one point, they had an oversupply of organic. So they switched our house for a turn to ABF which is essentially just no added medications and so on. I think there are niches there. The consumer does have pretty big interest in what they're eating and I guess they're voting with their purchases. I think there's still a place for commodity style chicken and so on, but there are definitely niches available. If it works to take advantage and you get a little extra, I think it's good for the industry.” (R6, p. 173)

“It's at a crossroads I think with satisfying the customers in the grocery stores perception of how that chicken was raised, and the economics of getting cheap protein, cheap broiler meat on the table. If the industry satisfies the consumer that a conventional GMO fed bird is safe, I'm concerned that natural organic is going to be in trouble. But what I've noticed the last several years of why we made

the switch is that social media plays such a huge role, and there's a social status what is put to your kids. People's kids are the variable. They will spend anything. And when they're with friends, they say they feed their kids all organic. And that perception that they are doing everything they can to love their child, just only give them 100% success, and success is such a huge driver in the American economic status. I just feel like until we have an economic downturn that we can't afford it, natural and organic is still going to be a driver. It's still a niche market. I think it'll be a long time until it's a majority. But that's where even in layers, pullets, turkeys, broilers, everybody's watching – is the consumer willing to pay that much more for a system to raise a bird that's so expensive. And at this point, they continue to move that way. But it's scary the amount of money farmers are spending to build the facilities for that natural and organic housing. It's very expensive to produce that egg and that broiler. And nobody knows the future. You deal with your current conditions now and you adapt if it changes, and that's just all you can do.” (R7, pp. 182-183)

There was some level of disagreement among the respondents about their involvement in the business in the near future. I saw the extremes from “plan according to your dreams” (R2, p. 111) to “I don’t see enough of profitability” (R3, p. 130) in the answers.

“What I've learned, whether it's in poultry or in dairy, is that you should always plan for what you dream that you can do and not what you think that you can do. Because too many times, we build ourselves into corners. Even building one chicken house and then a year later building another chicken house, if we would have planned for that second chicken house up front, the excavation would have looked a lot differently. They would have laid out a lot nicer. But we didn't have enough foresight, or didn't even plan according to your dream instead of according to what you think.” (R2, p. 111)

“I'd say we're actively pursuing growth opportunities is how I would say it. We don’t want to just try to do things that don't make sense. But yet we want to be actively pursuing growth opportunities that are available in agriculture. To grow our existing farming operations, to diversify – and we're already a diversified farming operation with the horses and other things – we want to continue to

diversify, grow our breadth a little bit, but then also continue to grow our core operation as well over time.” (R4, p. 143)

“We've been working on that. Diversity isn't for everyone. There are a lot of farmers that want to do one thing and do it well. But I think over the years, we've come to realize that diversity is our strength. We enjoy doing different things. I enjoy the chickens, but I also enjoy working in other businesses. We kind of have a philosophy. The reason for our diversification is that once the kids are of age, we don't want to hold onto the farm until we're 70. We want to be able to move into maybe pick up on that side business and allow the children to be in the farm a little sooner or partnership or however. I want something else besides the farm that I can move into. I would continue to be involved, and maybe that will create a little bit more opportunity and get the kids in a little sooner because my dad was very gracious with us in getting us involved.” (R7, p. 183)

“I see me being there in the next five to ten years at this point. I don't quite see enough of profitability in expanding in the farming end, that's why I have my fingers in the side business.” (R3, p. 130)

Without exception, the respondents are at least thinking about how to bring the next generation into their farming operation. Some have detailed plans that they are executing; some have children who are too young but their parents are thinking about how things will play out; some are kind of avoiding thinking about it right now.

“Up until 2 years ago, I was the primary guy taking care of the chickens. But now my 20-year-old son is taking over. So he's doing the majority of the labor work. He's slowly getting trained. He meets with the service man. So I'm slowly stepping back away from it.” (R1, p. 100)

“My wife and I are in kind of a transition where our children want to take over. And we told our children you're all welcome to come into the business, but you have to bring something to the table. You're not coming in here working 8 to 5 and going home. You have to bring a skill, so what's your skill? (R1, p. 101)

“If you want to be a family operation, it requires proper transitioning between family members like dad’s sitting here. And my brother and I, we’ve farmed together in partnership for many years. And then two years ago, dad transitioned, stepped back out of the ownership. Still very involved. So now we’re in ownership. But now in the back of our minds, we’re thinking about our kids. I have the older ones that are starting to go through college, and then my brothers are following thereafter every two years. So we’re starting to think, okay – we want them to do what they’re interested in. But if they do have an interest in the farm, what is the proper way to expose them – not commit them – expose them, let them develop. Or in some cases, it may be they should go off, work somewhere else, gain a skill set, come back, bring it back to the farm so they bring something back that's added value. It could be in the model. We didn't set all of that up, but we're thinking. We’re thinking, but the biggest thing is we want to allow an open door that if they have something to bring back of value and they have interest, we want a place for them. But we also are thinking if say for some dumb reason no kids would be interested, now we've structured our business in a way with LLC and some LPs and different things like that that if no family members would be interested, we could bring in a non-family member into an operating business and keep some real estate and different things separate, and have a way to keep the farm going without family members. If it came to that, we do have a plan. So I think that’s all important in the future of keeping an existing operation rolling. You have to think about those things. But it's not fun work walking through all that stuff. It takes a lot of long meetings and talking.” (R2, p. 119)

“The boys keep reminding me and I see the bills, I say man, this costs a bunch of money. And they can remind me that we’ll probably recoup that maybe in a year or the same year or double it or triple it. But the other thing is you don't want to stifle dreaming. When my dad bought the farm where I live on – I don’t know if I told you this already or not – he paid \$11,000 for that farm. And his dad told him, he said you'll never make it. So you don't want to do that. You want to dream. Until I was ready to farm, he had two farms. And he bought that at about 29 years old, and he worked for about 25¢ an hour. So I remind people how most farms are worth a million dollars today and I say how long is that

going to take you at \$25 an hour to buy a farm today? Is it possible? With a lot of work, it might be. But it's a struggle. But you've got to be able to dream because who would ever dream when I started that from 18 cows to where we are today? But I had two sons that helped to make that possible. I didn't make that possible myself. You've got to continue to dream and you've got to look for opportunities. And if it's a good opportunity, you don't want to pass it up if it seems right.” (R2, p. 119)

“We have four daughters and they're all married. No. Two of them live right next door to the farm here. They'll help me. If I want to go away, they'll check the chickens, but nothing as a fulltime. One of these years, we're going to have to start thinking about which one's going to be taking over the driver's seat in the farm.” (R3, p. 129)

“We work with our attorney and accountant. But, because I'm still on the younger side, we haven't done any huge – and my kids are young, so we haven't done anything huge in terms of the succession planning at this point in time other than kind of thinking about it, what's out there, and how do we make sure we don't take any major missteps, how do we structure our companies and our entities so that it allows flexibility for future generations. That's kind of the types of things that we've thought about.” (R4, p. 143)

“My son-in-law lives at the end of the drive, end of the road here. And yeah, he certainly helps. He enjoys it. He's busy what he's doing, so he doesn't have time to do a whole lot. But I think someday, he'd be interested, or my grandson would be interested in helping out.” (R5, p. 160)

“I actually had discussions with family already. The location is a little further away from the rest of our operations. That's been a little bit of a downside. I think there's a potential at some point, we could have a family member in there. From an overall standpoint, we have come up with a family employment policy. Next step is begin to look at a potential transition in the next 10 to 15 years possibly, but nothing is set in stone. But we definitely are looking kind of forward to that opportunity and continuing I guess our legacy. But nothing that says that that has to happen.” (R6, p. 172)

“Yeah, that's a great question. I have one boy. My brother has one boy. Our core is here on the farm. Our core businesses on the farm. We're working at that. We're trying to figure out what that

looks like. Do cousins want to work together? Can we make that work, or do we try to expand? Is it farming or is it, yeah – I feel good about where we're at. But, yeah, the future is something we've got to try to nail down the next 5, 10 years from where our boys are.” (R7, p. 183)

Summary

To sum up the narrative above, I see in the south central Pennsylvania region an industry driver in broiler production that is a part of a broader cluster in the agriculture and food industry. Four large chicken processors dominate the broiler industry and are the intermediary between the producer and the consumer. They control many of the inputs (feed, fuel, young stock, and animal health products) in the production process through contracts that they have with the poultry producers. They have also codified the techniques involved in caring for the chickens, trained producers in their use, put a staff of service technicians in place to monitor compliance, and developed methods to incentivize producers to perform well on mutually-agreed upon metrics.

Young people, most of who have grown up on farms, and other newcomers to the industry (usually people who have been in other aspects of agriculture) come to the system described above with a general knowledge of animal care. However, they rely on the codified knowledge that is presented by the integrator through the service technician as they get started in the business. Training that is primarily a knowledge transfer process from the integrator supports this initiation to the business. New growers appreciate the turnkey nature of the business as well as its consistency over time as a revenue producer. They also reach into their social network, which contains other relatives and friends who have information and other assets that they value.

As the less experienced grower works in the business, s(he) comes to understand that their revenue is driven by competition with other producers. S(he) begins to question the advice that comes from the representative of the integrator based on their own experience. They develop an understanding of the “1,000 small things” or management best practices, which make them competitive with other growers in the metrics that matter. Their circle of entities that they trust with information and experience from which they can learn also expands. They learn to resolve conflicts with the integrator; use good management

practices; innovate, particularly related to energy costs; and adapt to change. The farmer may diversify their farm to hedge on changes that could happen.

Ultimately, they look to the future in a way that includes a new generation. However, many of the people that I engaged also have a sense of how they engage a broader purpose of helping to feed a hungry world with a quality and sustainable food product. Respondent 2 summed it up for me.

“What does the future hold? Well, I guess I have to say I think the future is good in agriculture but don't ever be set on your model that you're working with now. Be willing to change. Be willing to add value. Be willing to overturn that rock and find something that you didn't see before that can turn into another enterprise on your business. Look for the area of opportunity in your business model, whether it's building another chicken house, or whether it's not building a chicken house and just doing something better, maybe putting in a chicken manure incinerator to heat your house and save fuel. Add value in some way. Save costs in some way. Add extra expertise to do a better job. Do something that's going to put your business in a better position for the long term. Sometimes a lot of our sustainability projects, we look at as long-term stability in our business. If we can be the more sustainable and the more environmentally sensitive, it means farm security for the future. So constantly looking at new ideas and not always being the first to adopt them but being a close second or third. Or after that first person learned by a couple of hard knocks, you can hopefully jump on and learn from their mistakes and improve on it.” (R2, pp. 118-119)

As I read these findings, I see learning as a major part of them. The transcript showed that the respondents used the words “learn or learning”, 66 times; the word “educate”, 11 times; and the word “training”, 25 times but only used the word “school”, 9 times. Knowledge here is codified and tacit. At some point, it is transferred (acquisitional) and the receiver is trained. However, very quickly, the codified knowledge becomes a jumping-off point for knowledge that is a result of practice and interaction with the widening social network of the practitioner (participation) and the participant learns.

Chapter 5

CONCLUSIONS AND IMPLICATIONS

From the beginning, the purpose of this study was to further understand how farmers who are active practitioners use and produce knowledge. I chose broiler production, a segment of the agriculture and food industry, as the focus of the study because it is complicated by a business practice (contracting) that adds additional dynamics to the process of knowledge transfer and application. The design of the project engaged the farmer in a discussion of these dynamics as well as how the informal learning which works off of this business practice is embedded in the informal learning that happens as a part of their farm management and professional life, in general. I was also interested in describing the social network and the communities of practice in which the farmer participates, particularly their role in informal learning.

Discussion

In the Findings section above, I reported out the themes that developed in the course of the interviews with the seven respondents. In this section, I will review the themes, offer some more analysis, and connect the content with the literature that I reviewed in Chapter 2.

The Contract Broiler Business

Following Hill and Brennan (2002, pp. 67-68) the contract broiler business in south central Pennsylvania is a “driver” of the local economy propelling the broader industry cluster, agriculture and food processing, to be one of the top competitors in the industry in the nation. “To be a driver industry, there must be competing firms in the industry segment. Competition plays a major role in product innovation, quality enhancements, the adoption of process innovations, and the encouragement of entrepreneurship....” (p. 68). South central Pennsylvania is a competitive market with at least four national competitors in the marketplace.

Integrators in the area have codified or formalized knowledge about raising broilers from the experience of their contractor network and scientific research and offer that back out to the network in the form of a contract that spells out what inputs they will provide, what tasks the farmer will perform, standards for those tasks, and how the compensation of the producer will be determined. Communication

is usually one-way (from the integrator to the producer) once the deal is struck with the service technician being the primary representative of the company. Cowan and Foray (1997, p. 595) have written about this process of codification and how it becomes repeatable and capable of being taught to other people.

Producers in this study appreciate the fact that the knowledge (codified or not) is available to them. Codification reduces the costs and improves the reliability of information storage and recall (Cowan & Foray, 1997, p. 596). Codification can reduce the costs of knowledge acquisition by those who are interested in gaining the knowledge that has been grown (Ergas, 1991; Simon, 1982). That would be the seven producers in the case of this study.

They sometimes get annoyed at the unwillingness of the integrator to involve them or even listen to them as they have ideas about how to improve the process. However, they ultimately accept the terms of the contract because they appreciate the consistency of production process and the ensuring financial rewards. Arora and Gambardella, 1995; Cowan and Foray, 1995, 1997; Dasgupta and David, 1995; David and Foray, 1995; and Ergas, 1991 have further explored the relationship of knowledge codification with technological learning and innovation.

As I look at the way the integrators use this codified knowledge, it has dimensions similar to that described by Cowan and Foray (1997, p. 598). Stable systems where there has been a substantial initial investment to build a community of agents who can understand the codes by which the knowledge flows and networks to communicate, coordinate and preserve the knowledge inputs will fully realize increased productivity through codification. A complicating factor will always be the difficulty of moving knowledge from one actor to another.

In the case of the way this codified knowledge moves to producers, it is an acquisition-oriented methodology where the agents of the integrator bring information and coach the farmer with detailed instructions on everything from how to build the buildings that house the birds to how to take care of them. This is reactive learning where the learning is explicit but takes place spontaneously in response to emerging situations (Eraut, 2000).

Learning the Business

When a new practitioner enters into this business context, s(he) comes with social capital from the social network in which they have grown up. The participants in this study all grew up on farms which means that they came to their exposure to the broiler industry with assets that others with different backgrounds would not have. Only one person among the producers that I surveyed did not work in agriculture when they began to practice broiler production.

Social capital consists of the stock of active connections among people: the trust, mutual understanding, and shared values and behaviors that bind the members of human networks and communities and make cooperative action possible. (Cohen & Prusak, 2001, p. 4)

As mentioned above, social capital is important because it allows people to resolve collective problems more easily, because it allows everyday business and social transactions to advance more smoothly, and because it widens our awareness of how our fate is linked with the fate of others. “The networks that constitute social capital also serve as conduits for the flow of helpful information that facilitates achieving our goals....” (Putnam, 2000, pp. 288-290)

Participants in this study brought social capital to the table in their new venture into broiler production and used that as a framework for learning the new business. The codified knowledge brought by the integrator was added to the social assets that the individual brought with them, replete with tradition, past experience, relationships and lots of information. Eraut (2000) describes a process where the codified learning is resituated into the depth of knowledge of the practitioner with the result of new knowledge being created.

At this point, the imagery of “legitimate peripheral participant” (Lave & Wenger, 1991, p. 29) becomes relevant. A person’s intentions to learn are engaged and the meaning of learning is configured through the process of becoming a full participant in a socio-cultural practice. The social process includes the learning of knowledgeable skills.

Being Successful in the Business

With this group, I see the ideas in the learning as development metaphor (Hager & Halliday, 2009, p. 126) as helpful as the practitioner describes engaging their context and not only using knowledge but also now creating it. Here, the learner is an integral part of the learning and what is learned, learning is seen as an evolving process that includes the learner, and learning involve the emergence of novelty as new contexts are formed.

Practices form part of a nest of concepts, which range from the particular to the more general, and that practices are layered in the sense that they overlap to differing extents. One practice is located within one nest. At a particular level, there is an activity which is nested within a practice at another level, which is nested within a tradition at another level which is nested within some narrative unity of a life overall. An activity may also be nested within alternative practices and traditions. In that sense, activities and practices are layered. (p. 180)

At the same time, the practitioner continues to build their social network and incorporate more experts, colleagues and competitors, and others into it. They seek out knowledge hubs (Evers, 2008) within their communities of practice. I saw numerous examples of how the respondents did this formally and informally as they seek more information on how to cope with managing conflict with the integrator (and competition with others), defining the core of their “1,000 things done right” (good management practices, innovation, and coping with change).

Managing Change and Learning from It

Several respondents spoke about the knowledge that they generate in response to change. “Figuring it out” may include trial and error, reviewing procedures, taking another look at the context for a problem, borrowing solutions from a colleague, or getting more information. Dreyfus and Dreyfus (1986) are helpful here as they describe a skills acquisition model where people move toward more intuitive forms of thinking as their competence grows. Also, from Hager and Halliday, “learning of many different kinds produces knowledge which is integrated in judgments, which reflect a capacity for successful acting in and of the world.” (2009, p. 145)

Building on the social network and communities of practice described above, the producer not only uses the members of those networks as sources of information but also increasingly relies on them to do tasks that are required for the business. “In 5 minutes, I could have an ag engineer on the phone or a planner or a consultant that I could hook up and before you can go anywhere, spend a couple of hundred bucks with a consultant and they'll save you thousands of dollars” (R2, p. 111).

The Future of the Business

When I asked the questions about the future of the broiler business and of their own businesses, the people with whom I worked wanted to talk about three things. They talked about the reason that they are in the business, their faith in their product and the ability to keep producing a quality product (of which they are proud), and the ability to pass their legacy to another generation. I think that this is a part of meaning-making around community. “People construct community symbolically, making it a resource and repository of meaning, and a referent of their identity” (Cohen, 1985, p. 118).

Summary

With the help of the respondents that participated, I believe that I was able to gather and share information that represents their experience and which is illustrative of a number of theories that appear in the literature. I provided more detail about the broiler industry and its role in a major industry cluster in south central Pennsylvania than I was able to find anywhere in past work. I documented details about a business practice (contracting) in that industry to which only insiders have been privy to in the past and was able to discover its advantages and disadvantages.

In the course of the narrative, I followed these seven growers from being new to the business to being fully functional practitioners who generate, use, and apply knowledge all of the time. This grounds theories of informal learning in the real world of practice. I have a more robust understanding as a result of the study of the role of social capital, particularly in agriculture, where social learning is strong and where close relationships facilitate keeping the farm business and the land itself in the family for the benefit of other generations.

There was broad agreement that there is not one thing that leads to success but there are “1,000 things done right” that make the difference between success and failure in the broiler industry. The “1,000 things” are a bit different for every practitioner but they overall they reflect a willingness to not only try new things but also be diligent in the process of doing the work every day. These best management practices evolve and help the producer do everything from resolve conflict, maximize their profit, and plan for the future.

Previously, I had a sense of the way farmers use their social network as a resource for evaluating, getting, and applying information. The study expanded my understanding of the breadth of the network and whom the producer finds more valuable than others. Several respondents mentioned the importance of including other producers in their network while also commenting on the difficulty of those relationships because the other person is essentially a competitor. I think that this is the epitome of the way knowledge that underlies an industry cluster works, expanding the tacit knowledge in the cluster and increasing overall competitiveness.

Conclusions

Coming back to the research questions, I believe that I learned more about each of the topics: (1) how practitioners construct and apply knowledge that comes from inside and outside the community of practice; (2) how social capital facilitates knowledge production; and (3) among the people involved in the broiler industry in south central Pennsylvania, what business practices, specifically vertical integration, impact the knowledge production of producers.

In learning much more about the broiler business, about the contract itself and the arrangements related to it, and about the ways that producers use it and work off of it in their practice, I also addressed the purpose of the study as originally define above.

A Broader Understanding

While this study is limited in the number of participants, I believe that it is a good illustration of the way diverse theories can be used to explain phenomena that exist in practice. Figure 1 illustrates the relationship of theories related to industry clusters, communities of practice, practice itself, social

networks, and formal and informal learning that came out of the information that respondents in this study shared.

In this study, the practice of the individual was the primary reference point from which the individual shared their experiences. We read in the narratives related to this study that their practice is embedded in a community of practice where in the course of their practice they moved from a novice to an experienced professional. This is the concept of legitimate peripheral participation (Lave) and is show in Figure 1 as a nest underlying the course of the individual's practice.

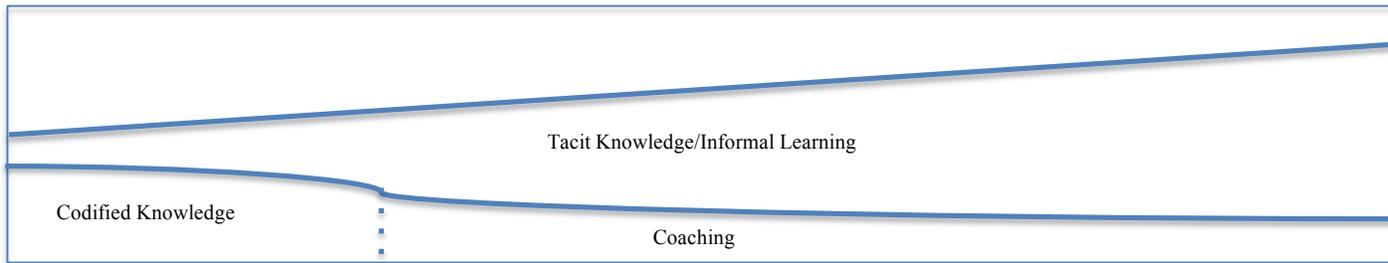
Communities of practice, in turn, are nested within industry clusters where many networks of communities of practice within industries and organizations interact to produce some good or service within a regional economy.

As described by the participants in this study, social networks (as illustrated in the middle section of Figure 1) provide one part of the backdrop for their practice. Family was a significant part of the social network of every one of the participants at the beginning of their practice and continued through the present. However, they all spoke about how their networks grew in the course of their time as a practitioner.

In addition, the respondents' description of their involvement in learning provides an overlay to the information on the development of their social networks. The farmers depended heavily on the integrator with which they worked in the early days and the used of the codified knowledge to get started and into production quickly.

As time went on, the integrator became more of a coach than a teacher, assuring that farmer complied with the basic operational practices required by the company. Over time, however, as the producer grew more knowledge, the farmer became less dependent on the integrator and relied more in the tacit knowledge that (s)he generated through innovation or learning from others. There appears to be a direct tie between expanding social networks, expanding levels of tacit knowledge, and growing experience as a practitioner.

Formal and Informal Learning



Social Networks

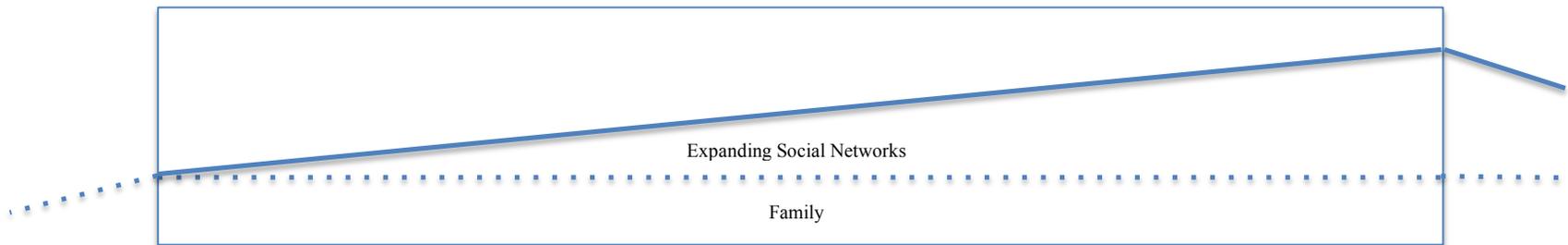


Figure 1. Relevant theories in juxtaposition to related concepts over a lifetime of practice.

Recommendations and Suggestions for Further Research

Overall, I believe that the information gleaned from this study will help me professionally as I struggle with ways to support farmers in their continuing education after they leave their formal education and move into practice. Right now, the ways to do that which come to mind are things like more work-based learning and more internships and apprenticeships during formal education as a transition to practice. Integrators actually seem to do a pretty good job of transferring the knowledge needed to do the business while producers themselves seem to do a pretty good job of creating a network that supplies them with information that they need.

With the age of farmers gradually increasing, the question of how to get more people involved in agriculture is on the minds of people who are planning for the agriculture workforce of the future. Is there a way to encourage more young people who grow up in farm families to stay in agriculture? Can we help farm families find more solutions to bringing the next generation into the business? Is it possible for people who did not grow up on the farm to become a successful producer without the deep social network that people who did grow up on the farm have?

As far as areas for additional research, the opportunities abound. If I had more time, I would have explored the “1,000 things done right” finding in light of the quality improvement movement and literature. There are possibilities for greater understanding of supply and distribution chain relationships and their connection to social networks that could have implications for economic development. It would be interesting to hear the integrator perspective on contracting (although expecting that they would share proprietary information is a reach).

Another avenue would be to drill down on the information learned about contracting. One could replicate the same study with additional producers or in other geographical areas to see if there are differences. Contracting is also a common practice in the layer and swine segments of agriculture. A qualitative study to compare across segments would be interesting. I would also like to compare industry segments such as broilers, layers, and swine with dairy where contracting is not common and which experiences more volatility in the marketplace and in practice.

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Appendix A

INTERVIEW GUIDE

1. Can you tell me how you got involved in the poultry business?
2. In those early times of your involvement, to whom did you go when you had questions and needed help?
3. As you look over your time in the business, what has been your greatest success? Your greatest failure?
4. Did you ever experience anything that threatened your business? What did you do to overcome the threat? What was the outcome?
5. Where have things changed in the poultry business over the years?
6. Do you contract with an integrator? How does that work? What are your responsibilities? What are their responsibilities?
7. When change requires doing things differently, how do you find out about new processes, products, and technologies?
8. To whom do you go if you have questions about the following topics?
 - a. Avian influenza
 - b. Environmental regulations
 - c. Animal welfare issues
 - d. Marketing
 - e. Construction
 - f. Feed
9. Have you ever had a difference of opinion with the representative of the integrator? If so, how did that get resolved?
10. How do programs like Cooperative Extension, 4-H, and Farm Shows contribute to the business?
11. Where do you meet other people to talk about the business?
12. Have you ever invented anything that helps make doing business easier?
13. What do you see for the future of the business?
14. Do you have any family members preparing to enter the business? How are you helping them?
15. How are you preparing for the future?

Appendix B

THEMES AND NODES

- The Contract Broiler Business
 - How does the contract work?
 - How does a cycle for a broiler flock play out?
 - How does one get paid?
 - How is growing organic chickens different from other chickens?
 - How does competition among integrators affect the industry?
- Learning the Business
 - How did you get into the business?
 - What information and technical assistance was provided by the integrator?
 - From where did you get information outside of the integrator?
 - What are the advantages of contracting?
 - What are the disadvantages of contracting?
- Being Successful in the Business
 - How do you maximize your profit given the restrictions of the contract?
 - What role does energy play in your contract?
 - Have conflict arisen with the service technician as the representative of the integrator?
 - What things are out of your control in contracting?
 - What are some threats to your business?
 - How does your poultry operation mesh with the remainder of your farming operation?
 - Where do you see learning occurring in our operation?
- Managing Change in the Farming Context and Learning from it
 - When things change, where do you get information to decide what to do? In poultry? In farming, in general?

- What role does Cooperative Extension play in your operation?
- What role does agriculture education play in your operation?
- Have you ever invented anything that has improved your operations?
- Planning for the Future of the Business
 - What's the future of the poultry industry?
 - How do you see the future of your farming operation?
 - What are you doing to bring the next generation into the business?

Appendix C

TRANSCRIPTS OF INTERVIEWS

Interview One

Interviewer: Okay. Thanks very much for doing this today. I appreciate it. I'm going to have a series of questions we'll go through basically, start with real general questions.

Respondent: Okay.

Interviewer: Get a little bit more specific as we go along and see where it takes us. The basic one is how did you get started in the poultry business in particular. Where were the early beginnings?

Respondent: The early beginnings were exactly 20 years ago now. The poultry business was probably the most lucrative business in agriculture at the time. It was a perfect fit for dairy farm because dairy farm, you have to be around. And it's the same with poultry. It's not a fulltime job, but you have to be around, so it was a perfect connection.

Interviewer: So you were already in the dairy business, and this was a great way to add on. And it was basically kind of a pretty easy way to expand the business.

Respondent: That's right.

Interviewer: In those early days as you were getting into it, who did you go to when you had questions or you needed help in any way? Anybody in particular, or were you contracting at that point or how did that all go?

Respondent: Well, the integrator would contact us. And then there might have been some help from Extension, but not a lot. Basically, you had to do your own research. You went to other growers, asked them, saw their operation, asked questions. Just like anything, you've got to research it yourself.

Interviewer: In terms of the connections you developed with your integrator, what kind of guidelines did they have? Did they have any specifics, the way they wanted things done, that kind of forced you to go in certain directions?

Respondent: Yeah. They told you the size of the house and all the dimensions, the air intake levels, the heating system. It had to be to their specs. You know what, there was a lot of input from the builder. I probably got the most input from the builder. They had various houses they were working on at the same time.

Interviewer: They kind of specialized in that area.

Respondent: Yeah.

Interviewer: Even in the 20 years, as you look over that 20 years, I'm speaking particularly about the poultry end of things right now, what's your biggest success and what's your biggest failure in that period of time?

Respondent: Well, the best success was getting in early, 20 years ago. It was lucrative at that time. It's not that way today. Basically when we started, the bankers would be knocking at your door as soon as they heard you wanted to build a chicken house, seriously. Because they wanted to loan you money, and it's not that way now. Over time, we got one pay raise in 20 years. And we got stuff taken away from us. They used to pay our fuel. They no longer pay our fuel. We pay our fuel. So if it wasn't for the fact

that the houses are paid for, I'm not sure I would build today. It has been a good thing, though. Lately, there's been some competition come in with different integrators, and that's been healthy.

Interviewer: Have you been with the same integrator the whole time?

Respondent: The whole time.

Interviewer: So you have a long-term relationship there.

Respondent: Yeah.

Interviewer: Any successes, any problems with any flocks or anything like that over the years?

Respondent: No, we've never had a disease problem. Early on when you first get started, you're gung-ho. And we won some environmental awards. We were in the top 10 percent for a long time, grower wise, because you're actually competing against other growers for the week. So you have about 12 growers that you compete with. Every time a flock goes out, you're competing with them. The better you do, the more you get paid. There's a base pay, but then there's an incentive to do better.

Interviewer: Does that work? Are you comfortable with that?

Respondent: Yes, and no. It's the old story of corporate headquarters – they get ideas and change things. And they're not here on the farm, and it doesn't always work in one area like it works in another area. Can I give you an example?

Interviewer: Sure. Absolutely.

Respondent: Alright probably 10 years ago, the service technician came up with the idea of when you start the birds, put a 12-foot-wide piece of paper down, 2 six-foot pieces of paper, and put the feed on that paper. Spread about 3,000 pounds of feed on that paper per house, and when you brought the chicks in, you would spread them across that paper. So as soon as they hit the ground, so to speak, they were eating and drinking. We did phenomenal with that setup. We were the first ones to do it, and we did phenomenal for probably five or six years. Then all of a sudden, corporate got the idea – well, actually, it wasn't even corporate. It was the head honcho of this particular local plant. He said, no, no more paper. And he had no real good reason other than there might have been a few people, like anytime, that didn't do it right, and they made it bad for everybody else. So since then, we haven't been able to use paper which really kind of hurt. It hurt us because it was more efficient for us to do paper. Plus, our pay back was better. You have to kind of bow to their wishes.

Interviewer: Is there any workaround for that, or you just go along with it at that point? Anything else you can do to kind of offset it?

Respondent: You kind of go along with it.

Interviewer: Okay. Because they're into houses, they're seeing it and everything.

Respondent: Pardon?

Interviewer: It's interesting, it's their guy that proposed it, and then the company comes in and takes it away.

Respondent: Yeah. There have been so many things like that. It's almost comical. They'll come up with a regulation that they'll want you to do. Just like, I don't know if you're familiar with what they call windrowing. Well, our particular integrator wanted us to windrow. So a lot of us went out and bought windrowers so we could windrow. Well then after about two years, one of the senior bosses decided you cannot windrow any more from December 15th to March 15th. Well, here we have that investment of the windrowers, and he's telling you, no, you can't do it, and if you do it, you're going to jeopardize your contract. And about two years later, now we're windrowing again year round. So it's things like that. The personal preferences of management kind of gets in the way. You have to learn to deal with it.

Interviewer: So there are a bunch of things that you really don't have any choice over. It's what the contract says. What things do you have control over? Are there places where you can make a little extra margin that allows you to improve the situation, that's kind of outside the contract that you're able to deal with in some way or another?

Respondent: It all boils down to your manager. You have to do a good job managing it. It's like any business, it's the fine details that put you at the top. So if you pay attention to details, you're going to do alright.

Interviewer: What would be some examples of that?

Respondent: Anything from the proper air flow intake, your static pressure. Make sure weather like this when it's cold and windy that your houses are buttoned up tight, that you don't have any extra air leak. Your water pressure in your lines needs to be adjusted on a regular basis. If you get a wet spot in your litter, it's good to put something in to dry it up until you can clean out. Just little stuff like that. Keep your equipment in good shape so you don't have breakdowns.

Interviewer: That's what's going to save you [Inaudible 00:10:27] all the way along then.

Respondent: Yeah.

Interviewer: You mentioned fuel not being in your contract now. What do you do with fuel? Are there any ways that you can make that work for you or is it always constantly a problem?

Respondent: Well, I finally just this year, which it was my own fault, I should have bought my own tanks – if you on your own tanks, you can buy fuel cheaper. It used to be when the integrator supplied the fuel, they got a price from fuel dealers for everybody that was more than competitive for anybody else. So you didn't need to own your own tanks because the integrator was dealing with the fuel companies, bargaining for the best price. We lost that bargaining power over time, so it was time for us to buy our own tanks, which amounted to close to \$5,000 a house that we had to lay out to buy our own tanks. But over time, over probably two years, we'll pay for that.

Interviewer: And then you've been doing some other energy efficiency kind of things too that help with that.

Respondent: Yeah. Well on both our chicken houses, we have solar power. Quite frankly, the solar power is probably more income than the chickens.

Interviewer: Is that right?

Respondent: Yeah, actually without a doubt.

Interviewer: Explain how that works.

Respondent: Well fortunately, I was able to get in early. And not only do we have the savings of electricity cost on our farm, we sell the SRECs back. And I got into the DC market at \$230 per REC. I think Pennsylvania is like 10 cents, so it's a big different. For our operation, our SRECs bring us in about \$80,000 a year.

Interviewer: So you got into that early too.

Respondent: Yeah. That's on a 257,000 KW system.

Interviewer: Cool.

Respondent: And there's no work to do there, nothing.

Interviewer: Right. Yeah, you made the investment.

Respondent: Read your meter once a month.

Interviewer: You can do that. As long as there's sunshine. Okay. So in a more general way, there are people that are probably like your go-to people for a certain kind of questions that might come up. They could be contractors, they could be your service guy, they could be a variety of people but there are a couple of topics here that we've been asking everybody about just to get some idea of who's out there that people use. I know Avian influenza is a big issue right now, and people are dealing with all the issues in terms of spreading it and that kind of thing. Who do you consider the go-to people for that? Do you get much help from your integrator, or are there other people involved?

Respondent: It's mostly integrator, but it's basically what you read about. A lot of it comes out of Extension. I think Extension is doing a pretty good job. But what people don't realize, well most people don't realize, there's never been in this last go around, this past year out in the mid-west, there has been no broiler flocks affected. It's all layers and turkeys. So it's a different strain. Not that we don't need to take precaution, but it's not as big and blown up as we make it out to be for the broiler industry.

Interviewer: Turkeys and layers primarily. Yeah. I am aware that there are a lot of environmental regulations. Who are the go-to people for that kind of thing? How do you deal with that? Are you doing it in house or do you deal with contractors – how does that get done?

Respondent: I'd say I fall back mostly on my agronomist. It starts with my agronomist with soil tests and field plans for fertilizer and insecticide and chemicals and stuff. I would say primarily the agronomist.

Interviewer: Are you with somebody that's pretty broad based?

Respondent: Yeah.

Interviewer: Are there marketing issues that go beyond what your integrator does for you or is that pretty much where that gets taken care of?

Respondent: As far as what we can do for marketing?

Interviewer: Right.

Respondent: Well, there was a time when our integrator had a market for – I guess it was for the chicken legs. And if you kept your house dryer, they got a better premium. They dressed up better in the plant. We didn't see any financial benefit from it at all, but the integrator did. So we were constantly hounded on keep that litter dry, keep it dry. Our legs are important. We've got to keep our legs in good condition. We did what we could, but we didn't financially benefit from it.

Interviewer: So pretty much it's whatever they're going to do with it, you try to help them out when you can.

Respondent: Yeah.

Interviewer: You already spoke little bit about construction. Have you built anything recently? Have you done any other barns?

Respondent: Not broiler houses but other barns, yeah. Actually, we're always building something.

Interviewer: Right.

Respondent: Four years ago, we build a litter shed for the poultry houses. That was the PENNVEST program. There were a lot of regulations with that, but it turned out well. We're storing our litter inside, which you should be. But a lot of ridiculous regulations. I will tell you unless you want to know.

Interviewer: Well, I guess what I want to know is who helped resolve them? Was that the builder, or was that your environmental person?

Respondent: It was a consultant.

Interviewer: The consultant. Okay.

Respondent: A private consultant, kind of the go-between between the farmer and the state/federal.

Interviewer: Somebody to negotiate all of that.

Respondent: Yeah. Because what the state or federal people don't understand, at least the consultant can kind of say, hey, this is why this is important, and this is why this is not important, because they don't understand. Just a small example is I wanted a concrete pad outside of my litter shed. So when you load trucks, you go in with your load, you scoop it up, your truck's sitting outside, you dump it in. You can't help but spill when you're loading a truck. So if you had a concrete pad there, you can scrape it up and push it back in. Well, they wouldn't allow the money for the pad, and that was a serious mistake. And where's that runoff going to go? It's going to wash right down to the creek. Sometimes they need to listen to the people that are doing it, just practical things that make sense. It would have been better for our environment if they would have listened. Instead, they wanted a 20,000-gallon tank in the ground to catch the water off the roofs. And that's fine and dandy, but what happens when that tank gets full? It goes right back out again to the creek. There's no way an average farm can use 20,000 gallons of water. Yeah, I fill my sprayer tank with it. But do you know how much water you get off a good amount of roofs? It fills it in no time.

Interviewer: Interesting. But they thought they knew best.

Respondent: Yeah.

Interviewer: Okay. Can you say just a little bit more in detail about the relationship with the integrator, kind of what's your responsibilities, what their responsibilities are?

Respondent: Well, my responsibility is to hold up to my contract, to do what they require, raise the birds the way they require, and for the most part – does that make sense? I don't know how I can answer that better. Where do you want me to go with that?

Interviewer: Well, in other words, that would have to do with things like feed, it would have to do with things like lighting, ventilation, things like that. They prescribe all that stuff in the contract?

Respondent: No. I would say not, it's not in the contract.

Interviewer: Okay.

Respondent: That's recommendations they give you on a yearly basis. Or when management changes, the next manager has a different idea.

Interviewer: Okay.

Respondent: So then you've got to go with that idea. I'll give you an example. When we first started raising chickens, absolutely you could never let your house get below 70 degrees, absolutely never. Well, five years ago, they came to realize after chickens were getting air sack – air sack is a respiratory thing that they get from basically change of temperatures. They usually get it in the spring or in the fall when the temperature fluctuates. So if the house gets a little stuffy, you had a greater chance of getting air sack, and air sack was a thing that broiler producers struggled with for and longtime. So after all these of raising poultry, they're still learning. Now you take that temperature down to 60 degrees, a 10 degrees drop, and there's no air sack. Air sack is gone. We don't have it any more. So that's just an example how everybody is still learning. There's no cookie cutter – nobody could say that they know how to do everything because things change. A simple practice like that, they just solved five years ago by somebody realizing to drop that temperature, move more air, which was good for us because it was about the time we had to buy our own fuel which saved us fuel. We didn't have to heat as much, so it was a win-win.

Interviewer: It does happen every now and then, right.

Respondent: Yeah.

Interviewer: They have certain metrics in terms of how they measure you in relation to the group of people you're with. I'm sure it's something like weight per feed...

Respondent: Feed conversion is the majority of it. Feed conversion, livability, [Inaudible 00:23:59]. It primarily comes back to feed conversion.

Interviewer: I guess the idea of having people together in a cohort is like everybody is treated the same, it comes out around the same time, the same factors are in play, that kind of thing. Is that the idea behind it?

Respondent: That's why you're competitive on a weekly basis because primarily you're getting the same chicks at starting time that the grower you're competing with got, and they're going through the same environment, weather wise, and they're going out at the same time.

Interviewer: So they're trying to keep all the factors as even as possible.

Respondent: Yeah.

Interviewer: In terms of the judgment. Then presumably it's the care, it's the management practices that make the difference.

Respondent: Yeah. Absolutely.

Interviewer: Okay. So is contracting a good thing or a bad thing, or it is a little bit of both?

Respondent: I suppose it's a little bit of both. I can remember when contracting first came out. Farmers were losing their independence. But I think it's more efficient to have integrators for the industry. But yet, the integrators need to treat the producers in a fair, equitable way. Think of yourself not getting a raise in 20 years. And that's exactly what happened.

Interviewer: Did the contractors ever get together, and do you meet with the integrator? The producers, do they meet with the integrators?

Respondent: Well, we tried that. There was a group of producers. We got a group of producers together that were all with our integrator. We got about over 50 percent of them, like 75 percent together at one time. And we had issues, as a group of producers we had issues we brought to our integrator and said we want to sit down at the table in a nice way, and we wanted to hash this out, and what can we do. So we did do that. It was about four or five years ago at this point, and I think we made some headway. It opened some eyes. That kind of thing should be done more. Unfortunately, if you hear about that, across the country there are producers that try to get together, and integrators don't want anything to do with that. As a matter of fact, there are producers – I don't know if you call them unions or organized associations. And the integrators, I know they don't like it. I think there still could be a better relationship between a producer and the integrator. That's what I would like to see happen.

Interviewer: I know there's competition in terms of integrators. This area has a number of entities that are doing that work. Do you think that's changed things or will that change things in the future?

Respondent: Well, it's made it better for sure.

Interviewer: Okay. So you can see that clearly.

Respondent: Yeah. Without a doubt.

Interviewer: Okay. I would think so. Can you think of a situation where what you thought was best in terms of taking care of the birds differed from the integrator, and if you can, what happened out of that in terms of any kind of conflict?

Respondent: I kind of gave you those examples with the paper.

Interviewer: Right.

Respondent: There was another instance where a group of producers got the idea as far as – my house is considered an older house now. So when your exhaust fans kick in, you have inlets on the side of the house that are set to static pressure and they don't open up until static pressure gets to a certain point. Well, there was some work done with the producers and the building contractors to have an inlet

that came that drew the air out of the attic of the chicken house. In the summer time, that air is hot so it helped heat your house because you were collecting the hot air. And in the winter time, it probably didn't have as much of an impact. But it did allow for when those fans kicked in. It allowed that air to instantly start circulating until the inlets opened up, until the static pressure got to its point. So that actually worked pretty well, and then it got to the point where the integrator put a stop to that.

Interviewer: Any reason for it?

Respondent: There again, I think it boiled down to maybe management. The guys that managed it right did well, did fine. There were some people, they abused it, maybe the litter got wet. The integrators saw that. No more of this. Unfortunately, that kind of situation happens too often. That's why it would be good to have a sit down meeting once or twice a year with the producer and the integrators. Hey, here's what we're seeing. We'd like to try this. Would you let us try this and see if we can do a better job? Everybody wants to do a better job. But we have to get the blessing of the integrator, and it boils down to...

Interviewer: Interesting. So to step back a little bit and kind of probe in details, if you take a look back over to 20 years you've been in the poultry business, what would you say are the two or three things that have changed the most in that period of time?

Respondent: As far as the industry goes or from our standpoint?

Interviewer: Maybe both, but more from your standpoint.

Respondent: Well from our standpoint, it's nowhere near as profitable as it used to be.

Interviewer: Right.

Respondent: That's cut and dry. From the industry standpoint, I think our integrators are doing a better job getting into like school lunch programs, specialty items. Our integrator has a de-boning plant where they're providing a higher quality end product. I guess because they're listening to what the end consumer wants, so that's been a positive. I don't know where else you want me to go with that.

Interviewer: Anything else you see in terms of changes that have happened over the 20 years or so, better or worse?

Respondent: The integrators got more efficient. They used to have their own catching crews, and it used to take 5 guys about 5 or 6 hours to catch one house, which was 25,000 birds. Now they subcontract that out to crews. And now, 6 or 7 guys can load 25,000 birds in two and a half hours. They're much more efficient.

Interviewer: And they're better trained and everything too.

Respondent: Better trained. I think the contractors – they have an incentive to do better. They probably get an incentive for how many birds they get per hour. Whereas, when they were paid by the integrator, they were just on the payroll. It didn't matter whether it took them 3 hours or 10 hours, they were getting paid the same kind of money. So that was positive for the integrator and for us because it's just nicer getting them out quicker.

Interviewer: Tell me in terms of your flock turns and that kind of thing, how long does a typical flock take to go through the process?

Respondent: Basically, that's changed. That's fluctuated over the years. It used to be anywhere from 42 days to 52 days. 52 days would get you a 7-pound chicken. Of course, that depends on the integrator and how they're processing it. But our integrator is looking for like a 6 1/2-pound chicken, and they can do that in 45 days. Where are we going?

Interviewer: How many turns and how long does it take?

Respondent: You have them in for 45 days. You really need to be empty no less than 2 weeks for the [disease 00:35:39] pressure to get out of there, for you to turn your litter, windrow it for it to compost. There was a time there when they were pushing us. We only had 6 or 7 days to turn a flock, and that was not good because you couldn't get your work done properly. They finally realized that. Sometimes it goes the other way. If they don't need chicken, then you're down – we've been down as much as a month. But on an average, it's two weeks or a little over. So we're turning about 5 1/2 flocks a year.

Interviewer: Okay. Just another different kind of a little bit broader question. It seems like there's always things changing in some way or another. So where do you get the information? Obviously, the integrator's going to provide you with some of that, but just in terms of your general practice and everything, just what's going on around you on the farm and everything. Where do you get technological information? Who do you trust? Who do you go to? Who do you read? Where do you get that stuff?

Respondent: For good or bad, most of it comes from the integrator. Some of it comes from your neighbors, the ones that you feel comfortable with. Unfortunately, you're in competition with other producers. So some producers don't like to talk to one another or give them their little secrets. But I have a good relationship with a lot of growers and we share equipment. We buy equipment together and then we share ideas, and that's healthy to do that. You kind of learn a lot from each other if you're willing to share. You have to read the latest stuff coming up, go to trade shows, see what's out there. Some of it makes sense. Some of it doesn't make economical sense. For a little example, we started out with round [Inaudible 00:38:07] heaters and they got to the point they weren't efficient, so they put in radiant tube heaters and they're much more efficient. So you learn about that by talking to other growers or the building contractors. Of course, you've got to watch for them because they'll want to sell you something. But you've got to weigh all of that out.

Interviewer: So when you have things to talk over, I don't know how you're setup here in terms of family and all that kind of thing, do you talk that over? Do you have partners? Do partners meet? Do family meet? How does that all get thought through or is it all on Jack.

Respondent: Up until 2 years ago, I was the primary guy taking care of the chickens. But now my 20-year-old son is taking over. So he's doing the majority of the labor work. He's slowly getting trained. He meets with the service man. So I'm slowly stepping back away from it.

Interviewer: But he has you to lean on basically. Cool. How about the other kind of business aspects, not just the poultry operation but the whole operation? Who do you rely on in the business community for advice on anything from financing to business planning, that kind of thing? Do you have a team of people that you work with? What does that look like?

Respondent: I think in today's business, you have to have a team. So we have an accountant, an attorney, and a financial adviser, and they all have to work together. Sometimes if they don't work together, you have to weed out the ones that don't want to work with the other one. I think that's very important today. People don't realize it, but agriculture is a big financial business like any other business. There's a

lot of overhead and a lot of assets that you need to protect to go from one generation to another. So you need that team of experts.

Interviewer: When you're talking to other people about the business, does that happen formally or does that happen informally?

Respondent: You mean our team?

Interviewer: No, I mean people in general. Talking to other producers, let's say, where are you having that kind of interaction? Just as you come across one another, or at church?

Respondent: I would say it's mostly you might pick up the phone and say, hey, to your other producer, hey, what do you see and hear? What do your birds look like this time? Did you get good chicks? Or you got bad chicks? What's your service guy telling you to do about this? So I think the relationship you have with other growers, you can ask freely, hey, how are you handling this situation.

Interviewer: So you have people that you've been in a relationship with for a while and you trust.

Respondent: Yeah.

Interviewer: A couple of other just miscellaneous things – so what do you think about agricultural education in terms of what you need in terms of any manpower that you have on the farm or whatever, or what you see in terms of the way the integrator works? Where do you think we could do better with Ag education?

Respondent: Well, it's interesting you ask that because my wife and I are in kind of a transition where our children want to take over. And we told our children you're all welcome to come into the business, but you have to bring something to the table. You're not coming in here working 8 to 5 and going home. You have to bring a skill, so what's your skill? For example, for us, our skills of our children – one is the accountant. She's in numbers person. You need a numbers person. One is kind of the day-to-day activities, in charge of day to day people and scheduling people. There might be a son that you have or a daughter, we need somebody on our team that like animals, care for animals. We need somebody that can repair the equipment. We need somebody that enjoys the field work and wants to learn that part of the business. So there are all different ways that your children or employees can bring something to the business. But you need to have a set of skills. So I think agricultural in general should be hungry for skill sets.

Interviewer: Absolutely. Are they in any formal Ag programs?

Respondent: Our children?

Interviewer: Yeah, the kids, for high school and college?

Respondent: Our son that's in college now, he was going to go to Ag Business. Well, he's taking Business. He was going to go to Delaware Valley or Penn State to take Ag Business, but he chose Lancaster Bible, but he's taking Business. The thinking behind that was he wants to come back to the farm. But if he doesn't, he can go further with a Business degree rather than an Ag Business because Ag Business is kind of focused. I think it would be Ag Business anyhow, but it's a little broader just a Business degree so that was his thinking there.

Interviewer: That's a great skill set regardless of how you do it. Great. Cool. So 4-H farm shows, FAA, all that kind of stuff, what do you think about all them?

Respondent: Been there, done that and it's all good stuff.

Interviewer: So it's part of the mix.

Respondent: Yeah.

Interviewer: Have you ever invented anything that helps make doing the business easier or better?

Respondent: Lots of things.

Interviewer: Give me three examples.

Respondent: I'm kind of the entrepreneur and my son is going to school as an entrepreneur.

(Small section of the interview excluded out of confidentiality concerns)

Respondent: Other stuff that we've done on the farm, I'm not bragging but people come here all the time to look at stuff to see what we've done. A lot of times, farmers are copycats and that's fine, because we go to other farms and we get ideas, and I don't have a problem with that. But we've come up with this sports theme with football, baseball, basketball and soccer that we have on our farm, and we've kind of themed it to the farm. That whole thing went across the country because it was something that we did that didn't take any employees. It could man itself. If you can do something that doesn't take an employee, that's all the better. So that's the second thing. We've done other little stuff like we made a simple thing as a trash can. We made these trash cans that have a recyclable part and a trash thing. They look like a barn. And that whole thing went across the country to all these other farms. So I enjoy thinking of creative new stuff and seeing where it goes. Like I said, my son that's in college now, he's that way. He likes to dream about stuff.

Interviewer: What's the future hold? What do you see for the future and how are you preparing for the future?

Respondent: Well, if I was a young person – let me backup. I'm a first generation farmer. My dad never owned a farm.

Interviewer: Really?

Respondent: And my wife and I bought our first farm in 1982, I think. I was 22 years old. I didn't have any money. I borrowed it from FHA at that time. It was what they called a limited resource loan. We borrowed \$200,000. We had \$20,000 we made cash crop farming and we put a down payment down. We bought this farm for \$220,000. And people at that time said if you didn't grow up on a farm, there's no way you can farm. We've proved them wrong, and I think the opportunity today is greater today than it was back then. There's all kinds of opportunity out there in agriculture, unlimited. So any young person that wants to get into agriculture, it's an open opportunity. You have to be creative. You may not be able to do the traditional type farming, but you can find a niche market that you can make it. If you put your heart to it, and your heart's into it, there's great opportunity.

Interviewer: So dreaming, thinking ahead, that's all part of it.

Respondent: Yeah. Thinking out of the box.

Interviewer: Yeah, and bringing on next generations that have some of those same qualities. Good stuff. Good.

Respondent: There's great future in agriculture.

Interviewer: You're really quite the exception though really. There are not many people that I've talked to that haven't grown up on farms.

Respondent: I take that back. I did grow up on a farm. It was a rented farm. My dad rented a farm. My dad never bought a farm because he saw his father lose his farm in the depression. He was always scared. He could have, but he was scared. You and I can't understand that, but people that have gone through it can understand it. But when I went to high school, my parents were adamant about me taking college courses, and I had to because they told me I had to. I didn't want any part of it. As soon as I got out of school, I started farming on the side, and I knew that's what I wanted to do. As a matter of fact, when my wife and I bought that farm in 1982, I didn't tell my parents I had bought the farm until after I bought it. Not that there was any friction, because my dad was right there after we did it and was helping. But it was just the idea that you couldn't make it.

Interviewer: And you did. Good stuff. So anything else that I need to know about how you've been learning and innovating and all that kind of thing?

Respondent: As a management team, we try to go out and go to conferences. Even if it's a one-day leadership conference, you can always learn something. Any time you go to something, you can learn something, if you have to pay for it, to get the value out of it, and you can.

(Small section of the interview excluded out of confidentiality concerns)

Interviewer: That's where the good stuff comes from when you get down to the detail and everything and when you can have a peer kind of critique what you're doing and give you some ideas, and then you're doing the same with them. That's good stuff.

Respondent: Yeah, that's good stuff.

Interviewer: It is. Good. I'm glad you mentioned that. Thank you very much. I appreciate it. This is exactly what I'm looking for.

Respondent: We got off the chickens a little bit.

Interviewer: No, that's fine.

Interview Two

Interviewer: Okay. Thanks for doing this today. I really appreciate it. As I told you, this is a little bit about how do producers who are in the poultry industry take technology and bring it back into their practice. So we have a number of questions we'll go through, and it'll take probably about an hour to get through them. But feel free to go into as much depth as you want to, and it's really more of a general questionnaire in terms of how people learn when they're in the poultry business. So, you were starting to tell me a little bit about – how did you get involved in the poultry business? How did you begin?

Respondent: Well, the way I got involved is it would've been around at that time about 1989, 1990. I graduated from Penn State. I decided to decline on some other job offers and come back to the family farm. At that time, dad and uncle were in a partnership together, and I was working for them, but decided I wanted to get involved in something myself. So I built a single broiler house on contract with a large company. And I did that as a way to have a place to put my wages that I was earning and was not married and did not own a house or anything at that time. So I felt it was a way to reinvest what I was working, and try to gain some equity, and also gain a credit rating maybe for future loans with a bank there. So I built the first broiler house then shortly thereafter.

Interviewer: And just in those real early times when you first got involved in it, who did you go to when you had any kind of questions or you needed help? What were your sources of information as you were just getting going?

Respondent: Well, there were a few other people that I knew that were growing broilers at that time, so I had some questions for them whether it was something that I really wanted to get involved with initially, and that was helpful, basically other growers. But then once I built the house, then as far as my training on the job, I relied on the serviceperson from that company, basically, to train me how to raise chickens.

Interviewer: Just you say a little bit more about that. So what would they do? How would they come out and get you started? What's involved in all that?

Respondent: Well first of all, in the building of the house they had strict guidelines as to how they wanted the houses built, the dimensions, the square footage, how many feed lines, how many water lines, where they were placed. Had a little bit of flexibility on which brand of equipment or which brand of computer controller for the climate control in the building. Had some flexibility with that, but a lot of the guidelines were laid out by the contract company.

Respondent 2: Or who builds the house. You had that option too.

Respondent: Well, and that's where you had some flexibility depending on the builder. Some were a dealer of a certain kind of equipment, and another would deal in another kind. So you did have that flexibility as long as the house was built the right dimensions and the right feeders for the right chicken and all of that. Then once the house was built, then the serviceperson from the broiler company would train me on first of all how to set the house up, how to place the feeders, where to put extra feed out to get the chicks started, and how to do that, the height of the water line, and how much bedding, and how to distribute it, how to set the fans, how to set the heaters, how to...

Respondent 2: Get the most efficiency out of your feed by their temperature control.

Respondent: Right. They had guidelines, exact charts where we'd set our computer controller up to change the temperature in the chicken house every day to match the age of the chicken.

Respondent 2: To get the most efficiency out of the feed.

Respondent: Yeah. All this is shooting to raise low-cost, high-quality chickens.

Interviewer: So what does it look like, the first day that the chicks come in? What's that all about?

Respondent: Well, you know, the first day when the chickens are coming in, of course you're just amazed that all of a sudden you're getting 26,000 chickens and you're putting them in a house in an hour's time, and chickens running everywhere. But of course the serviceman was with us that initial time training us. We wanted to be very careful to do the right thing and to take care of the birds, the little chicks. We call it dumping the chicks, pouring them out of the trays onto the floor. So, yeah, there was a lot of...

Respondent 2: But when a house is new and warm and new chicks, it looks like fun.

Respondent: Yeah. Well, everything is brand-new, smelling like fresh wood and fresh wood shavings, and it's...

Interviewer: It takes a little while, then it changes.

Respondent 2: And then the work begins.

Interviewer: Right.

Respondent: Yeah.

Interviewer: And then, just a little bit in terms of the ongoing care and everything, I presume you get some guidelines on that as well?

Respondent: Yeah, we basically had guidelines the whole way through as to how to adjust the temperature of the heat, and how to not only have a chart on how to set the fans and the ventilation, but also be able to tell by smell. If you had need to get a little bit more ammonia out of the chicken house and get the air fresher, you sort of learn over time by your nose as well. So you use a combination of technology, but there's still, you want to always use your own senses too to know if the chicks' eyes are going to be watering or if you're going to be burning their eyes. So those are things you learned as you went. But the company was really good at training us and working with us, holding our hand to get us started. And that not only benefited us, it benefited the company. Sometimes it's better for a company or an employer to train someone that doesn't know a thing, and train them the way they would like them to be trained as opposed to throwing somebody in expecting them to learn from somebody else, or somebody that thinks they know how to raise chickens starting to do it their own way, which is not maybe the healthiest way for the chickens or most efficient way.

Interviewer: Yeah. So a flock, how long does it take to turn, until they're ready to be delivered?

Respondent: Well, initially when we first started some 25 years ago now growing chickens, we would have a flock in for eight weeks. Now that has shortened a bit, that we're able to raise maybe the same size chicken in less time now. So now in 25 years, we've cut about a week off and can get the same size bird. So down about 7 weeks now.

Interviewer: That's progress, isn't it?

Respondent 2: Yeah, it really is.

Respondent: 49 days or so to get the similar size chicken. So now we run usually six and a half to seven weeks that we're running right now, length of raising a chicken there.

Interviewer: As you look over your time in business, what would you think, in relation to your broiler operation, has been your greatest success?

Respondent: The greatest success is just, for us, we're a combination farm. We have a dairy and we have chickens. By raising chickens on contract, the pros, the benefits of it is it's steady. It's steady. You're always making some money. So you can count on the income if you're with a reliable company. You can count on the income year in and year out. And it's very systematic. You follow the protocol. You do the same thing. As long as you sense the chickens that they're healthy and everything, you should be able to consistently bring in a fairly set income, but not totally set. There's of course a different bonus system, pay scale that you can do better or worse depending on that pay scale, but it's steady income. So for us, being also in dairy, and our milk price not being set, it can really vary. It diversifies us a bit. It's nice to have something steady when the other thing can really vary.

Interviewer: Yeah, and you know what the next question is, right? What's been your greatest failure? What's the downside of the broiler business?

Respondent: The downside, the biggest thing I've noticed over the 25 years that I've been raising chickens is, now, it takes a higher investment to get started in building the building and putting the equipment in. And now unfortunately the state puts higher requirements on us as far as storm water management and all the other things that go into building a building. So now, the total cost to get started is higher in relation to the income. So what it does, in essence, makes a longer period of payback for your investment. So we're only talking about just a small steady income with broilers. So if you're pushing the pay back from 10 years to 15 or even 20 years to pay off your initial investment, that does not make it as attractive.

Respondent 2: And the cost would almost be maybe twice as much.

Respondent: Yeah, twice as much. Now the chicken house size has increased. So they're putting more birds, more chickens in a house not with less square footage per bird, but just bigger houses in general to try to spread that cost out a little bit more. But it's just the world we live on. Everything just has been costing a little bit more to get the thing built, and then your excavation, storm water, etc. So the other negative would be if you want to be challenged every day to something new, which in dairy, we are challenged in that we're feeding forages that are raised on our own farm. Well they can vary, so you have to constantly adjust the diet to have it matched right for the cow and her production level. So many variables in dairy, so someone, it could be a positive or a negative. In the broiler industry, if you just enjoy everything being the same every day, broilers are where it's at. But if you want a challenge and something new every day, that would maybe be a negative with broilers. It's similar every day, I mean you can have challenges. Birds can get sick. That's not the same every day, you don't have to deal with that. But normally it's a regular system, a procedure of checking birds, making sure they're healthy, checking equipment every day, hauling out any mortality that you have every day. So it's very similar every day. So that could be a negative for someone in chickens, or a positive if somebody likes to do the same thing every day.

Respondent 2: Not as much challenge, maybe.

Respondent: Right, it's not as challenging as dairy, not as many moving parts.

Respondent 2: You don't have to be as smart, but once you have learned something, you might not have to learn as much as you do in the dairy.

Interviewer: Yeah, but it's that consistency that you get over time. This is kind of a similar question but a little bit different. Have you ever experienced anything that really totally threatened your business in some way or another in the broiler business?

Respondent: Yes. Now, anyone in the poultry industry is a little bit nervous with the avian influenza thing that's been out in Iowa and now a case in Indiana. Years ago, we had broilers when AI went through this area, and that's just a big threat to your livelihood if you're in poultry, or even in any livestock industry is the threat of a disease coming through, an epidemic that could wipe you out. So there are some things that you can ensure in certain ways to help through those periods. But still, it can be a big...

Respondent 2: It can be a big setback.

Respondent: It can be a big threat.

Respondent 2: A big setback. You could lose a year or more of worth if you're set back.

Interviewer: Until you get the barns cleaned and everything.

Respondent 2: None of your pay back.

Respondent: The first year I was raising chickens, there was a little bit of a learning curve. Just when I was putting feed lines up on time getting ready for the chickens to go out that day, I didn't realize I had to pull a cable through a little pulley just to make sure it was clear. I didn't know that. It's supposed to slide through if everything goes right, but well, sometimes things don't go right. A cable caught in a little pulley, and anyway, half of my feed line came crashing to the ground with big chickens and what that made the chickens do was all flutter and pile up on top of each other, and I lost 400 chickens. So that was kind of a learning curve. That was something that the serviceman didn't just tell me, but it was one of those deals where I always go to the theory if it can happen, it will eventually happen. So that did happen, so that was just another little setback. But the biggest threat would be a disease, or if you're not with a reputable company, maybe making a big investment and losing your contract. We didn't ever feel threatened with the company that we were working with on losing the contract. But if we read the language of the contracts that we sign, it basically leaves an out there that if you're not performing, they can cancel you. They're not committed to you for 10 years or whatever you need to pay your house off. If they define your management as being poor or low-quality, you could be dropped. So that could always be a threat. The language was in the contract, but we never felt to the point that we were pressured at that level.

Respondent 2: And over our years, contracts have been dropped by certain companies over our kind of broilers.

Respondent: The biggest threat would be to guys in the broiler business that have older two-story chicken houses. If you have one of them, yeah, you'd be living in fear. But the newer houses that are built the way they want them to take forklifts in and out and everything and not have a second story didn't feel a lot of threat unless you were a really poor producer. You would first be put on a training program if you were doing a lousy job to at least try to train you by the company better.

Interviewer: So they do work with you. If there are issues, the service guy will come out and go through a little bit of additional training.

Respondent: Yes.

Respondent 2: But before that's happening, you're probably going to be getting less money because maybe that question will come up how you get paid by performance.

Interviewer: Talk a little bit about that because as you're saying, that is a threat. If the company does have it written into the contract, what would that look like?

Respondent: In our contracts, the way we get paid is we're in a group of producers that are finishing birds that are going to the plant over the similar time period as us. We may be in a group of like twelve producers. It can vary a little bit.

Respondent 2: Is that like a two-week period or a week-long period?

Respondent: That's basically a week period.

Respondent 2: Okay. So you're all in the same weather-frame.

Respondent: Right. Right.

Respondent 2: And that's a big factor.

Respondent: So we're compared in several different areas of our production. One is feed conversion, so how many pounds of feed per pound of chicken that we're making. Very important. That's probably the number one most important thing is that we're efficient with our feed. Then, a few other areas would be the health of the bird. One would be livability – the percent of birds that are going to the plant compared to the number of birds that were put in initially. The percent condemned – if they go to the plant but they have some other health issue, we're also ranked on that. What else are we ranked on? Those items would be the big items. So we're compared in each of those categories with the other ones. And then the better we do, the higher we get paid for each of those categories.

Respondent 2: And the point might be is to...

Respondent: And this changed over the years. It used to be combine them all, and then it was all related to the cost per pound of chicken that it cost us to make it. Then we were compared with those other twelve. And then the top performer got bonus money ahead of the average. Then if you're below average, you receive less money for that. So there's always an incentive to try to be doing a good job because you always want to rank high. The unfortunate thing is no matter what, if all twelve producers are good producers, there's going to be a bottom and there's going to be a top.

Respondent 2: And you're going to get paid different.

Respondent: And you're going to get paid different. So that's the one maybe negative to contract production is all in all, the contract company will not lose. They will not lose. But there are times when everyone's doing a super job, and there's always a winner and there's always a loser. There's a loser to the group of winners, put it that way. So that can sometimes be frustrating. If you all did a good job and you ended up below average or near the bottom and you did a good job, the company loves it because everybody is doing great.

Respondent 2: And then the other thing, as you said you, you have performance of feed. So you're saying that the bird eats a certain amount of feed. Well then, why aren't they always big? But you're doing something that that bird gets bigger, when the other guy might be eating more feed – he might say why you can make a big bird on maybe less feed than the other guy that's eating more feed, why your bird is just as big. Ventilation and...

Respondent: The contracts aren't perfect, but it would be very difficult to have a perfect contract. For example, in your group of a dozen producers, if your birds are in three days longer than the average of the group, you are most likely going to have worse feed conversion because the younger the bird going to the plant is going to have better feed conversion. The bigger and older they get, the less efficient they convert. And you don't determine that yourself. The company schedules when they're going to the plant. Depending, if you hit a weekend or holidays, that can vary. So it's out of your control, but sometimes just by bad luck or where you are in the mix, your birds may be older and you may be not as efficient. But then you may have more weight, so you may be getting paid less per pound. But sometimes your extra weight makes up for the difference in your pay.

Respondent 2: But you have a variance of how much? Five-hundred to a thousand dollars, from zero to a thousand dollars more or less, or is it less than that? Per flock.

Respondent: Per house, it will hold 26,000 birds. It could easily vary depending on the spread of performance. If everyone's really close in performance in the group, it may only vary \$1,500 if all the houses were the same number of birds between the top and the bottom. But if there's a real poor performer and a really excellent performer, that could go up to four thousand dollars' difference in pay per flock.

Respondent 2: That's a big difference.

Respondent: Yeah, so it could be. It could end up that way.

Respondent 2: And some of that could be because the guy wasn't doing the ventilation right, or the weather was just against you, or you weren't paying attention to details.

Respondent: It can be due to management...

Respondent 2: Yeah, it could be details.

Respondent: But there are a lot of times when you may just get a crappy batch of chicks from the hatchery and you've got to deal with them. That sometimes can be the frustrating thing. From one flock to the next, you can do the exact same thing management wise and you have a number one flock, and you're down low on the list the next flock, and you did the exact same thing. It's just sometimes due to things out of your control – the quality of the chicks or it could be some weather events if you don't properly manage through them.

Interviewer: So all things being equal and the contract begins to equalize some of that stuff, is there anything that you can do that makes your results better, that the contract doesn't address but it's stuff that you're going that really contributes to the bottom line in some way or another. What would those things be?

Respondent: There are some things. You can learn a certain amount from your contract company and your service man. But sometimes you like to share with other producers what tricks they're doing or what

management schemes they're doing that are making good birds all the time. And some of that can be in your litter management. Most broiler guys with our company recycle their litter. So you don't totally clean out every time. You either run through with a machine called a housekeeper and scrape the cakes off, or more popular I think it would be windrowing and composting the litter in between flocks. So depending what you're doing there, that can improve your litter quality for your next flock and can give you an edge over someone that's not doing something else. Other things you can do for controlling the amount of ammonia coming out of the litter – the company recommends one thing, which it's good to do that. But there are some of the things you can do, other tricks to try to just have fresher air quality. Finding that exact recipe of ventilation, that's sort of a customized thing on each farm depending on your fan's setup and the way you have come to learn the way air flows through your house. There are some management tricks that you can learn over the years to improve that. I've totally changed some ventilation things over the years just due to what I've learned, probably more so from other growers than the company.

Respondent 2: Another thing for more profit is what you're after is what are you paying for electricity, who are you buying your gas from. We just put in natural gas lines, so we're going to change over to that. That should make a difference in profits.

Respondent: Every broiler company may handle utilities a little bit differently. Our utilities are not paid for by our contract company. So anything we can do to save on heat costs or on electric costs is a benefit to us. So we always strive for energy efficient light bulbs whenever we upgrade anything as far as fans. We try to go energy efficient with the motors. Now we're looking at, of course, on the heaters, they're converting from propane to natural gas for a long-term cheaper fuel source, cheaper heat.

Interviewer: So there are actually things you can do that will help with the bottom line.

Respondent: Yeah.

Interviewer: Just looking back over it, you've been in this for 20 some years. What would your sense of – just big picture – how have things changed over those 25 years? What's the really noticeable trends that you saw or are seeing now?

Respondent: In specifically the broiler industry, one trend is phasing out vaccinations and antibiotics. Twenty some years ago, we would always vaccinate every flock. And if the birds looked at us funny, we were running penicillin or something to them to knock it out before it happened. Now, we don't always vaccinate every flock. They come in whenever they decide to vaccinate. Like the flock we have in now – well, the last flock was not vaccinated. And they made it okay. This is a vaccination at the farm. Now, there's still a vaccination going on at the hatchery. Now the trend is those birds have to be really getting ugly to treat them with an antibiotic in the house because our company is striving to be more of a natural bird. So it's been a long time since we ran any antibiotics in the water lines. That's a big trend.

Respondent 2: I think another trend in the broiler business would be that the dairy business is getting more specialized all the time, and you have guys that have sons that maybe want to be at home, and they're saying well how can I keep that son at home. And they're saying well maybe if I build a broiler house, we can have two of us on the farm. Then you have the other side where you have the guys that have two broiler houses are saying I can have six broiler houses and I can be more efficient because I need to have this man to do. Wouldn't you say that, *John*?

Respondent: Yeah. The trend has been to larger farms in general. Back when we started, most farms were one or two-house farms. There were a few multi-house farms, but now it almost seems like the one or two-house farms are the minority. Now there are a lot of four, six, eight, I know one farm that has 17 houses. So the trend's been a little bit bigger, but it's all to gain economies of scale. With one person, you

can check a lot of chicken houses if that's their fulltime job. If you have a windrower, you can do 17 chicken houses with that windrower and spread that investment out, versus two. So guys are finding that they can set up and hire a full time guy to do the chickens or something if you have enough houses to do that. So you can specialize a little bit more. Whereas, if you have one or two chicken houses, 90% of the time somebody has another at least part time job or another thing going on off the farm work or other work on the farm.

Interviewer: Do you get any help with any of that kind of planning, or is that something you do as family counsel? Those aren't easy decisions.

Respondent 2: That's just like when *John* built this house there, as I just said before. I thought, this looks pretty good – nice income, steady work kind of at your convenience but has to be done. Why shouldn't I build a house for retirement? So it seemed a good thing to build another house. After I had the experience with one house, it seemed right to build another house. So it gives you experience. And then of course when *John* came home, it seemed right for him to have that house and let him do that and I do something else.

Respondent: What I've learned, whether it's in poultry or in dairy, is that you should always plan for what you dream that you can do and not what you think that you can do. Because too many times, we build ourselves into corners. Even building one chicken house and then a year later building another chicken house, if we would have planned for that second chicken house up front, the excavation would have looked a lot differently. They would have laid out a lot nicer. But we didn't have enough foresight, or didn't even plan according to your dream instead of according to what you think. We did the same thing with our dairy. We built our dairy into a corner, and at that time, everybody thought that was the biggest thing. We're never going to go bigger than that. Well, we didn't have any idea how it would grow from there. And we had to deal with a few challenges just due to location and some things that if we started from a clean slate, we would have positioned things a lot differently that would have in the long run really worked out nicely. It still worked out, but...

Respondent 2: But here's something, *John*, that you didn't mention – when the boys came home and they said, dad, we want to go to 400 cows rather than 200 cows. And we looked at a spot and we thought that spot – you know where I live Scott? There's a field behind my house there where we thought we could plant a 400-cow dairy there. And I was at that time – I don't know if I was chairman of the supervisors or not [Inaudible 00:33:09] on the planning commission for years. But anyway, the zoning officer on our township said that, *Sam*, you're going to have to stay 400 feet away from the houses. As you know, we've got houses all around back there. And I didn't like somebody telling me what I can't do. But that was probably the smartest thing that ever happened that he suggested and told us that because we would have never – and then we came down here and said well this looks like a good spot. Well, that was the foresight of somebody us not letting me do what I wanted to do at that time because even though I didn't have the foresight of even seeing, but just thinking you're going to put yourself in a real corner, and that's when we came out here and did this. But then from where *John* is saying, when we planted that first 400-cow, we weren't thinking probably bigger at that time.

Respondent: Now what I know, I know people that if you're planning something, I know two organizations that I can make a phone call. In 5 minutes, I could have an ag engineer on the phone or a planner or a consultant that I could hook up and before you can go anywhere, spend a couple of hundred bucks with a consultant and they'll save you thousands of dollars in the future just planning a little bit, even if you don't go bigger, just positioning things in a smart way.

[Side talk]

Interviewer: So there are resources you can tap into. I get what you're saying. It's sort of like having that bigger vision and maybe not thinking big enough. [Side talk] Who else do you rely on for that kind of advice? Are there other contractors that you tap into for one thing or another?

Respondent: As far as building chicken houses or dairies, I could probably name off three or four different builders that are your primary chicken house builders. Do you want names? As far as building ag facilities and working your way through all the permitting that's involved right now, there are two companies that I would work with before anybody else that deal strictly with agriculture and working there as opposed to going to more of a commercial type or non-agricultural developer type firms, surveyors, or engineers. I would try to stay clear of them when it comes to setting up ag facilities. Now, I've come to learn over the years I've been in business just a lot of great contacts when you're going to build something to help you, walk you through it.

Interviewer: Save you a lot of time.

Respondent: Oh, yeah.

Interviewer: Let me just ask you about a couple of other things in terms of not specifically who you would go to but what kind of folks you use for this kind of information. So how about avian influenza, where do you get most of your information about what's going on with AI?

Respondent: With AI, we get a steady flow of information by email alerts and what not from our broiler contract company. But we're also in tuned with the department of agriculture, and I'm happy to say Pennsylvania is very proactive on that, and Russell and all you guys up there.

Respondent 2: Russell and Rachel...

Respondent: The state vet...

Respondent 2: I guess Rachel is Penn Ag. She's old time.

Respondent: So anyway, the Department of Ag is very good, and Penn Ag would be very good. I'd say they'd be the three core pieces in my knowledge when it comes to being proactive or reactive if you have a disease.

Interviewer: So if anything would happen, it would be the company you're working with. You would be working with them in terms of anything that would need to be done.

Respondent: We would be, but we would also be working with the Department of Ag. We have some work to do, but we're already putting in a plan that if the AI comes to our area, how we're going to control people and traffic, and minimize any impact. And also the fact that we're also in dairy on this chicken farm. We have to have a plan in order to get our milk out of here. So we're working on that plan ahead of time to be kind of pre-approved for that permit to be able to get our work out of here. But that's mainly with the Department of Ag. That's in conjunction with actually some milk cooperatives as well to get the milk out of here on farms and also our chickens.

Interviewer: Folks out in the Midwest I think did not do that planning and that's where they got into a lot of trouble from what I've been hearing. How about environmental issues, regulations, all the permitting and all that kind of stuff. Are there people you go to help with that or just hammering your way through the regulators or how does that work?

Respondent: That is not the fun part of my job but I try to stay as educated as I can on most of these things and making sure records and everything are up to date. But I do work with a firm that does my nutrient management plan that writes my plan, I, along with that company, of course have to work with the Department of Environmental Protection to comply with permits to get them approved and all of that.

Respondent 2: Soil conservation.

Respondent: Yeah, you have to work with your local county conservation district, your natural resources conservation service, and some things, your farm service agency. So I personally deal directly with most of that work. For most people, at least if you're a larger operation, you need to work with a consulting firm that can do your permitting, write your permits and applications if you're a KAFO to deal with DP.

Interviewer: Another different one, animal welfare issues – somebody is concerned about the well-being of the chickens, that sort of thing, or what the cows are getting. Do you ever have to confront any of that, or where would you go if you had any issues that way? These people pop up periodically, you know.

Respondent: Yeah, they do. They do.

Respondent 2: We have a lot of tours on our farm. Again, we're not afraid to take anybody onto our farm and see the cow comfort and the way we handle our cows.

Respondent: We try to get a pretty good feel of who's coming on the farm. We also educate ourselves and went to enough lectures and seminars, watched enough videos. It's important how you present your farm also to the general public. You may have the cleanest, healthiest operation in the world. But if you don't present it in a good way, it may not appear to be. I guess we feel it's part of our mission to promote agriculture in any way that we can, and we agree, it's very important to always take care of your animals. That's part of who we are – take care of our people and our animals. But it's equally as important in the world of social media and marketing and all that that you can present a healthy cow or chicken. You can distort it and make it look sick and ugly by just the way you video it or you portray it. So we try to be very careful about that.

Respondent 2: Yeah. And if you are those vegans or people on our farm that think like this, we like to say that you have choices. We aren't going to make you do. But we believe that we have good choices here in America, and if that's what you want to do, that's okay. But this is a right way to do it also.

Respondent: There are some programs. In the dairy, there are programs to be proactive and sort of have an industry self-certification on your animal handling and all that. You go through those type of things too. And in poultry, we have to watch videos on occasion that our contract company sends to us and requires us to watch these videos on how to handle chickens and how not to handle chickens. So we do have some training there. And just this year, we had to watch two videos because there was a farmer in another state – they were a very good grower, but unfortunately somebody caught them mishandling their chickens on video and they lost their contract like that. And they were one of the top growers. So we don't want either of those things to happen. We don't want to mishandle our chickens, and we don't want to lose our contract either.

Respondent 2: And we don't want to represent it bad for anybody else.

Respondent: A video like that in the general public is bad for everybody.

Interviewer: As you say too, taking care of the birds – your profitability is related to that too. So you'd want to do that. It's all connected.

Respondent: Exactly. Exactly. I tell people that go on tours of our farm, I say we tried to keep our cows happy because a happy cow is a healthy cow, and a healthy cow gives us more milk than one that's not.

Interviewer: Absolutely.

Respondent: So it's in our best interest to have all of our cows happy.

Interviewer: The whole issue of marketing what you do, that sort of thing, obviously your contract kind of stabilizes that. It kind of defines that and everything. Is there anything else that you need to do other than just general good information to the public? I know you guys do a lot of tours and all that kind of thing. Is there anything else that I'm missing there?

Respondent: Well, kind of along on the regulations side, you need to be a good steward of your land and you need to file your nutrient management plans. And the way you dispose of your mortality or your chicken litter is very important as well, not only to yourself. You don't want to over plow your fields. You don't want to get in waterways, etc. Also, your neighbors around you – if you're piling your dead chickens out back right next to the neighbor's backyard or if you're somehow creating flies that you could otherwise avoid by just better management, it's important to do that.

Respondent 2: Or don't have that dead cow laying somewhere when a tour comes through and saying what's that laying over there. Put it at a place where it's ready to be disposed of but not in their sight because animals do die. And I guess another one along that line is what do we do. We're trying to be green in a lot of things and we're known for that not only when we have our solar and our methane. We do tours and the conservation and all that. We're trying to be a good steward of not only land but energies and the whole business.

Interviewer: And that reflects positively back on you in a variety of ways. You talked about construction. You know who you need to go to for good help in terms of building buildings or anything like that. Same thing with the permits – do they handle the permits and that kind of thing, the builder does, or how does that work?

Respondent: Often, the builder does not. If it's an agriculture builder, they often don't really get involved with the permits. So that's where you have to go to one of the other two firms. Both of these firms, they'll work with building permits and storm water, ENS plans, and they both do nutrient management plans. They're sort of a one stop shop for permitting and compliance basically. So there are a lot of other individuals that do pieces of that work, but they're two big ones and I'm sure you know them, in Pennsylvania, that do a lot. For me, it makes sense to work with one that can do more than one thing. Then I'm not dealing with a million different people.

Interviewer: Yeah, the relationship is really important.

Respondent: Yeah.

Respondent 2: And all that comes with not a cheap price.

Respondent: No, you pay for it. You pay for it but sometimes you get what you pay for too though.

Interviewer: Yes. That's the other part. You don't want things to sneak up on you. I think maybe I know this but what about feed? Do you have that as part of your contract?

Respondent: Yeah, as part of the broiler contract. The contracting company provides the feed. In our case, they partner with another local feed mill that makes the feed for them.

Respondent 2: And when we started, they gave us a choice of two companies I believe.

Respondent: Yeah. We had two local feed mills.

Respondent 2: We had a choice. But we're within a mile or 5 miles of the companies.

Respondent: Yeah. In that way, the contracting, our broiler company is an economic stimulus to other businesses in the area by working with them. In some other states, this same company owns their own feed mills. So they vertically integrate even a little bit more yet to owning their own feed mills. But in this area, they work with the local ones.

Interviewer: The other one I wasn't sure about would be like veterinary services. Is that through your contract as well or do you do that separately? How does that work?

Respondent: For the chickens, that would go through our company. If there's a health issue, we first go through our service person. But then if it's above them, they actually have their own company vet. But depending how fast they need to react to something, they would maybe pull in another local vet to assist them if their company vet's in another state or something. I'm sure they would talk on the phone. But if it takes an actual on the farm diagnoses of something, I'm sure they would pull in another local vet. But our company is very large, and they do have their own company vet. But they may need to come from Arkansas.

Interviewer: One specific question and a whole bunch of general questions. Have you ever had a difference of opinion with your integrator about anything, and if you did, how did that get resolved -- anything in general?

Respondent: Yeah. There have been over the years some differences of opinion from what the service man or person – could be a man or a woman – told us to do. And from our own experience, we knew that it wasn't perhaps the best thing to do that we felt just from our experience. So you had to work through some things like that. Sometimes the company would ask you to do an extra thing that would require more of your labor that they felt would somehow benefit the chicks that maybe you didn't totally agree with that. And also it was requiring more labor, and you didn't really get paid for it. So you always had to work through some things like that.

Interviewer: It's just a matter of conversation with the service person or you'd get a supervisor involved or something like that?

Respondent: On occasion. Over the years, if they were asking producers to do something that a lot of producers just didn't agree with or that they felt they weren't properly compensated for, or if the fuel price shot up through the roof and it's not part of our contract but it's part of our cost of production, then on occasion, if they would hear enough grumbling out across the country side, they would hold a grower meeting and address it. So sometimes it would be taken care of and would benefit the producer a little bit more, sometimes maybe not, just would get a pep talk. So there are occasions. And with anything, you're going to have differences. But you work through them, sometimes not to your benefit but you just suck it up and move on and realize that you do have a contract that's steady. And over the years, there are some growers that jump ship and go to another company, which, hey, that keeps companies honest. They realize a few guys are gone, so they realize they'd better step it up if they want to keep people.

Interviewer: It's beneficial for them to have a grower meeting every now and then to hear what's going on.

Respondent: Right.

Respondent 2: And they do have, once a year, there's a grower meeting.

Respondent: Yep. We have one on Wednesday.

Interviewer: Big picture. So just from your perspective, how do things like Cooperative Extension, 4-H farm shows, all that kind of thing, how do you see that contributing to the business? What's the advantage of those kinds of programs happening and being around?

Respondent: You're talking specifically in poultry or in general?

Interviewer: Poultry or general, either way.

Respondent: I think there's a real value to the Extension work and what they do as maybe just one rung in the wagon wheel. When it comes the poultry, I think maybe some more value comes out of Penn Ag. When it comes to poultry education, then the Extension. In dairy, I think a lot of good mid and low-level dairy training comes out of Penn State Extension. At the high end, more upper-level advanced management type training I think comes out of some other organizations like the Professional Dairy Managers of Pennsylvania, Dairy Center for Excellence a great resource. And a lot of these agencies are working together. But like the Dairy Center, they're doing a good job of there. They've found ways to work together with PDMP and Penn State Extension in some cases.

Respondent 2: And I think they, meaning anybody, even whether it's 4-H or FFA or Extension, they see places or farms that have been doing a good job, and they use those farms for education or training experience for many other farmers. They aren't taking extension tours to farmers that aren't doing a good job. They're taking people to farms of farmers that are doing a good job, and that's a learning experience for everybody, for one person to learn from another person. And they're putting that stuff together.

Respondent: I think anytime, whether it's PDMP, the Dairy Center, or Penn State Extension, anytime that they can to partner with private industry partners, I think it can be a real benefit too. And even at the Penn State University level, anytime some of the professors up there in the programs can partner with industry, it can be a real training benefit for those students that are going to come out. And that's probably my biggest concern. I'm a Penn State alum, and my son and daughter are both up at the main campus right now. But I would really like to see more partnerships at that level training those kids and getting them out there on the large dairy farms, the most progressive operations in any livestock that they get on and working with the big companies and helping them maybe at a higher level more joint programs that maybe some private funds are coming in to help fund it. There's some of that going on, but even at a higher level, I just know some other programs that are really working hand in hand with the industry. And I'd like to see the Penn State Ag kids competing a little bit heavier with the Cornell kids up there. I know a lot of both of them. Are you Cornell? Okay, you're not. But I just know a lot of people. My son could have gone to either – Cornell or Penn State. He chose Penn State.

Respondent 2: Or Delaware Valley.

Respondent: Or Del Val, which I know the head of the department. I have some good connections there. Anyway, I'd just really like to see some aggressive training of these students in Pennsylvania to get them ready to be thinking really progressively coming out.

Interviewer: Your point is really well taken. I think the more we can get them out there experiencing it while they're doing their education, we're looking at some apprenticeship kind of models now that actually would build that into their coursework. There are lots of issue.

Respondent: I know. It's not a simple fix. I've got the microphone in front of me now. I just know what Dave Galton did for the Cornell dairy science program. That Dave Galton, I think that guy is single-handedly responsible for 50% of the milk in the Finger Lakes region up there, training all of those guys that are running the farms now.

Interviewer: Yeah. We've heard some good things about Wisconsin too adding in somewhat I think you would call middle level training which wasn't going on. And they've put that out around the states. So we're looking at a lot of those kinds of things. I think you're right on. I'll edit that comment out. But there's way more that we can do absolutely. You said you would talk to other producers. Is this just casual conversation? Do you meet them at church? Do you meet them wherever? Where do you actually run into other people in the business and have those kinds of conversations about, hey, what are you doing and how does it compare to what I'm going?

Respondent 2: I think that's where the PBMB....

Respondent: Well, in the dairy, we're very involved with PDMP but we also – my brother and I are members of a peer discussion group, a group of the most progressive dairy men in the state that we meet like three times a year and share some confidential numbers and management schemes and everything. It's all to make each other better, and we get on each other too. If we see a weakness in a farm, we aren't afraid to ask what's going on there. And that's a real learning tool for us in a peer group like that. And as far as in the broiler industry, we have friends at church that have a whole bunch of houses. We have just different friends in the community. The guy that runs a combine on our farm has a couple of broiler houses. So we're sitting in there harvesting corn. We're picking our brain how to raise better birds. So just different people we know – sometimes, you're sitting around the table for some reason or in the pickup and you just aren't saying, hey, what are you doing there with neighbors. We have neighbors in broilers too.

Respondent 2: And you go to those guys that are looking like they're doing a good job or hearing they're doing a good job and you glean from them, and they've gleaned from us.

Respondent: Yeah, you share. If you know somebody is performing well – I was on the phone an hour ago before you got here with another dairyman in the area. We call each other. And he called me. We were talking about packing souse, and how the density is related to the lactic acid production. He just called me up and said, hey, and we just bump things – hey, what do you think. So just conversations like that, you learn so much. It's nice to have a network that you can call. If we're having an issue with the broilers, we probably have 4 to 6 people that we could call and they'd share anything with us. And they're good growers. So that's important.

Interviewer: That's a supplement then to what you have in terms of your business relationship with the folks you're working with.

Respondent: Sometimes it's nice to have just a viewpoint independent of the company. I'm not trying to say anything negative about the company but usually servicemen basically have to relay what they've been told from headquarters or the person above them, which that's their job. That's what they've got to do. But sometimes we can learn from other guys as well.

Interviewer: Absolutely. That's what life's all about. Here's a weird one – have you personally ever invented anything that makes this easier? A process, a thing, whatever?

Respondent: Good question.

Respondent 2: We've invented things, like I'm thinking of the drying floor for the separated salads. You see one guy that has pipes laying on top of the floor. You pull the pipes out to move when you've got to scoop up your separated salads. Well, why not put those pipes in the floor and put air in the floor. Maybe there are other people that have thought about that, but that's one thing you did.

Respondent: Sometimes people ask me about some of the crazy things that we're done around here. And rather than claiming to be an inventor, I usually claim that I try to steal good ideas from other people.

Respondent 2: From smarter people.

Interviewer: That's called an engineer.

Respondent: And we get out a lot in other operations, and if there's something interesting happening somewhere, we like to go see it so that we can learn. We're learning all the time. And if we see something good, we say that's great. But if I had it, I'd just tweak this a little bit. So we'll take that back and we'll tweak a little something and do it on the farm here to make something pretty neat. But I can't claim it as an original because a lot of times, we're borrowing other ideas I guess.

Respondent 2: Again, you've got to be thinking out of the box. Here when you had a natural gas line going basically through our farms about a half a mile away, and maybe I started off by calling up the company and saying would you be interested in bringing gas over here. And I'm not sure if the first answer was, well, I don't know, and then maybe I don't know if we contacted again and I put *John* onto it and the next thing you know, they're saying yes we want your business because they realize how much we had. If you don't think of that thing, if you don't ask, you don't know.

Respondent: You've got to sometimes have the attitude of why not. Rather than can I, just ask the question, why not. A phone call is cheap. I always tell my kids this, I said it's better to I ask a question and get a no than not to ask the question at all. I said sometimes you're going to get a yes and you didn't expect it.

Interviewer: They say that 70% of all innovation comes from users, people who see it in action and do the little tweak. It's all innovation. Good stuff. So what do you see for the future of the business? You've had an interesting number of years. You've been involved in it for 20, it's been around for you even longer. What does the future hold?

Respondent: What does the future hold? Well, I guess I have to say I think the future is good in agriculture but don't ever be set on your model that you're working with now. Be willing to change. Be willing to add value. Be willing to overturn that rock and find something that you didn't see before that can turn into another enterprise on your business. Look for the area of opportunity in your business model, whether it's building another chicken house, or whether it's not building a chicken house and just doing something better, maybe putting in a chicken manure incinerator to heat your house and save fuel. Add value in some way. Save costs in some way. Add extra expertise to do a better job. Do something that's going to put your business in a better position for the long term. Sometimes a lot of our sustainability projects, we look at as long-term stability in our business. If we can be the more sustainable and the more environmentally sensitive, it means farm security for the future. So constantly looking at new ideas and not always being the first to adopt them but being a close second or third. Or after that first

person learned by a couple of hard knocks, you can hopefully jump on and learn from their mistakes and improve on it. But along with that, the future involves – if you want to be a family operation, it requires proper transitioning between family members like dad's sitting here. And my brother and I, we've farmed together in partnership for many years. And then two years ago, dad transitioned, stepped back out of the ownership. Still very involved. So now we're in ownership. But now in the back of our minds, we're thinking about our kids. I have the older ones that are starting to go through college, and then my brothers are following thereafter every two years. So we're starting to think, okay – we want them to do what they're interested in. But if they do have an interest in the farm, what is the proper way to expose them – not commit them – expose them, let them develop. Or in some cases, it may be they should go off, work somewhere else, gain a skill set, come back, bring it back to the farm so they bring something back that's added value. It could be in the model. We didn't set all of that up, but we're thinking. We're thinking, but the biggest thing is we want to allow an open door that if they have something to bring back of value and they have interest, we want a place for them. But we also are thinking if say for some dumb reason no kids would be interested, now we've structured our business in a way with LLC and some LPs and different things like that that if no family members would be interested, we could bring in a non-family member into an operating business and keep some real estate and different things separate, and have a way to keep the farm going without family members. If it came to that, we do have a plan. So I think that's all important in the future of keeping an existing operation rolling. You have to think about those things. But it's not fun work walking through all that stuff. It takes a lot of long meetings and talking.

Respondent 2: And a lot of money.

Respondent: And money. If you're going to do it right.

Respondent 2: It's going to cost a ton of money. But as the boys keep reminding me and I see the bills, I say man, this costs a bunch of money. And they can remind me that we'll probably recoup that maybe in a year or the same year or double it or triple it. But the other thing is you don't want to stifle dreaming. When my dad bought the farm where I live on – I don't know if I told you this already or not – he paid \$11,000 for that farm. And his dad told him, he said you'll never make it. So you don't want to do that. You want to dream. Until I was ready to farm, he had two farms. And he bought that at about 29 years old, and he worked for about 25¢ an hour. So I remind people how most farms are worth a million dollars today and I say how long is that going to take you at \$25 an hour to buy a farm today? Is it possible? With a lot of work, it might be. But it's a struggle. But you've got to be able to dream because who would ever dream when I started that from 18 cows to where we are today? But I had two sons that helped to make that possible. I didn't make that possible myself. You've got to continue to dream and you've got to look for opportunities. And if it's a good opportunity, you don't want to pass it up if it seems right.

Interviewer: Your earlier comment about dreaming big is really appropriate. People don't dream big enough. Good stuff. I'm trying to think, there was one other question that I had. You were talking about the peer groups that you are involved in. Who organizes those? Is that through one of the associations or do you do that on your own?

Respondent: Our small peer group that we call our discussion group is just basically organized by just that group of farmers and one facilitator consultant. That facilitator consultant, he's the one that sort of organizes the meetings. But we wanted to be independent of any other organizations and independent of any sales people. We didn't want it to become a group, you know, somebody come in and try to sell you on their product. We wanted it just to be a group that we break down our numbers and share them in a confidential way among each other that we can gain knowledge to better each of our operations. Once in a while, we'll pull in somebody. If we have a specific topic, we'll pull in an expert to talk about it. Topics can range from heifer management. We can analyze reproduction percentages on our dairies. We can maybe focus on feeding facilities, or breakdown feed cost per hundred weight. We've had a meeting on

that. If somebody is running a low feed cost per hundred weight, the guys are all over them. What are you doing? What are you feeding? Who's doing your formula? How much milk are you making with your low-cost feed? Is it due to your superior forage production growing it, or is it due to buying some cheap feeds that we don't know about? We break it down. We want to get to the bottom of it.

Respondent 2: And you've got to tell us.

Respondent: Yeah. Indeed.

Interviewer: Everybody is there to share.

Respondent: Or we see a guy, his feed cost went way up. We put the graphs, the PowerPoint right in front of us, all the farms. If one's out of line, we're like what happened dude. What's going on? That's some story, you know. But we learn so much from it. It's a good group. But unfortunately, you have to have a small group to do such a thing. But it is a model that could be duplicated I think on some other farms too, but you have to have a certain group of people that are willing to open up, share some numbers that they normally wouldn't share, and keep it confidential within the group.

Interviewer: I've seen it with some other businesses but not so much in Ag. But that's a great model. It really is. Good. I have taken more than an hour.

Respondent 2: It went pretty fast, Scott. Way to go.

Interviewer: I thank you. What you've given me is confirmation of a bunch of stuff that's out there in the literature and all of the rest of it. It's very, very good. It's exactly what I was looking for.

Respondent 2: Well, we want you to get an A on your report.

Respondent: So you can get your doctorate.

Interviewer: That's up to the big guys up in Penn State. But again, I thank you.

Respondent: Is that where you're studying at, Penn State? Okay, well then you'd better maybe blank out my comments about them stepping up their program.

Interviewer: I tell them that every year.

Interview Three

Interviewer: Thanks for doing this today. I really appreciate it. It's going to be a series of questions, a lot of it just around what you're doing in your poultry practice. And we want to specifically talk a little bit about what you've done in terms of any kind of innovative practices and that sort of thing. But first of all, can you tell me how you got into the poultry business?

Respondent: Twenty years ago when tobacco was no good, I looked for an alternate cash flow and so got into two broiler buildings.

Interviewer: Okay. And then did you expand from that?

Respondent: No. I've had the opportunity but I'm more of a do-it-yourselfer guy. If I can't do more, I'll just do what I can do.

Interviewer: So what else were you doing at that time then?

Respondent: Feeding beef cattle and growing tobacco, and then the tobacco price crashed and I worked away part time. And then to look for something to replace more outside job/tobacco, I was looking at contract [Inaudible 00:01:09] buildings or layers or broilers and I got in. I kind of decided I liked the broilers. And then about 10 years ago, I got in the organic end of broilers.

Interviewer: In those early days, what was attractive about being in the broiler business?

Respondent: A steady cash flow, made the payments, which in 20 years' time, it made my payments pretty well and my living expenses.

Interviewer: That's great. In those early days of your involvement with broilers, who was your go-to person? Who would you go to ask questions that you had or if you needed help in any way?

Respondent: Well, basically the contractor gave me all of that. But I had asked some advice from neighbors that had broiler houses prior.

Interviewer: The people you had your contract with, your integrator, to what level did they give you – what level of information? Pretty much everything?

Respondent: Pretty much. They tell you how to take care of them. They figure out the feed program, supply the feed, supply the chicks, supply the vaccine. Actually, they do the vaccine work. I don't have to do any of that. Basically, all I've got to do is walk them a couple of times a day and remove the dead, and you're tied fast for the weekend.

Interviewer: What's the other basics of the contract? What's involved in there? What are they doing for you? What do you have to do for them?

Respondent: I have to supply the building and the labor to take care of the birds. They supply the birds to feed, and personnel to check them once a week or call if you think there's something wrong. They'll come out and evaluate and figure out what to do for corrective measurements.

Interviewer: And then how does the contract work in terms of just the basics? Do they have certain measurements that they have in terms of you getting paid? How does that work?

Respondent: The week your chickens go, they take all the growers that week, and you're ranked the best in feed conversion, the best in weight gain. And the guy that has the best fuel consumption, best fuel conversion is of course the top guy. He gets a couple of dollars more than the guy that has a poor feed conversion / poor fuel cost.

Interviewer: Now fuel, is that calculated into it or are you on your own?

Respondent: Nope, fuel's calculated into it with the company I'm growing for. They supply the fuel.

Interviewer: Okay. Interesting. So in other words, they're able to supply in bulk?

Respondent: Apparently.

Interviewer: Okay. How do you see things changing in the poultry business over those 20 years that you were involved?

Respondent: A lot more bio security, animal welfare audits. Being since I'm in the organic business, I go through a couple of animal welfare audits, an organic audit.

Interviewer: What made you change over to organic 10 years ago?

Respondent: More money.

Interviewer: Oh, okay. They pay a premium?

Respondent: They pay a premium. But now since they have a lot of organics, they took a little bit of that premium away. But it's still better than the regular.

Interviewer: Okay. Does it add any additional work to it?

Respondent: A lot of people work headache. I actually have less birds because the organic birds are a bird per square foot. Before that, I'm not sure what it was – .75 a square foot or something like that. In a sense, I have less birds.

Interviewer: Okay. Interesting. Here's kind of a more general question – as you look over your 20 years in business, what's been your greatest success? Where have you been most successful, both in terms of the poultry business but anything else in business too?

Respondent: Probably, some off farm stuff that I'm involved in is more profitable. It's not the work I like.

Interviewer: Okay. So you're finding other ways to use your talents?

Respondent: Right. Yeah. I grew up at home. We had a farm plus a small butcher shop – processed beef. And I worked in that for quite a few years after I started on my own. My dad owned it. Now my younger brother owns it and I help occasionally but not much. I got involved with this other guy here in dealing in used farm machinery, and that's an interesting thing.

Interviewer: Basically selling it?

Respondent: Buying and selling.

Interviewer: Buying and selling.

Respondent: Finding it and trying to guess what the next fad's going to be and what the people want.

Interviewer: I hear you. Yeah. Are you doing any service work or anything like that?

Respondent: No. We just buy and sell. We'll buy something that needs fixing and fix it. But if you bring something in, no, we don't.

Interviewer: I'm sure there's a need for bobcats right now.

Respondent: Yeah. It was crazy before the snow storm.

Interviewer: I'm sure. The other question, did you ever experience anything that threatened your business, that was a negative that kind of jumped out at you that you weren't expecting?

Respondent: All this bio security with the AI threat that's around makes it kind of hard. You've got to be a little careful where you go. That's the negative thing. Other than that, I don't...

Interviewer: You're kind of on an even keel all the way through?

Respondent: Yeah.

Interviewer: Cool. The work you're doing with your integrator is pretty much prescribed by the contract. The contract lays it out and all the rest of it. What do you do beyond that? Are there any places where you can get a little edge, make a little bit more money? Where's kind of the extra...

Respondent: Not really because they holler at you – they want it their way. I'm actually kind of a slave to them. Now when I went into putting this litter burner thing in, they weren't... But they are reimbursing me for their average propane cost. They'll reimburse me for that, so that helps, plus makes my litter worth something.

Interviewer: Did you get any other help?

Respondent: I got help from a PENNVEST grant, which supposedly they got the rights to my nutrient credits that I'm creating. But so far, that market is up in the air.

Interviewer: It's hard to know whether that's going to be reestablished.

Respondent: Yeah. And it's going to need something like that to make a little burner even worth your – if you want to pay everything up front and do it yourself.

Interviewer: But right now, you see it – was it a good investment, not?

Respondent: I'm still learning. For the time I put in and what I get reimbursed in propane, it's about to break even. It's not a profit making machine. But that's what I'd like to see with having a market for my ash, and a nutrient credit market which is all something that isn't established yet.

Interviewer: Interesting. Is there anything else like that that you'd been involved in in terms of energy efficiency stuff?

Respondent: I have solar panels to produce my own electricity for the farm and the chicken house roof, and I'm playing with miscantis grass to grow my own bedding for the chicken houses instead of buying shavings. It's also still a learning curve.

Interviewer: How'd you get into that?

Respondent: The guy that installed my burner was saying I could grow it myself. If corn is \$2, it's probably something that's for what shavings cost. But if corn's \$7, the shavings are probably a better deal.

Interviewer: So it's kind of a hedge on where the price is going to go.

Respondent: Right. Now, this miscantis grass, you plant once and you don't have to...

Interviewer: Really?

Respondent: It regrows every year.

Interviewer: I don't know much about that.

Respondent: I have two different plantings. My oldest planting is four years old. It takes three years until its established real good.

Interviewer: And have you tried it? Does it work?

Respondent: Yeah. I have some in right now in the one house. I'm still learning that. It's something new, and I can't ask advice here or there. I've got to learn how deep I want it or how fine I want it chopped or how to handle it. I've got to figure all that out.

Interviewer: Do you keep that record in your head or do you write that down somewhere?

Respondent: Usually I keep. In my head and think. I chop it with our 4-H chopper that we use to cut silage for our cattle. First, I was cutting it with the disk spine and baling it with a round baler and running it through bale chopper that that's way too time consuming. It didn't take me long to figure it out. I have the chopper in the shed. I might as well use that.

Interviewer: Is there an issue with moisture or anything like that?

Respondent: You wait to harvest this stuff until a frost kills it. Then a try to manage it to harvest it and put it right in the chicken house. Now once I get enough like for my summer flocks or so, I'm going to have to figure out how I want to store it, but I'm not that far in it yet.

Interviewer: That's fascinating. That's cool stuff. I'm sure Greg likes to know about that stuff.

Respondent: Yep. He checks up on me there.

Interviewer: That's good. Anything else along those lines? The solar panels, did you do that six or eight years ago?

Respondent: Seven years. Actually, since I put this litter burner in, I use more electric because it's all variable speed pumps to pump the water and run the burner. And I get an electric bill again. So now, this spring I'm filling the chicken house roof with solar panels to offset that electric.

Interviewer: Interesting.

Respondent: And it costs about half of what it did six or seven years ago.

Interviewer: Because six or seven years ago, everybody was doing it.

Respondent: I don't know, or either it got competitive. I don't know.

Interviewer: That's true. There's been a lot more manufacturing and everything.

Respondent: It costs about half a kilowatt hour than it did when I put the other system on.

Interviewer: Interesting. Cool. What else? It sounds like you've got quite a list. That's great. Are there things that you're doing in the energy world?

Respondent: No. I no-till all my crops. I have my own no-till corn planter, and I do some custom notill planting for other farmers.

Interviewer: What do you see as the real advantages of no-till?

Respondent: It's 10 years now that I'm no-tilling. I don't know, if you look at your workload, it's a lot less work. You don't have to plow; you don't have to work it. My crops took about three years, but my crops are just as good I would say now.

Interviewer: What's the payoff on your equipment then? How long does that take?

Respondent: Well, I bought a new no-till corn planter with intentions to do custom work to offset the cost of owning that, plus my labor savings by going no-till. So now in the last two years, I replaced the old planter and got a new one again with auto steer and all that happy stuff.

Interviewer: That's pretty good.

Respondent: And slash use the reef program that the state of Pennsylvania has.

Interviewer: That's good. People seem to think no-till is the way to go in cropping. I just read an article that something like 30% are into it, and it's going up every year.

Respondent: Yeah. Here in this area, it really went up in the last five years.

Interviewer: That's good. Good. So when things change, so bio security comes in and you have to do things differently, or any change that you make in terms of using a different piece of equipment, that kind of thing, who actually gives you the information on how to do it? Where do you go? Do you get what I'm saying?

Respondent: I'll go to the Penn State sponsored days, equipment manufacturing, or ask someone that owns a piece what they think or like or not like about it.

Interviewer: So there are a lot of different ways you can get the information.

Respondent: Right.

Interviewer: Let me ask you just about a couple of specific things about who are the go-to people for these various topic areas. So AI, who are you getting most of your information from in relation to that?

Respondent: From my integrator, and I'll read what the Lancaster Farming says.

Interviewer: Okay. I know there are a lot of environmental regulations in running an operation. Who do you go to for that kind of information?

Respondent: Team Ag, they do my nutrient management planning, and they've done all the legal work for this litter burner. They did a good job in all that respect. Then I read the Farm Bureau's paper, what they have in.

Interviewer: Team Ag's pretty broad based in terms of their knowledge. What about the animal welfare issues? Is that primarily the integrator, or who else is kind of active in that?

Respondent: The push behind the animal welfare is the food chain. They want responsibility and they want to know where it comes from. That's probably more than the integrator. The integrator is forced to do it.

Interviewer: In other words, they're responding to consumer demand.

Respondent: Right. And then they pass it on down to us.

Interviewer: You were saying that they do audits and that sort of thing on a regular basis. Is that part of it?

Respondent: Yeah. The integrator, they set all of that up and usually tell us which day.

Interviewer: In terms of your relationship with the integrator, do they give you some sense of the market factors, the consumer demand, kind of why they're doing what they're doing, anything like that?

Respondent: They have a quarterly newsletter. Usually a good gauge is if you just have a week downtime, they're selling a lot of chickens. If you have three weeks of downtime, it's slow.

Interviewer: Right. Yeah. How about after you built your two houses, did you build anymore?

Respondent: I built my first house in '96 and my second house in 1998. No, I'd had opportunity to build more. But then I would've had to hire help and I just decided I don't want to get into that.

Interviewer: As far as building those two houses, did you get much help from the construction people or were they just following the specs that the integrator put out?

Respondent: The integrator usually has its specs. No, I was my own general contractor when I put it out in bids. But we still followed what the integrator's specs were on the building and equipment and stuff like that.

Interviewer: And you said feed and fuel is pretty much included in your contract.

Respondent: Right. The integrator takes care of all of that. I have to check my bins and do the ordering, but I never see a bill.

Interviewer: Okay. Interesting. So they [Inaudible 00:18:34] at the end of the period as far as that particular flock.

Respondent: They keep track of all that. I get a slip, but as far as paying it, it's not my problem.

Interviewer: Have you ever had a difference of opinion with the integrator? Can you think of any examples?

Respondent: Yeah. We had different service men with different ideas. But usually they're right because they have the upper hand.

Interviewer: And you just have to go with the flow.

Respondent: Yeah, you have to somewhat follow what they say.

Interviewer: Can you think of any specific circumstance where you negotiated or they need initiated with you or don't they do that?

Respondent: Not much. Usually you listen to what they say, and sometimes they're wrong but they'll change it. If it costs you money, they don't come and pay after.

Interviewer: Right. As the service guys change over, how much say do they really have in it? They're basically interpreting what the company wants and it may change from service guy to service guy?

Respondent: Well, they are listening what the guy up the ladder from them says and then they're passing it down to us. If they get checked up on and it's not up, then they get hollered at. If I get checked on and I'm not listening, then I get hollered at. The service man is kind of right, like me.

Interviewer: He's just doing what he's told.

Respondent: Yeah.

Interviewer: Have you seen any big major changes, or is everything just pretty steady over the last 10 years you've been with this integrator?

Respondent: Vaccines change or stuff. So of their products they use change. I imagine that has to do with price shopping. I never really ask, but you see some of the supplemental stuff you put in water, sometimes it's something different and it's the same thing, different company.

Interviewer: Okay. So they have their way of doing it.

Respondent: Probably, right, like I am if I'm buying something. They can say what's five truckload price, where I could just say what's the skid.

Interviewer: You were talking about you can pick up the phone and talk to various people. Where do you meet people that you're able to ask information? Is it informal, you meet them some place and you pick up a conversation? Do you pick up the phone and call specific people? How does that whole thing work?

Respondent: It's kind of informal. You drive around the country and observe, hey, that guy is doing this or that and that's interesting. You meet up with them, you ask, and you go to different Penn State meetings or so, you meet different people and you hear different ideas, and you come home and think about them, and maybe that's something that I should try.

Interviewer: How about Cooperative Extension, what's their role in the whole mix of things.

Respondent: I'll ask them. I'm glad that they're there. They have some pointers.

Interviewer: They're good on the big issues, that kind of thing.

Respondent: Right. Yeah. And they're good at educating the general public to what the farmer does, here in Lancaster anyhow.

Interviewer: That's true. Do you belong to any other associations or anything like that? If you do, are they helpful in any way?

Respondent: I'm a Farm Bureau member. I thought about signing up to the No-Till Alliance but I never did. It's Farm Bureau membership, and a National Cattleman's Association membership because you get a discount there to buy some farm machinery.

Interviewer: Plus, you get the little newsletters and things like that that may be helpful.

Respondent: Then I have – what's the small business thing called?

Interviewer: The Chamber of Commerce?

Respondent: No, the NFTA – National whatever...

Interviewer: Federation of Small Business. Yeah.

Respondent: I send them a donation, so I don't know if I'm a member there. They sent me a card stating that I had.

Interviewer: Step back another step, you have a reputation of being an innovator, trying new things. What kinds of things have you invented?

Respondent: Nothing really.

Interviewer: Oh, come on, little things.

Respondent: Just maybe tweaked some things to make them work better. I never really looked at myself as an inventor.

Interviewer: But I think that what people don't understand is that something like 70% of all new inventions are actually done by users who actually take it and just tweak it a little bit.

Respondent: That's like this litter burner. It's designed to burn a lot of other stuff. If I wouldn't have had a good support group there in that to try and learn, it probably wouldn't have looked so good either.

Interviewer: And you got into that through PENNVEST?

Respondent: Well, PENNVEST agreed to supply the funding. I got into that through being nosy and thinking chicken manure is a liability to my litter. And every year, I used to be able to get ten bucks a ton if you loaded it in the guy's trailer. Now you're lucky if you can get something. And if I can replace my propane with it, all of a sudden it's an asset instead of the liability. But you've got to figure out a way to make that work.

Interviewer: Right. So you just kind of poke around until you find [Inaudible 00:24:58].

Respondent: Yeah. I poked around here and there and looked at a couple of different stuff. I don't know, one day everything just kind of clicked and we went ahead with it.

Interviewer: That's great. Do you have any family members that are coming into the business? What's your setup?

Respondent: We have four daughters and they're all married. No. Two of them live right next door to the farm here. They'll help me. If I want to go away, they'll check the chickens, but nothing as a fulltime. One of these years, we're going to have to start thinking about which one's going to be taking over the driver's seat in the farm.

Interviewer: That's a hard decision. Sometimes you've got to get other people involved in that.

Respondent: Right. And the point is, I'm not ready to give up yet. It's all I know.

Interviewer: I get that totally. So what's the future, not just about ownership but in general. Where do you see things going in the industry? What are you doing to kind of prepare for that? What's down the pike, for real?

Respondent: If I look at the last 20 years, it seems everyone's marching and getting bigger, and the smaller guys really have a struggle in getting started now. Towards 20 and 25 years ago when I was starting, there were a lot of single one-horse farmers. That's really changing here this area – bigger operators that farm more acres. They have all their animals at one place. I see the trend continuing for that.

Interviewer: Are you going to have to get bigger? What do you think? Are you at the right scale at this point?

Respondent: I probably won't get bigger because I have my things paid. I can make a good living. But as to handing it over to the next generation, there might have to be some thought put into that versus maybe just make sale and sell it when I'm tired of it. With all the regulations and stuff, it just doesn't make it as appetizing for someone young to step in.

Interviewer: Where do you feel that the most in terms of the regulations? Water?

Respondent: In everything, nutrient management – it's just another job added to your daily workload that don't really pay you anything, but you've got to do it.

Interviewer: We call that unfunded mandates. You're required to do it and you don't get paid for it.

Respondent: In my end product, I don't get more. But I've got to do it.

Interviewer: Right. So basically over the 20 years, you've been able to pay off. You're at the point now where you're kind of an even basis. Obviously you've got some side businesses. Is that where you're going to kind of be in the next five to ten years?

Respondent: I see me being there in the next five to ten years at this point. I don't quite see enough of profitability in expanding in the farming end, that's why I have my fingers in the side business.

Interviewer: Sure. I get that totally.

Respondent: How we figure that out to get the next generation in the door in the farm, maybe they'll need a side business too.

Interviewer: Sure. You've done it for all your career.

Respondent: I could build more chicken houses and not have a side business. But that's the expression, all your eggs in one basket. If this flu thing hits or so, I'm not going to be quite out high and dry. I'll still have income from other sources.

Interviewer: How does that work -- just a side question -- with the integrator then? If anything would happen, it's their birds right?

Respondent: Right.

Interviewer: But you're not getting anything out of it, so it affects you too.

Respondent: Yeah. Because I won't see a paycheck, and they won't either.

Interviewer: Plus, all the cleanup and everything. Yeah.

Respondent: Right.

Interviewer: Interesting. When I first started with the Department of Ag, the second day that I was there I went to a briefing on AI. They've taken it really serious. But hopefully they're driving some of the good stuff that's happening, keeping people aware. What else did I miss? What else do I need to that?

Respondent: Well, to run an operation like this yourself, you're on the clock 24/7. And if it snows, it just adds another layer of work to your load like it did this past weekend.

Interviewer: So you have some family. You have neighbors who can help, that kind of thing. But you're the guy on the spot.

Respondent: Yeah.

Interviewer: Good. Any other questions or comments? That's pretty much my list of questions.

Respondent: I don't know what to add. I enjoy what I'm doing.

Interviewer: That's good.

Respondent: If I want to go on a week's vacation, I'm going to have to find someone to step in and that's capable, and that takes some doing sometimes. I can't just tell the boss, hey, I'm not coming next week.

Interviewer: That's right. Yeah. It's all on you. Well, I thank you for taking the time. We'll write this up. We're doing probably about probably 8 to 10 interviews. Let me turn this off.

Interview Four

Interviewer: ...locally was doing an expansion, and were looking to contract with some farmers to raise birds for their program. We had looked into that. My dad looked into that and wound up building two poultry houses through that expansion and through that contract. At that time, I was in high school, so gained some exposure just through working with them on that. Then when I was going into college, my dad was getting older and not sure what he wanted to do with the farm. He actually built the poultry houses on the adjacent farm, which was not the home farm, just a small farm. So my brother and I got together. And I also had another friend who had a farming background and poultry background and grown up on a poultry farm. So the three of us formed a partnership and decided that we wanted to build some additional houses. (Integrator) at that point in time – this was '96 I guess – they were going through yet another expansion looking for additional houses. Back then, if you wanted to build poultry houses, you had to find an integrator who wanted to build them. So we had decided to go ahead and start in the poultry industry, and actually through that process we were able to acquire the home farm from my grandfather. And went to the bank, put together a business plan, put together plans to build some poultry houses on that farm to help with cash flow. So it was essentially also a succession plan of transferring it from one generation to the next, and that's how we got into the poultry industry.

Interviewer: That's great. Were you in college at that point?

Respondent: I was. Yep, I was in college at that point, had just started college. So we started the partnership when I was just a year out of high school. I was 19 years old, and started the partnership. So I got into business and kind of was initiated by fire to some degree. But it was a lot of fun because the things I was learning in college, I was actually able to apply. So I was commuting to Penn State, officially at the York campus, but took some classes through the Berks campus. So I was a commuter and able to take college and do business during the day. I was taking accounting classes and actually setting up accounting systems during the day in the business, so it was a fantastic way to really get practical application of what I was learning in college and all of that.

Interviewer: That's really good on the job training.

Respondent: Yep, absolutely.

Interviewer: So in those early days, you had partners. You grew up in a family – were they people that you would go to for advice, or kind of what's that connection with the group of folks that you were in relationship with at that point?

Respondent: My brother is a good bit older than I – he's 7 years older than I, and the other gentleman we were working with was older than he. Both had some business experience and business backgrounds, so it was good opportunity for me to really learn and be able to work with someone else who had a good bit of business experience. So I was able to really gain a tremendous amount of learning through that relationship. We would meet every week there in the early days, and I was able to kind of go to them with my problems, my issues. I was always the managing partner running the farms. They both were involved in other business operations. So my brother was in another field. Well, both of them were in other fields as well but all of us had background in farming and background in poultry even. That was a neat experience to gain that, and I've always had a love for business and small business. Never really knew I would be in farming full time believe it or not, but always liked business and always knew I wanted to do something in business. And really was able to make that connection probably there towards the end of high school, and with the opportunities that came up, was just excited to pursue those from a business standpoint.

Interviewer: Your education gave you a good base, then, to work with.

Respondent: It did.

Interviewer: So you were talking a little bit about if you were going to get into that at that time, you would really need to hook up with an integrator. What was that like in terms of getting started? What things did they require of you? What help did they give you?

Respondent: It was a very organized process. And actually, I have some relatives, and you know Phil Good from the counsel – he'd be another good one for you to interview actually – his grandfather built some of the first poultry houses in this area. And they're still farming them today on his farm. And he was a relative. I think it may have been a brother or brother-in-law to Victor Weaver who would have been the first poultry company in this area, which was then later bought by Holly Farms and then by (integrator). But Victor Weaver was really the pioneer in the poultry industry in this area, and had Weaver's chicken, of course. So we would talk with them about their experience. They built houses I think in either the late fifties or sixties, very, very early on. And that was when Victor kind of came to them and said, hey, I've got this idea. So the industry really developed. We had connections with other people who had had a long-term experience in the poultry industry and what that looked like and what those contracts looked like. And by the time we got involved in the industry, it was very organized. And they had specs on exactly how they wanted the houses built, how they should be built, specs on exactly what your income would be on average, and what type of work you needed to do. So it's very helpful. It's almost like a franchise type environment where they come in and help you with all of the big things. And to the large extent, the whole meat bird industry was moving in that direction such that you couldn't really go out – it would be very difficult to have a meat bird industry on your own. So you had to work with a company that was in that business to be able to be participating in the meat bird industry.

Interviewer: So they were pretty definite about how the houses were to be constructed. What are the other issues that they kind of cover in the contract?

Respondent: They had specs in terms of what expectations were in terms of feed formulations. They would handle all of that, so that simplified that side of things. Medications – they have vets on staff. They have nutritionists on staff. They have all of that side of things covered, so it makes it much easier. Our job is to provide the facilities and to raise the bird as efficiently as possible. So, in a sense, we're just a management company for raising these chickens. We're a livestock-raising management company to some degree, and so it was helpful at that point in time to have all of those basis covered, and the ability to access a larger market as a small farm. You really need to link in with someone like that to be able to access a large market with just a small farm. So that vertical integration that happens in the poultry industry really allows for a lot of the things to be extremely organized. And it takes some of the volatility out of the business as well. So what other things do they provide – the feed, the formulations, the health background, the facility, specs, and basically a general sense of what's required to raise the birds.

Interviewer: Does your integrator deal with fuel? Is that in your formula or not?

Respondent: Originally, the fuel was in the formula in terms of they provided the fuel. But the fuel, the feed conversion, and the livability are really what drove the performance on that contract. So we were basically ranked. Every time you send a flock of birds out, you're basically ranked on your efficiency of how well you grew those birds. That means feed conversion. Feed conversion has always been the biggest driver of that efficiency because how well does your bird convert a pound of corn to a pound of meat. So that is really a strong indicator of the health of your birds and how efficient you're being. But then also, the propane was a factor in those early days in terms of our efficiency, how many gallons of propane you

used per chicken and that sort of thing played into it, and then livability as well. And it was divided into total pounds sent to the plant.

Interviewer: Fuel eventually was taken out of the contract?

Respondent: Fuel eventually was taken out by (integrator) which was a rude awakening, and I'm trying to recall when that was. But that was a very difficult thing because fuel costs had been skyrocketing at that point in time, and then they continued to skyrocket well after they took it out of the contract. They did add a little piece of extra pay per pound for fuel, but it did not cover the total fuel costs. So increasingly, the farmers had to shoulder a larger percentage of costs of the production of that chicken without really having extra income to cover that. So margins over a period of time got more and more squeezed as time went by.

Interviewer: How does it actually work then in terms of a cycle? Obviously you get little chickens. Then what?

Respondent: We get them at one day old. They come from the hatchery directly to our farm usually a day old chicks right out of the hatcher, out of the incubators. And come out to our farm, and then they're put into our houses. We need to have them very warm in ideal conditions, clean and disinfected and all that sort of thing. So you start them at about 92° and keep it nice and warm in there and you try to keep the birds as comfortable as possible and keep them as healthy and stress free as possible because that's going to ultimately raise the best bird. And then each week, we're doing different things. Each day, we're doing different things, adjusting feed based on the growth of the bird, feeders and waters. Everything is very automated – so the feed systems are automated, the water systems are automated. There's a computer in every house that runs every house in terms of ventilation, keeps the temperature at the appropriate level, provides fresh air into the house drawing it into the house with fans. All of that is automated, but it all has to be tweaked and watched and maintained, so it takes a lot of tweaking and a lot of maintaining, and a lot of adjusting. And you do that throughout the flock, really, you're changing temperatures based on the size of the bird. We start them at 92°. They wind up at about 65°. And you're always adjusting air movement, air flow, temperature, water pressure, trying to get them enough water, drinking enough, adjusting the feeders to the right height of the birds so that they're at a comfortable level, can eat most comfortably, get a nutritious intake, and gain weight as fast as possible.

Interviewer: And then are you judged against other growers or how does that whole thing work?

Respondent: Yes. Yeah, every time we go out, and most contracts are similar, they're not all the same – basically, it's almost like grading on a bell curve. You are paid on a bell curve, basically. There's always an average pay rate that you receive. If we go out say this week, there may be say 15 farms that go out this week. It usually varies in that neighborhood – 10 to 15 or so. So if there are 15 farms that go out this week, they will rank each and every farm based on how well they did on feed conversion, how well they did on their propane usage, how well they did on livability. And then you will be assigned an efficiency rating. Usually it's called a standard cost. They usually convert it into a cost per pound, so if you used X number of propane gallons, then divided by how many pounds you send out, essentially you get your cost per pound. And then you're ranked against all the other growers based on those things, and then you're paid accordingly. There's an average pay, and then you can go up or down from average. The top of the bell curve is kind of the average pay the way I look at it, and then essentially you're going up or down based on whether you're better or worse than the average grower in that particular week.

Interviewer: You have a set series of metrics then to work off of. So what keeps you in the top of the curve? I think they're doing this with the assumption there are certain practices maybe that somebody does that are better than others. What's your experience over the years? What keeps you on the top?

Respondent: Yeah, it's challenging. Sometimes I wish I knew that. Sometimes I think we have it figured out, and then it changes for a couple of years. It is a challenge to constantly stay on the top. And we've had some really good runs, and we've had some challenging runs, and sometimes you feel like you're not doing anything different. And sometimes you can just be dealt a challenging flock of birds. It might be a young breeder flock that the layers that had the chicks, maybe they're just a young breeder flock, and a lot of times those genetics are not as good or the genetics just aren't as strong. All those things play in. So it really does vary. To some degree, I think the poultry industry has been on a successive increase in efficiency. So just to stay neutral, you have to be improving constantly. That's one of the challenges within the industry is it's kind of who moved my cheese sort of thing, it's constantly changing. So what worked five years ago is probably not going to be good enough today. So we see that in these birds. The genetics continue to improve. Many years ago, back in the sixties, seventies, I remember guys telling me, old-timers telling me it took 16 weeks to raise a 4-pound bird. Today, we're raising a 6 ½-pound bird in seven weeks. The amount of change that happens – and some people think, they're feeding them all kinds of crazy things. No, it's simple genetics. If you breed the fastest and the best growing bird with the best and healthiest, it's like breeding all Olympic athletics. If you do that for a while, you'd have a super-fast Olympian. So it's selective breeding. But what that does is it creates kind of a constantly changing genetic pool. So those birds that are now growing extremely fast may be a little more sensitive to certain environmental conditions that you've got to manage more acutely than what you would have with just your tough old outside farm chicken that you might have had 30 years ago. So you've got to really be on your game in terms of managing every acute environmental condition that you possibly can.

Interviewer: If you were to rank the top 3 to 5 things that you do in terms of those tweets that happen on a regular basis, and again over the years, not just anything with one flock, what would you say are the things that make a difference?

Respondent: What I always tell the guys is feed conversion is huge. But when you go in there, you've got three things that you're thinking about when you go in a chicken house and are walking through and looking at it. You've got ventilation, feed, and water. Those are the essential three things for a chicken. Ventilation and environment kind of covers a lot of different things. There have been countless books and articles written on it and studies done by it. University of Georgia does a study every month where they release findings. There are so many things that tie into that, but essentially it boils down to those three main things – your ventilation environment, and then feed and water. So under ventilation – having really good air quality but yet not wasting fuel. So you've got to bring fresh air in. It's a balance. On a day like this morning, it's 3° outside. So we need to make a decision how much 3° air do you want to bring into your house to have a nice fresh oxygen amount in your house for the chickens. But yet every cubic foot of air you're going to bring in, you're going to have to heat up with propane. So it's an expense to bring that in there. You're constantly balancing, well, do I want more fresh air or do I want lower costs. And if I don't bring enough fresh air in there, you might save on propane costs, but you're going to hurt the birds' health because they're not going to grow as fast if they're not in a very healthy environment. So it gets very, very scientific. Some of it's learning, a feel for what that looks like. There is a cost and a cost benefit with every decision you make and how much feed you put out for a chicken. Do you put feeder trays out, do you put extra feed out? Do you adjust the height of the feeders? You want them to have ample access to feed, but you don't want them to waste feed by kicking it into the litter. There are these cost benefits that you have to do constantly and make judgment calls.

Interviewer: When you're making those calls, do you keep track of that in some way or another?

Respondent: We try to. We do. We have charts. Some of it is tracked through the tracking that the company does, some of it is tracked on our computer systems. But a lot of it is difficult because every flock is different because the weather is different, the environment is different. By the time next year rolls

around – we have three-week-old birds for example right now to the home farm. Next winter, we may have a cold spell when we have one-day-old chicks. Well, that's a totally different set of circumstances that you're going to have to manage for. That's what makes the difference. There are so many variables and there are so many different things that interplay that you've got to constantly be adjusting and changing and tweaking to get to the optimum level of performance.

Interviewer: Are you the person who does most of that or do you have people that you work with?

Respondent: I have traditionally done that. But as we've grown now, I'm trying to get other people more ramped up on that, and we have been getting others ramped up on that, employees that work for us. And we've done training. In fact, I have a guy who's now helping to manage here at [Inaudible 00:19:35] as well. I've had managers at our other locations that are more remote, but now I have a full time, a real good Penn State grad who's managing for us at [Inaudible 00:19:43] because we're now on an organic bird program at [Inaudible 00:19:50] which requires even more acute management than a traditional bird. So it's upped our game, and it's required us to really take more steps in that.

Interviewer: Is that the only location where you have organic?

Respondent: It is. Yeah. The two farms in [Inaudible 00:20:08] is where we have the organic birds. Now the farms in Maryland and Delaware, we do have antibiotic free birds right now, so that's kind of a level halfway in between conventional and organic.

Interviewer: So the market is determining what you grow and where you grow it and that kind of thing.

Respondent: Yes, it is. Yep, tremendously.

Interviewer: Interesting. In terms of your contract relationship with your integrator, that kind of thing, is that closely monitored or do you have any flex in that?

Respondent: Not a lot. No. That's one of the challenges. There are a lot of advantages or pros to contract relationships in agriculture and being able to access big markets, being organized, being able to take out some of the volatility of the markets, working together, collaboration, synergy, all those things. But the downside is increasingly there's been a lot of consolidation in the industry. So these companies you're working with now are huge and multibillion dollar corporations. So what they say pretty much goes. So you don't have a tremendous amount of input. In fact, that's been a frustration I'd say of producers and farmers in the industry. And that has kind of had its ups and downs over the years, depending on the environment and the market cycle. But there are times, a few years ago here locally for example, there just weren't many options in terms of large companies to work with. So if you don't have many options, the company that's here can become kind of an 800-pound gorilla and make decisions that they want to make, and really the farm producers have almost no say in that. It can lead to challenges, but I think the best solution for that is competition. Where we farm down on the shore in Maryland and Delaware, there are a number of really strong poultry companies. So they are constantly in competition with one another, so they are constantly motivated to try to improve the situation for the farmer because they are continuing to grow and they need chickens and they need housing. It's a different environment down there because of that, which is why we continue to grow and expand down there even though we'd like it to be closer to home. But it's a different environment, and we're increasingly seeing that in this area because there are some additional companies now, especially in the organic market, that are expanding, which is providing a little more competition and more options, which is fantastic for the farmer.

Interviewer: That's great. As I understand it, there's a service rep type person who is kind of your main liaison. How has that worked over the years? Do they help? Do they hurt?

Respondent: That probably depends on when you ask someone. In general, it's a good concept, and I think in general it's helpful. There are times when a service rep can become challenging. That's where they become a little bit of the liaison between the big corporation and the farm producer. So depending on what that relationship is like can really dictate the service tech relationship. In an ideal situation, the idea is that they're coming out weekly to check on the birds to give your advice, to give you input, check on the health of the birds, are they suffering from something where they need to have further assessment, and if so, they're able to help connect the dots with what assessment is needed. So the concept is good, but what can become challenging is if again, XYZ Corporation makes a decision that may or may not seem best or fit a particular farm producer's operation, and then that flock supervisor becomes kind of an enforcer of trying to dictate certain things to a farmer of how to run his farm. And that's where sparks can sometimes fly, and there can be challenging situations that result from that. Again, those are kind of the pluses and the minuses having seen the industry for 20 years.

Interviewer: Just out of your experience, how does that stuff usually play out? Does it get negotiated? Do people talk? Is there any room for movement?

Respondent: Yeah, there is. I think it depends on the company. It depends on the people involved. I have seen good movement in a positive direction from some additional communication, so that does happen from time to time. And by and large, I think the corporation needs the farm producers, and the farm producers benefit from the corporation and having an outlet for the product they're raising on their farms. So it can be a mutually beneficial relationship. I think everyone just needs to keep that in mind that at the end of the day, this is a mutually beneficial thing to the extent we can work together. But as in partnerships, joint ventures in any of the business probably, things can go wrong. And when parties don't collaborate well and don't respect each other well, there can be some real challenges. And that's where you see some of these lawsuits from time to time across the country where farm producers are suing XYZ Company because they don't feel like they're being treated fairly. There is a fear among farmers from saying too much because they're afraid they'll be cut off. Like I said, farm producers need this for an outlet for their products. Without it, they can't sell their products, they can't make an income on their farm. So there is a dynamic there that can be challenging at times. But I think that's where some of the industry associations and industry people, university people, can sometimes be a good bridge because they get both sides, they understand both sides. How can we bring this together to recognize we're all in the same boat here? We all need to start rowing in the same direction rather than magnifying differences.

Interviewer: Has anybody ever been flat out wrong and you've had to work around them in some way or another?

Respondent: You mean in terms of a flock supervisor?

Interviewer: Yeah, a flock supervisor.

Respondent: Yeah, I would say that one thing that can be challenging sometimes is that a farm producer may be in business for 30 years, for example, and then get someone a year out of college who thinks they know it all. And the farm producer's been working in the industry practically speaking for 30 years and they come out and start telling them what to do with every little micromanaging detail, and that can be problematic. So, yeah, I think you try to make it work. If you can't, you call their supervisor. My theory is let's be logical, let's use logic and reason here. But at the end of the day, we both want the same thing. We want a healthy bird to come off of this farm. Now there may be different ideas about how to achieve that, and let's talk about those and dialogue those, but let's also step back and take a perspective that we both want the same thing. The healthier the bird, it benefits both of us. And the healthier the chicken is, it

benefits everyone. And so we all want the same thing at the end of the day. Let's just talk and dialogue about what the best road to get there is.

Interviewer: Just to take a step back a little bit. You've been answering a lot of my detailed questions. I appreciate that. So you've been in this 20 years. In that 20-year period of time, what would you say are the main things that have changed?

Respondent: That's a good question. The main things, production-wise, I'd say the birds have changed. They require more acute management because of their faster growth rates and because there are more limitations on what you can use in terms of medications. Obviously, we're now in the organics, so you can use no medications, which provides a whole new set of challenges. So you need to really do everything you can. Just try to think about it from the kid's perspective, if you had no medicine that you could give your kid if they get sick, you're going to do everything you can to keep that kid from getting sick. We're giving vitamins, we're adding things in their water, anything you can think of that's going to help them and protect them we're doing it because you have to because when you're growing an organic breed, you can give them zero medications. So that provides a whole new set of challenges and requires a whole new set of acute management. That's probably one thing. I'd say margins have gotten tighter over the years as well which requires more volume which happens I guess in a lot of industries that the challenge is in agriculture that sometimes big is viewed as bad. So if you want to continue to grow and expand and do well in agriculture, you're going to have to continue to expand because margins just continue to get squeezed. It's just the name of the game. Again, one of the things driving that is that you have a publicly traded poultry corporation, for example, that is trying to maximize return for their shareholders. On the other hand, you have a farmer who is trying to maximize returns on their farm, so those things are in somewhat of a conflict. So that does create the squeezing of margins over time. But to the extent that it allows the farmer to continue to grow and get a fair return on the investment of putting up the houses and doing the work and managing the birds, it can be a win, win. But I think there have been times throughout the last 20 years where that has been growing probably a bit more tenuous in that relationship because again these big companies are growing so large and there's been a good bit of consolidation. So that does have a little different dynamic than when you have a number of small companies that you have an option of working with. So that's changed somewhat. The health of the birds has changed somewhat. And our meat bird, we don't have any cages or anything like that. So generally speaking, it's not a huge concern. But the perception of neighbors is definitely a challenge, more of a challenge than it was 20 years ago. People just perceive farming operations sometimes with – some people just have a bit more of a negative slant. So you have to be sensitive to that in communicating and educating what a farm operation consists of and how that may look and feel a little different than it did 30 years ago or 20 years ago. But essentially, there are a lot of improvements that came with that in terms of environmental management and health of the birds and all those sorts of things that people really do care about.

Interviewer: That's good. You talked a little bit about energy too. How has that changed over the 20 years?

Respondent: Energy costs, of course, now they're down a little bit. But they have skyrocketed generally speaking. So that has changed electricity, heating. And the manure management thing has continued to change and evolve. That is huge, the environmental side of things. The regulatory environment has been an incredible change in the last 20 years. There is a tremendous amount of paperwork that we have to do now. You have to have all kinds of records and paperwork. And the amount of time you have to spend on that – which again requires you either have to get larger to be able to handle the overhead that that requires, or make a decision just to have a very small boutique operation. It's definitely changed a lot in the last 20 years. Some of it's good. But as with regulation, it usually starts with a good mind set or a good

reason, but so many times becomes a big ugly monster that goes probably a little too far in terms of burdensome paperwork than what it would really have to be.

Interviewer: Again, looking over the 20 years that you've been involved, have you ever experienced anything that has threatened your business in any way?

Respondent: Certainly. I think right now the one threat that we're facing is the Avian Influenza. That's a huge one, and that's something we've talked about since we started our business because that had gone through in the early eighties in this area, and really was not as pronounced of a threat as it is this year with it having gone through the US here last year. That's a very large concern. Probably the biggest threat at the moment to our business is Avian Influenza. Other threats are just being on top of your management. As margins continue to get squeezed, you've got to stay on top of your management financially. You've got to stay on top of your management with the health of the birds. So those have been threats. Certainly, I think to the point of expansion, a threat is that people's misperception of agriculture has made expansion in this area very difficult. It costs a lot of money. The regulatory side of it, what used to take a couple of weeks now can take a year, year and a half to get through the planning and permitting, it can cost tens of thousands of dollars which used to cost almost nothing. So those are all threats that we now face that you have to find ways to deal with and be creative about, and that's, I guess, the name of business.

Interviewer: So the next question is the flip side, where have you experienced the greatest success as you look over that 20 years.

Respondent: I'd say, there again it's kind of the flip side of that. I think the greatest success has been the fact that we've been able to be creative. We've been able to take some of these regulations, for example, and think creatively outside the box. We've put in a gasification system that turns our poultry litter into an energy. So we're turning a liability into an asset. And so some of those things that have perhaps been threats have become opportunities. So we're trying to view those things outside the box. The ability to just grow and expand, I'd say, is an opportunity that we've had in the northeast here because there is a lot of growth in the industry. There are a lot of people eating chicken. The world consumption of chicken continues to increase. We grow the safest food in the world, and chicken is one of the most efficient proteins to grow. Between beef and pork and chicken, chicken far exceeds all the other big proteins in terms of efficiency. So it's cheaper, it's healthier, and the world continues to eat more chicken, and developing countries continue to import more. As the incomes go, there's a direct correlation between income growth and protein consumption, chicken consumption per capita. So we've gone from whatever it was 40 years ago probably I think less than half of what it is today. Today, we're around 91 pounds per year per capita consumption of chicken in the United States. That has all been an opportunity because it has allowed us to continue to grow and expand and be in a business that we feel good about, we feel bullish on for the future.

Interviewer: You guys have been at the right place at the right time.

Respondent: Yeah.

Interviewer: That's a good thing

Respondent: Yep.

Interviewer: So again kind of a little more general question, when change requires doing things differently – you talked a little bit about being creative and that sort of thing – how do you find out about new processes, new products, new technologies? What's the array of things, where do you go to find that kind of information?

Respondent: I think it requires an intentionality to try to learn and find those new things that are coming out. So it requires reading publications, reading research articles. I'm signed up for a number of university research articles that are released. We get quite a number of publications, periodicals. Of course, right here, a big one is Lancaster Farming. It has a huge amount of information dissected every week. And then universities, they certainly provide a lot of good information. And then just communicating with others in the industry is another, just creating that dialogue and having a mentality of wanting to be proactive. Thankfully in this area, there are a lot of people in that boat who want to do well and who want to really be at the top of their game. So it allows you for the opportunity to dialogue with those really good producers. Lancaster County is known for that.

Interviewer: Where do you find that happening most often?

Respondent: It's pretty informal. It's pretty informal that that happens. I think to the extent there are more opportunities to formalize that, I think there are opportunities to continue to formalize that. But a lot of it is informal, seeing people at different events and dialoguing, grabbing lunch with another producer, grabbing breakfast with a couple of producers, pulling someone aside when you see them at an event and talking through some challenges you're facing or some opportunities you're seeing. That's how a lot of it really occurs. There are some conferences. Penn Ag, of course, has their annual Poultry Day, and there are a number of things like that that are good resources that happen periodically. But the vast majority of it is pretty informal.

Interviewer: Probably pretty good.

Respondent: That's right. Yep.

Interviewer: Are there any particular other people that you go to, I mean, like I have a series of kind of topic areas. Anybody else you can go to with questions? You talked a little bit about Avian Influenza. Is that mostly your integrator or are there other people that are involved in that?

Respondent: Yeah. They are probably the primary source. They're sending us email updates all the time. Penn Ag locally, I'm linked in with Penn Ag online so we get email updates on them. I'm also linked in with some veterinary people, so they send out periodic updates. So a lot of it is technology driven, email updates, that sort of thing.

Interviewer: You also talked about environmental regulations. Do you do that yourself? Do you have consultants, a combination?

Respondent: We do a combination. We do a combination. We used to do a good bit ourselves. We're using consultants a little bit more, but that is something that's continuing to increase. Some things, you almost have to use a consultant for now. Whereas, before, we used to try to do as much as possible ourselves. But it's become increasingly difficult to do that, so yeah, we do have a team of people we consult with. We have a main kind of environmental consultant that we work with.

Interviewer: Okay. And you were saying animal welfare issues, it's not as big a deal in the broiler end of things.

Respondent: Right. I would say it's not as big a deal in our industry, in side of things. Layers have been hit with it, and obviously a lot of other things a little bit more. But there's a radical segment out there that really tries to get a voice. With the dynamics of social media and that sort of thing, it's a different world.

Interviewer: Does your integrator ever give you kind of insight into consumer markets and kind of where it's going, or is that pretty much their business and they don't share too much?

Respondent: They don't share a tremendous amount. But at least once a year, they'll have an annual event where they'll kind of give you an update of where they see things going, where they see things moving. And that's been very typical. But on a month to month, yeah, you get if you ask. And we do ask because our production cycle can be sped up or slowed down by them just by simply increasing the time between our flocks. So if we start to see longer down times, for example, we'll start asking questions and say, hey, where are things at here, what's going on. And they'll say, well, the market is really tough right now, prices are low, we have excess inventory, those sorts of things. And vice versa, they'll speed up at times and really try to maximize production.

Interviewer: That's interesting. You have been involved in buying some new places, and you built some barns. How about construction? Are the contractors helpful? Do they help you out, or are you pretty much hemmed in by the specs that the company wants, that your integrator wants? How do you work that out?

Respondent: Yeah, a lot of the contractors that are building these houses are familiar with the houses and have built a good many of them. So it does change a little bit, and there are some options that you can kind of pick and choose from, and you can come up with some creative ideas. But kind of the major tenants of the main systems of heating and the dimensions of the building, that sort of thing, are all pretty well spec'd out.

Interviewer: And speed is a part of your contract, so you don't have too much to say about that.

Respondent: No.

Interviewer: How about Corporative Extension, where do they fit into the mix?

Respondent: They do provide some information and some support. We don't have a large Corporative Extension presence in the meat bird industry here locally. Some other colleges do. For example, University of Georgia has a very active meat bird department. I'm on their mailing list and get their emails. But they're constantly doing research and study and that sort of thing. So while Penn State does a great job on a lot of things, I would say they're not huge on meat bird production. Part of that might just be the fact that there are probably more layers in this region. So they have probably a little bit more of a layer mentality. So they have a bit more layer experience and expertise. But there is great support. There are good people, and if you need anything, they're very ready and willing to help out with any questions you have. It's just there's not quite the volume of research coming out locally as what it is in some other areas, but it's very valuable to have that support and availability for when you do have questions or issues that arise.

Interviewer: So the internet and the mailing lists are pretty important sources of information.

Respondent: Yep.

Interviewer: Again, just sort of step back, bigger picture question – so where do things like 4-H and FFA fit into the whole system?

Respondent: I think they're good feeder grounds in terms of getting people's interests piqued for agriculture because I grew up on a farm, but there's going to be a continued need for farm workers well beyond those who grew up on farms. So it allows for others to learn about agriculture and get a hands on feel for it and develop an interest in agriculture, what all is involved with it. I've had a number of workers

and employees who've worked at the farm who have really been active in FFA. I think that's what's really led them to the desire to want to work on a farm is because they've either been in 4-H or FFA. So it allows young people the opportunity at an early age to get connected with agriculture and develop some interest and passion for it.

Interviewer: Experience is really important and it sounds like you're doing that with a number of people.

Respondent: Yep. Yep.

Interviewer: Cool. So have you personally ever invented anything?

Respondent: That's a good question. We've helped invent a number of things, and I don't own any patents or anything.

Interviewer: That's fine.

Respondent: We've worked with others in the area. In fact, we helped a lot developing this whole litter composting, in house composting. We were early on interest in that and had done some things even before there was any equipment to do that. And then worked with a local guy, got connected with a guy who was kind of thinking along the same lines. He would kind of make a prototype, bring it out to our farm. We would test it. We would give suggestions. And he's now very successfully making these. He was a farmer and he's shipping them all over the country. So we were involved in that. Another litter processing tool called a pulverizer – we very early on had kind of given some feedback to the same manufacturer guy. And he is now manufacturing those. So yeah, we were very involved in a lot of different things. We've tried a lot of different things. We've probably been guinea pigs more than some farmers have been just because of our mentality of wanting to be on the front edge of new technologies and new inventions. There's a new computer system that was made by a company here in the area, a multinational company. We have experimented with that for the last year, year and a half or so, played around with that and had developers onsite working through what that means, how we can improve the computer management of chicken houses. So there have been a number of little things that we've done. The whole composting thing, and then we won a national environmental award because we took our horse compost, the horse manure coming out of our horse stalls, which is mostly shavings, composted it, put it through a heat process. And then we were able to use it for our poultry bedding, and then take that and use it to grow some willow trees which we did work in Penn State with a project on growing willow trees which is a neat project which allows for them to be used then for either bedding or bio fuel to heat the buildings. So you can harvest them, it's kind of a renewable source, and provides some good recycling opportunities which is good for the environment.

Interviewer: That's really good. What do you see for the future of the business? I know you have some kids. What do you anticipate? Just may be a little bit on the technical part of the business in terms of the growth of the operation and all that kind of thing. But also how do you see that in terms of the organization of the business and how it fits into other things you have in mind? You're still a young guy? What's going to happen for the next 20 years?

Respondent: It'll be interesting to see how things develop. There's constant change, but we want to continue to grow and provide opportunities for the next generation. Because I have four sons, four boys. So we want to try to continue to grow and provide them opportunities. That means aggressively pursuing growth opportunities as they present themselves. So we've tried to do that and be attentive to how we can provide the opportunities that we've had for future generations. The industry, like I said, I'm bullish on chicken. I think there continues to be good opportunities there. We have a growing population in the world. People need to eat. We've got to increase agriculture production by a huge amount to meet the

growing world population. Chicken is an efficient way to do that, so I think it's a good place to be. We do need to be attentive to making sure we don't regulate ourselves out of business in this country because otherwise the production of these sorts of things, along with many other industries, is just going to go to other countries and probably be done in a less environmentally friendly manner. So we need to find that right balance between doing things well environmentally and not over regulating ourselves so that we're regulating ourselves to death because I think that's a real risk. But we want to continue to grow and expand as the opportunities present themselves at a normal rate of speed, and try to take advantage of opportunities for growth that come up.

Interviewer: Are you doing any kind of formal planning? Are you part of groups or consultants or anything like that?

Respondent: Yeah. We work with our attorney and accountant. But, because I'm still on the younger side, we haven't done any huge – and my kids are young, so we haven't done anything huge in terms of the succession planning at this point in time other than kind of thinking about it, what's out there, and how do we make sure we don't take any major missteps, how do we structure our companies and our entities so that it allows flexibility for future generations. That's kind of the types of things that we've thought about.

Interviewer: Do you think your growth is going to be in Pennsylvania or elsewhere?

Respondent: That's a good question. Right now, a lot of our growth is happening on the shore just because we're in the poultry industry, and it's such a big industry down there, the meat bird industry at least. I love Lancaster County, love Pennsylvania, love to see some growth here. But land prices are just so extremely high here. The cost is just so extremely high here. It's amazing what people are willing to pay for farms in this area. So that's the biggest limiting factor as I look towards our future and say why wouldn't you grow more here. Well, it's the numbers, and trying to make it work when you're paying a huge premium for a farm, it puts yourself in a real challenging situation trying to make the numbers work. So the numbers work better in an area that has lower land cost and lower input cost. And then in addition to that in our industry, there's a bigger poultry industry down there. So there are more options. There's more competition, so more things to consider in the meat birds. But again, it's growing around here so I hope that continues because there are some companies in this area that really have aggressive growth plans and are continuing to grow and expand which I think is good, it's needed. We've got to continue to provide those opportunities. And then there are also more niche market opportunities in this region than maybe some other areas. We're close to a lot of population centers. So I how do we creatively take advantage of that? Again, we're in the organic birds here now which is a niche market, and there are all kinds of opportunities out there. So to the extent you can figure out a niche to attack, the local food movement is huge and it's well suited for our region. So we won't rule out any possibilities for being involved in that at some level. But we're just kind of taking it one step at a time.

Interviewer: So I hear you saying kind of keep things on an even keel for now and then look for opportunities as they arrive.

Respondent: Yeah. I'd say we're actively pursuing growth opportunities is how I would say it. We don't want to just try to do things that don't make sense. But yet we want to be actively pursuing growth opportunities that are available in agriculture. To grow our existing farming operations, to diversify – and we're already a diversified farming operation with the horses and other things – we want to continue to diversify, grow our breadth a little bit, but then also continue to grow our core operation as well over time.

Interviewer: You might just say a little bit about the horse operation because that's the other facet of it.

Respondent: Yeah. We had started that about 15 years ago now already. We renovated some old barns that we had that we weren't using for other things and put in a horse porting, put in some boarding stalls and some pasture and outdoor arena. And then that led to more interest in an indoor arena, so we put up an equestrian center with an indoor arena and additional stalls and all the amenities that go with horsemanship. That's kind of led us into a diversified model of some different things within farming. But it's been a good complement to what we're doing because we have tractors and equipment that you can use for both poultry operations and other operations, and use some shared resources, get some economies of scale and that utilization of shared resources to work in our advantage.

Interviewer: Are you cropping as well?

Respondent: Yes, we do some cropping as well. We don't do a tremendous amount of cropping, but we raise a good bit of hay and some corn. We raise a good bit of hay for our horses, and then raise some corn as well on rotation.

Interviewer: Okay. It sounds really good. I appreciate you taking the time to share. Again, what we'll do is we'll be writing this up and keeping it anonymous. But this is exactly what I'm looking for so thank you very much.

Respondent: Good. Excellent. Fantastic. Thank you.

Interview Five

Interviewer: Good. Thank you very much for doing this. I appreciate it. As I told you, we'll go through kind of a series of questions and basically cover kind of what's the poultry industry like right now. But talk a little bit more about contacting and how that whole thing works. So tell me a little bit how you got involved with poultry.

Respondent: Yeah. We did it part time. When we first started here, we were two houses, and I had pretty much a full time job. My wife took care of it. It was supplemental income at that time.

Interviewer: Okay. What else were you doing on the farm?

Respondent: I had a small building business.

Interviewer: Okay. Did you do any cropping or anything like that?

Respondent: No cropping here, no. Our good fields, we put chicken houses on.

Interviewer: Okay. What gave you the idea for chickens?

Respondent: That was kind of the going thing. *Integrator* had approached me about it.

Interviewer: So they kind of sought you out and knew you had some background in that and off you went.

Respondent: Right. Yep.

Interviewer: So in those early days, who did you rely on to kind of get up and running in terms of any advice that people might have? You had to build buildings, I assume. How did all that move along?

Respondent: Pretty much from (integrator) from the start.

Interviewer: They told you kind of how to build the house? How detailed did it get?

Respondent: We built these houses for (integrator) early on, and we were pretty much told this is what it has to be.

Interviewer: Okay. So they gave you the specs and you had some idea what size you wanted to get to and that kind of thing?

Respondent: Right. This size is what they were building at the time. The equipment is what they were using at the time.

Interviewer: In those days, as far as getting set up and that sort of thing, did you also get some guidance along those lines as well? At what level did they get involved as far as did they bring chicks in? What level of rules and regulations were in the contract?

Respondent: '92, when we started, we had a grow-out manual that was four pages single-sided. Today, we have 56 pages double-sided. So, yeah, the oversight has increased dramatically in the years that we've been in it. And the amount of time that a serviceperson would spend here, there's virtually no comparison.

Interviewer: It was sort of a quick hit with the serviceperson at that point, and you were pretty much on your own or how did that go?

Respondent: He'd look in the door and say, well, I can see the back wall and say, it looks like you're ventilating okay and the door shuts pretty good. He said your static is good. That was originally what we had. It would have been nice maybe to have a little bit more at that time, it really would have because we were new and were kind of clueless.

Interviewer: Were there other people you went to for some advice or anybody else that helped out? How did that work?

Respondent: We had neighbors and relatives that were doing the same thing so, yeah, the networking was difficult because we had no formal networking. (Retail stores) – that's about where you catch up on what's working.

Interviewer: That's good. That's the way it gets done.

Respondent: Right.

Interviewer: Again, you started doing some of that. But comparing where you were at in those early days to kind of where things are at now, what are the greatest changes?

Respondent: Certainly the oversight is a much bigger deal. And I guess that's driven by their bottom line, I suppose. And this is a big picture of course, Walmart didn't sell hardly any groceries when I started, and now they're selling what... I think it's 25% of every dollar spent in the United States is at Walmart, so that changed the picture. That made them have to come in here and really lay the law down, which they did. I think that's what drove most of the 56 pages double-sided.

Interviewer: So oversight is one part of it. What else has changed over the years? You were talking a little bit about propane.

Respondent: That was a pretty big deal that (integrator) changed on the growers, made them pay for propane. Whereas, the original game plan in this part of the country – I think they still are the only ones that make their growers pay propane. So, yeah, that has changed some. Just generally, the relationship with the growers I think in the years that we've been in it has been more I don't want to say friction than what it used to be because everybody is under the gun, so to speak.

Interviewer: Yeah, everybody's trying to be productive.

Respondent: Yeah. Some of it's good. I'm not saying it's all bad. That 52-page manual or 56-page, I forget, would have been nice to have back in '92. A lot of good stuff in there, no doubt about that. I'm not saying it's all bad. It's just that that manual can be used against you or to help you, and that's middle management's choice. Our choice is pretty limited.

Interviewer: You just got chicks not too long ago, so what happens when a flock comes in? Where do you start? What are your metrics that you're measured by? What are the kinds of things that you're doing as you're preparing for a new flock? You get the flock in. What's the cycle look like?

Respondent: Well, we're actually about two weeks' downtime right now, which could change as far as demand increases or decreases. It's pretty much the same thing every time. We try and get the houses ready, and pre-heat. We dump the peeps here. This flock here, we got really small peeps, a young breeder

flock, and they look pretty rough. It's unfortunate, especially when you have a competitive contract like we do. We have that tournament or whatever you want to call it, whatever the right word is.

Interviewer: So how does that work?

Respondent: Well, it's interesting. The industry has been pushing towards more antibiotic-free and natural chicken, what I call fancy chicken. But yet we're still with the old tournament whereas if we get sick chicks out here or bad chicks, we're done and we ain't going to recover. That's, I guess, just sour grapes for me, and you take the good with the bad, you really do. But the fact that that tournament system is still in effect, that just bugs me. I can't I believe that people think that's still the way to do it.

Interviewer: Was that the thing where you're judged up against other growers?

Respondent: Right. Our song with them will be depending on what our feed conversion is. Actually our costs by the amount of pounds we have, that's how we're going to settle in the flock. And I guess it's a motivator. That's what they're doing, motivating the farmer. I guess in some cases it's got to be. I'm sure it's got to be. So I'm not saying it's all bad, but I know (integrator) changed there's to quarterly – whatever their plain average is on a quarter. (integrator) is not competitive. Their contract is not competitive. (integrator) is the only one with a competitive contract at this point.

Interviewer: So how many producers do you actually compete against then?

Respondent: It's a weeks' worth of producers and that varies depending on the size of the producer. Usually 14, 15 – I think one time it was 11 I think was the lowest. The highest might have been 16 or 17.

Interviewer: So the idea is you all get the peeps at the same time. I guess the idea is that you have the same weather and all that kind of thing.

Respondent: Right. That's why they do it weekly, because of the weather. I'm glad they pay fuel costs. But like other firms do, this firm here will reward you if you use less fuel because there's less cost, and they'll penalize you if you use more fuel. Whereas, I think (integrator), they only penalize you if you go above a certain threshold. And then they will never reward you if you use less. That's just savings.

Interviewer: So how long does a cycle go for a flock?

Respondent: We're seven weeks. Birds are seven weeks. And that's been a standard now since (integrator) took over. Before that, they had a light bird, heavy bird weight.

Interviewer: What weight bird does that produce then?

Respondent: Well, with this organic, it's been a struggle to get 6, 6 ½ pounds. If you've got a 6 ½-pound bird in seven weeks, you're doing good. The average might be more like 6, around 6.

Interviewer: Okay. Interesting. So then in the midst of that six-week cycle, you're taking care of them, you're monitoring a whole lot of things. Your service guy is coming in periodically to take a look. What else is happening during that period of time?

Respondent: We're just making sure that they're happy and healthy, got feed, got water. Ventilation is a big deal, especially right now, this kind of temperatures. We were busy last weekend.

Interviewer: I'm sure you were

Respondent: I tell you, it was crazy. We actually cleaned snow off the one chicken house's roof so it would stay upright. Yeah. In the various seasons, you've got different things that you've got to pay attention to. If you don't, you're going to struggle trying to keep birds from having stress, basically. That's the whole ball of wax. If they don't have any stress, they're going to be a better bird.

Interviewer: That's good. There are a lot of people who would be glad to hear that.

Respondent: Yeah. Exactly. This is what you've got to do.

Interviewer: That's good news. So you're in competition with these other growers. Over the years, what have you found makes the difference? What puts you in the top of that group? What things are you doing to actually make you better off in terms of the competition?

Respondent: Not much. I'm telling you, it is a lottery right now. Right now with this chicken that we're growing here for (integrator), it's basically a lottery because the average producer cost from week to week changes drastically. I know I've got to be careful, but I had two separate contracts here, and I settle on different weeks. The one week, I did settle a number, but I think it was three below the average. And the other week doing nothing at all, had I settled that week with the very same numbers, I would have been like number three. That's just unbelievable.

Interviewer: What do you attribute that to?

Respondent: Well, it's just that week had growers that had weaker birds or worse luck. Who knows why? Some of them had more producer costs that week. And the week I was in the one house – of course I had one in the good week, and I had one check in a bad week.

Interviewer: That's incredible.

Respondent: But it's not really what it ought to be. It could be different. But how do you change it?

Interviewer: Do you have any ideas?

Respondent: I certainly do. Our model here in Pennsylvania ought to look similar to Delaware's Delmarva Peninsula where the grower has a chance to have a voice and say this ought to be looked at. And I think if they do that in Pennsylvania here, I think we'd have a stronger industry. I think it would help both the integrator and the farmer, I really do. I can't understand that they can't see it. But right now, it's just the status quo.

Interviewer: Do you have from your experience situations where you have been in a conflict with your integrator over practices?

Respondent: We have.

Interviewer: Can you, without mentioning anybody, give me an example of what that looks like?

Respondent: Well, we have argued this point of the producer costs. They're constantly telling me I need to ventilate more. When I ventilate more, I burn more gas. It's a cost. As soon as I up my costs, I go down in the ranking. So if you're going to tell me to ventilate more, then you ought to somehow compensate me. They say you're going to grow a better chicken if you ventilate more. Then take the gas off the

table. It would be pretty simple to get me to listen. At least take the bottom, if your guy doesn't much. If you've got to take that, don't reward him for that. Which is another thing that happens in the industry and I did complain about this is the fact that we have several litter burners and we're competing against them, guys that don't have them. That's unlike; according to what I understand the rules are, it's got to be alike. The builders have got to be somewhat the same. So we're getting beat before we start.

Interviewer: They're in your group.

Respondent: Right.

Interviewer: Okay. That's where it's different.

Respondent: Yeah. So that's a big deal as far as the gas. Hey, I don't want to complain too much. Pretty soon, they're going to take it all together and then what will I do. I won't have a whole lot of options.

Interviewer: Yeah. There's always that threat there.

Respondent: Yeah. Exactly.

Interviewer: As you look over that 20-some years you've been doing poultry, what's your greatest success? Where have you been most successful?

Respondent: I did a lot of complaining here; I think we've been doing well here. In (integrator), I think we settled about the middle, a little bit above the middle throughout the time. We were at (integrator) 12 years. Now, (integrator) did not have that. They were not a competitive contract, but they had a feed conversion that you competed against. I think it was a third of your paycheck or whatever it is, it was mainly pounds out the door.

Interviewer: Okay. That makes sense.

Respondent: Yeah. The feed conversion was part of it. And I think there, we were above center in that. So we did fairly well here. We did struggle here with this organic antibiotic-free chicken here with (integrator), I admit that. So that, so far, has not been as successful as we were with the other firms.

Interviewer: So you've been on a steady even keel pretty much over the years. But then this transition was really where there were some issues. You're still trying to figure that out, it sounds like.

Respondent: It is. It's been a struggle to try and grow an organic chicken. And it's one that we're learning all the time, all the time. Different things crop up. And for them also – for the integrator, the same way.

Interviewer: I'm sure.

Respondent: They have actually just changed breeds here. And with the new breed, it's done a lot better. So I'm thankful that they're doing what they can to make things better.

Interviewer: Sure. That's going [Inaudible 00:19:00] money into that.

Respondent: Exactly.

Interviewer: Flip side, what's your biggest failure over the last 20 years?

Respondent: Wow.

Interviewer: You've always got to ask that – the success and failure together, or things that didn't go the way you wanted to.

Respondent: I know I'm saying a lot of names here with them.

Interviewer: They'll all be bleeped out.

Respondent: Thank goodness. Thank goodness. Early on with (integrator), it was our third integrator. I think I'm the only farm in the area here that I know of that's on their third integrator. Now granted, the (integrator) one, it was a good move. There's no doubt about that. The (integrator) one was a mistake. I should have stayed. Early on, (integrator) was really a tough company to work for, very hard to work for. That was my biggest failure. I should have stayed at (integrator).

Interviewer: They're really expanding right now.

Respondent: Yeah. I should have stayed there. These chickens are getting hauled four hours south.

Interviewer: That's what I understand.

Respondent: That doesn't make me comfortable. No way. As soon as they get what they need at Delmarva, if they get what they need, I'm not sure they'd be too interested in hauling them four and a half hours.

Interviewer: Still competition up here.

Respondent: Well, that's true. Hopefully, they get that plant built. That'll be a good thing for us. I am excited about that. That's got to happen.

Interviewer: I had a chance to tour it not too long ago. It's amazing.

Respondent: Oh did you? Okay, great. Great.

Interviewer: Yeah, it's really something. Just to go back again, and again back like I don't know anything, in the contract that you have with your integrator, what does the integrator do and what do you do? How is that spelled out? How does it separate the duties?

Respondent: Well, we're supposed to make sure that the chickens are not stressed. Very first thing. That's our responsibility. Follow the direction of the serviceperson, which has been more and more a bigger deal than what it used to be.

Interviewer: And they're providing you with the feed obviously, right. How about bedding and all that kind of stuff?

Respondent: Bedding, we pay for.

Interviewer: You do that. Okay.

Respondent: Yep.

Interviewer: And then they're taking care of your propane. That's in the contract.

Respondent: Yes, they pay for that. That's a producer cost. It's a producer cost but it goes against our APC, which is adjusted producer cost. That's what we strive to have the lowest producer cost in that week, and we'll do the best.

Interviewer: Are you doing anything along the energy lines? Is there anything you've done to conserve energy?

Respondent: We put solar panels on house four.

Interviewer: Okay. Is that a positive thing?

Respondent: That's been a good thing. Yes, that's a positive thing. I'm very happy with it.

Interviewer: So that's a way you can kind of cut into that cost a little bit.

Respondent: Right. And I'm thankful for the USDA. The USDA helped us on that. Of course, we have federal tax credits. We'll hopefully realize some savings the next couple of years on that.

Interviewer: So it doesn't take too long, but what's the payoff on those?

Respondent: It varies. It's supposed to be seven years. I'm curious if we're going to make that because we had some summertime flocks where we ran a lot of electric here to try and keep them cool, and we didn't meet our needs. So we had to [buy some in 00:23:14]. But I think for the most part, it should be seven years, I'm hoping.

Interviewer: That's kind of what I hear, somewhere in that ballpark. Cool. So just a little more generally, over the years you've experienced a lot of change in a variety of ways. And it may not all be with your chicken operation too. It may be other things. When change happens and you have to do something differently, who do you go to about that? Obviously, your integrator has a big role in it. But who else? Who are folks that can help when things are changing and you don't know quite what to do? How does that whole thing work?

Respondent: We've been to several different seminars and what have you in the Farm and Home Center. I appreciate everything those folks do to help us out. But, yeah, there's really not a whole lot of networking. I think the last time that we got together as a grower group to discuss change with (integrator), oh golly, that must be two years ago.

Interviewer: Is that right?

Respondent: That's correct. That's amazing. I know early on with (integrator), we got together fairly often, got a lot of input from (integrator). But the input from (integrator) has been nonexistent. I should qualify that. I got a paycheck. That's the wonderful input I get, and I get a W2.

Interviewer: But it sounds like the communication is pretty one way. It comes to you through the service guy, but you don't have much communication back.

Respondent: We used to get a newsletter from (integrator), and that just went by the wayside. I don't know what happened to it. But I wouldn't ask about it.

Interviewer: It just seems like in a competitive environment, you wouldn't...

Respondent: I think the whole industry is wasting a chance to learn from each other, we really are. If we could sit down and say this works for me... But you know the fact is, you're crazy. If you've got something that works, you're crazy if you share it with your neighbor. And that's a shame. In this day and age, I hope this makes your highlighted – in this day and age, that's just stupid to not learn from each other.

Interviewer: If we had a more formal way to do that, that would be a really good thing.

Respondent: That would be awesome.

Interviewer: Did you think about that at all? What would be the best way to make that happen?

Respondent: Back to Delmarva again and their growers group meetings. I think that would be a wonderful way to learn from each other and do so without big brother.

Interviewer: You would think that there's a way that the entire industry could get together that would be different than doing it integrator by integrator. There could be more sharing, like you said...

Respondent: I think there is. The DPI, I think it's over half of our growers on the DPI board. I think that's a rule that over half have to be growers. And then the other half is industry people, and then they work together which is important. But then they also have the separate grower meetings where you can share what works for you. And I don't know how their contracts are structured in the peninsula. I don't know if they still have the tournament or what they have. But I'm sure what they do there is they share with each other what's not working with perhaps personnel, middle management. And then what can happen then is middle management that's not doing their job gets tapped on the shoulder. And that I think is what we're lacking. It's one of the biggest things we're lacking here in Pennsylvania.

Interviewer: Have you ever had that situation where you had the feeling the service guy didn't know what he was talking about?

Respondent: Well, yeah. That has happened. And most of the time, that direction is coming up the ladder.

Interviewer: Got it.

Respondent: And some of the times not. Some of the times, it's only personal opinion. Then again, the problem there is you'd better listen. Right or wrong, you'd better listen.

Interviewer: [Inaudible 00:28:26] who that's coming from, from the individual or from the company. But they're there representing the company.

Respondent: But from the most part, the input there from the service people here, we had some service people that were over the top. But for the most part, we never really had much trouble. The service people are pretty reasonable. Some guys over the top, but they usually don't let...

Interviewer: It's like that every place.

Respondent: Yeah. Yeah, that's exactly right. Usually, if they're too much over the top, they don't last too awful long usually.

Interviewer: Right. That sorts out pretty quick.

Respondent: Yeah. The problem I have up the ladder from there is where oversight is needed and it's pretty much the status quo if there's no voice being heard, no organization to say wait a minute.

Interviewer: Right. And I'm sure that they're [Inaudible 00:29:26] a lot to science stuff, but the science needs to get compared to what's happening in the practice. Sometimes, those things might not mix.

Respondent: Right. Here again, I don't want to be always saying negative stuff. There's been a lot of good things happening here with all companies, every one that we've worked for where they have done a wonderful job at changing stuff that didn't work, they realized oh boy this is a problem and then it got addressed. We just went through it here in the past year with the birds we had before. They were just a mess.

Interviewer: Well at least they changed that, right.

Respondent: Exactly. Exactly.

Interviewer: That's good.

Respondent: It takes time. It doesn't happen overnight.

Interviewer: That's true too. Talk a little bit about Avian Influenza. I know people are kind of on high alert for that. Where did most of the guidance that you've gotten about that, where did that come from?

Respondent: Pretty much from the meeting we had at the Farm and Home Center. I appreciate that, that those guys shared with us what needs to be done and gave us a heads up on the severity of what this could be. So it was really nice to hear that. I had seen a lot of people I knew in there that were grateful that that happened.

Interviewer: Yeah, that's the Department of Ag and Corporative Extension together.

Respondent: Right. Yep.

Interviewer: That's a good thing. Does your integrator talk about that at all?

Respondent: Not much other than to give us the paperwork that we need to sign off that if the USDA does hand any downtime money out, they're first in line. So we did get that paperwork.

Interviewer: Yeah. I'm sure.

Respondent: And certainly, Wenger Feeds has been doing everything they can to spray their tires. And pretty much the delivery guys have been spraying their tires. In fact, the only guy that ain't been spraying their tires is (integrator). That's a fact. That's a fact. That tells you a lot right there, there's no doubt about that.

Interviewer: Okay. You were talking a little bit about environmental regulations. You had a zoning issue at one point. Anything like that ever come up? I know you have nutrient management plans, all that stuff that's required, who are the go-to people on that kind of thing?

Respondent: Well, pretty much Red Barn has done my owner management plan. I have one of them. Red Barn also did my mineral management plan. Yeah. It's been pretty easy on this farm because we sell them all. We sell all the mushroom houses where the mineral broker sells it to them. So, yeah, it's been fairly easy.

Interviewer: That's great.

Respondent: So yeah. And here again, the USDA CREP have been very helpful. You see the pine trees that we put around the housing. And we just started one this summer, a shelter belt on this side of the existing houses. Very helpful. I'm appreciative. And we also did some plantings in between the housing at the fans where the fans are supposed to blow into the plantings, gather the dust, and avoid that contamination.

Interviewer: That's good.

Respondent: Yeah. It's a switchgrass. I forget what all it is but it's a 20-foot planting, three rows deep.

Interviewer: You mentioned about bedding. Tell me again, what do you do for bedding?

Respondent: Shavings, wood shavings.

Interviewer: Do you ever have any animal welfare people around or any issues around that?

Respondent: I think they pretty much leave family farmers alone. They do. The problem is there with the bigger firms, with the hired help. When you've got to hire help, that's when that usually happens.

Interviewer: Yeah. And of course your integrator will probably be on top of that too.

Respondent: Right. Yeah, I think too. They're welcome here. I've got nothing to hide, really, here. And that's another thing that I think the industry ought to look at. The tougher they are on the family farm, the guy him and his wife doing the work, the more guys are just going to either build a bunch of them and outsource everything. We talked earlier. I know that's one way to do it and I'm not opposed to that. But if they take more care of the family farmer, they wouldn't have to go. Guys wouldn't be tempted to build 15 of them and then hire help. Yeah. It would be nice if that whole video thing would go away because I think it's pretty selective. And here again, if they'd only let us have a voice, I think there would be more guys willing to say let's do this, and they wouldn't have to go the route – or the mega farms, I'll call it a mega farm. And another option that the guys are doing, it's a very real option, build a bunch of them and lease them out. Lease the buildings out, and have a guy come in and just rent the buildings. I see that as a viable option too in this industry. If that happens too much, when they're dealing with the guy, the leasee, they won't have him with a 20-year mortgage to abuse.

Interviewer: It takes away some of the responsibility too if the guy is at arm's length through that. So I think you're right.

Respondent: I thought about it here. There are times I've thought about it, boy, if I'd just lease these out, then I could do away with some of the grief that happens and just take a percentage of it and be done with it.

Interviewer: You seem like the kind of guy that probably wants to [Inaudible 00:36:42]

Respondent: I enjoy it, I really do. I enjoy my work.

Interviewer: Sure. Absolutely.

Respondent: There's no doubt about it, I enjoy taking care of chickens and I'd like to see them do well. I strive to make sure that when they go out that front door and head to Dover Delaware, I strive to have the nicest looking chickens I possibly can. That's good for me, good for (integrator).

Interviewer: That's the pride of what you do.

Respondent: That's what we've all got to do, and I'm sure most of the guys do. I'm sure there are a couple that say, oh well, this is how it is.

Interviewer: Everybody I've talked to has been really good. Does the integrator ever talk to you about the marketing? I guess you're more involved in that now with working with the organic. You have a little bit more feel for where that's going and all that kind of thing.

Respondent: We are now part of it with the outside access and all that carrying on, I'll say. It is kind of carrying on because we have tried everything to try and convince those chickens to go outside, and it's a struggle to get them out. And I think we ought to just simply forget about that going outside businesses and focus on how nice they have it inside because they really do, and that's why they don't go outside. They like it where they're at. But they seem to think that they have to go out. Man, I'm telling you, the ones that went out this summer that killed by our red-tail hawk friend.

Interviewer: No.

Respondent: Yes, we had a bunch killed by the red-tail hawk. So the very few that ventured out didn't make it back in.

Interviewer: I know they're doing it. That's part of the marketing thing.

Respondent: It is part of the marketing thing. I guess in a way I understand it. But I think it's time to say, look, that ship has sailed. It is not. And we bore the cost of all that effort. They said do this, do that, and we've added stuff continually. Now that has slowed down because I think they said, wow, gracious, how much further can we go with these guys which I think we were pretty much at our limit. I know I was. They said build more structures, shade structures outside. And ain't no chickens go out. Why would I want to build more? But you know what, I did it. I did it. I'll tell you what, I was not a happy camper, but I did it. I did it because I had to do it.

Interviewer: The chickens still didn't go out.

Respondent: Still didn't go out. It didn't matter. I knew they wouldn't. We all knew they wouldn't. My grandson and son – grandpa, why you build more? He's five years old. He's smart enough to realize it because it's crazy. But it is part of marketing.

Interviewer: You've built houses since you've started.

Respondent: Yes.

Interviewer: Any comments on the people you had doing the construction? Did that go well?

Respondent: Yeah. *Construction Company* did construction of both houses. And I ought to qualify and say something here that probably hopefully gets bleeped out is *Dan Smith*, the owner of *Construction Company*, and I are married to sisters. So he's my brother-in-law. So we got very good service out of *Construction Company*.

Interviewer: I'm sure. But they know what they're doing too.

Respondent: Yeah, exactly. Exactly. Good company. Some stuff, you've got to do your own homework. You really should because the collusion between the integrator and the equipment, and I'm not just blaming *Construction Company*. It's that way everywhere. That collusion is real. Yep. And it's unfortunate sometimes. So we've got to stay on top of that one, those farmers.

Interviewer: They all know what the specs are and all that kind of thing.

Respondent: You've got to use this computer. And say wait a minute, there are three other ones I'd like to look at. No. They've got to use this one. It's like, wait a minute, are we still American here? So that collusion is unfortunate. And I hope it can – I don't want to say go away. They've got to work together. But I hope it cannot go any further – should I say it that way?

Interviewer: Be a little bit more competitive.

Respondent: Yes. exactly. Exactly. We don't want to be left with just one computer. Gracious. We all know what that would look like after a while.

Interviewer: Absolutely. The other question I had was around feed. I've never asked anybody much about feed. Do they use local suppliers for that?

Respondent: Wenger brings the feed in here.

Interviewer: Okay. So that's who your integrator [Inaudible 00:41:23].

Respondent: Yep. Their feed sources, they're claiming they get that from all over the globe.

Interviewer: Oh yeah.

Respondent: I have no idea where my corn or beans comes from.

Interviewer: Right. A lot of it comes in because we don't have enough. We don't grow enough here.

Respondent: Right. Well, we don't grow enough organic.

Interviewer: That's true too.

Respondent: Organics, that's a big deal. There was a time we were in trouble here. We didn't have enough of feed. We had chickens out of feed here.

Interviewer: Really?

Respondent: Honest to goodness. That's two years ago I guess. And we're still struggling to get their sources.

Interviewer: As that market grows, that's going to become an issue.

Respondent: I think they're bringing it in overseas is what I understand.

Interviewer: Interesting.

Respondent: According to Lancaster Farming, I think a couple of months ago they had an article about that. Yeah. They talked about overseas – Argentina, wherever else it was.

Interviewer: Well, if you think about the seasonality of everything, it makes sense, the times when it's not coming from here. But it is what it is. So how about just in terms of just agriculture in general, where do you see people getting the kind of information that they need to run farming operations? What about things like Cooperative Extension? The kids participate in 4-H and FFA and things like that, are there other places, or have any of those been ones that you feel positive about?

Respondent: For the farmer or for the general public?

Interviewer: For the farmer.

Respondent: For the farmer, yeah, I feel positive about everything that we have learned at the Farm and Home Center. That's a good thing. It really is.

Interviewer: Of course you have a poultry specialist down there too.

Respondent: Dr. Martin, yes, yes. Been most helpful. I did talk to Dr. Martin one time about would you be interested in or would you entertain the thought of organizing a grower's group. That didn't go very far. I'm hoping it didn't go to the wrong people. I have no clue. I have no idea if it did or not. At any rate, other than that, I have no complaints. I would say that would be something that should be entertained.

Interviewer: Have you ever had any contact with Penn Ag?

Respondent: I did early on when we were doing our argument here. In fact, that's back when Senator Wenger was still in office. I talked to him, and Senator Wenger says you get Penn Ag and Farm Bureau. Penn Ag was more I would say business focused and still are, I believe. Farm Bureau was great, wonderful help. I'm very proud of Farm Bureau. John Bell there helped me tremendously.

Interviewer: That's great.

Respondent: But then again, Penn Ag, I guess was founded by agribusiness, not necessarily the [Inaudible 00:44:38].

Interviewer: Right. I'm going to give you a name of somebody to talk to. I think they have a poultry council that might be interesting to you.

Respondent: Okay.

Interviewer: I'm not sure how long it's been in existence.

Respondent: I thought (another producer's) operation took the place and that.

Interviewer: Not really. The Agriculture Council for Lancaster is pretty much just Lancaster, whereas the other guys are big regional kind of thing. I'll get you some more information on that.

Respondent: Great. Great.

Interviewer: Here's a question I've been asking everybody. Have you ever invented anything?

Respondent: In the poultry industry?

Interviewer: In the poultry industry or around the farm?

Respondent: Yeah, I have seed stuff that's interesting. I made a peep deck that everybody likes to take the peeps into the chicken house. It actually was kind of a forerunner. What they do now, they bring a [Moffatt 00:45:41] along and take the peeps in. We just did that with the peeps we got from (integrator) – took a Moffatt inside the chicken and unloaded them, no problem. The peep deck was on our quick disconnect skid loader or tractor. They were out taking pictures of it. (integrator) took pictures of it. They liked it that much, they took pictures of it.

Interviewer: Great.

Respondent: So I guess that might've been an invention there.

Interviewer: A lot of inventions are tweaks, changing something a little bit.

Respondent: I did another thing – the snow off the roofs, we had two collapse here in '96. Yeah, two of them, they weren't that old. Both these collapsed. So I made 2 by 6's and a steel cable, it goes down to a pulley, and the pulley is attached to my skid loader bucket. And then that skid loader bucket moves up and down so that that cable comes at the angle of the room. It's got to be at the angle of the roof, and then I hooked that cable to my tractor and I drove straightaway because I didn't want to remove snow from a big area. I just wanted to remove snow from a path. And then I drove straightaway, and then that pulls that 2 by 6 which is 12 feet long, with a stiff back on it, that pulls it down about halfway down the roof or two-thirds. Then we stop and we back up and then we pull the 2 by 6 and we move ahead. And we cleaned this roof off here. We did it Saturday night...

Interviewer: I'm sure you did.

Respondent: We did Saturday night and it was ugly. The weather was ugly. I think we saved this building, I really do. I think that building would have went down because it just isn't built as heavy as the new ones. The new ones, we went heavier with the whole snow lifting. So that, I said if we had decent weather, we could take a YouTube video of that and post it because it works well.

Interviewer: Sure. It's a great idea.

Respondent: We tried the shoveling thing. That just did not want to work. That's pathetic.

Interviewer: [Inaudible 00:47:52]

Respondent: Well, with one story it's not so much. That's just not an easy way to go.

Interviewer: What do you see for the future?

Respondent: Good things. I do. I think integration is a wonderful way to put cheap food on America's table, it really is. I think things have to be tweaked when you have that distorted balance. Power corrupts, absolutely. Absolute power corrupts. That's the old saying. That is exactly what happens when you don't have balance and I think we need to retain some of that, some semblance of balance.

Interviewer: Right.

Respondent: And of the integration can work well for everyone.

Interviewer: Competition helps with that.

Respondent: Well, yeah, we're fortunate. We are very fortunate. But there's no doubt by the time you're on your third one. Because soon after I had moved on to (integrator) or BC at that time – I guess my check said BC. The (integrator) hat is what they're handing you. But I realized how important that competition was because I checked with (integrator). If I just simply change what I need to change and concrete those two new ones because they're on the ground floors now yet, would you come back in the driveway. The answer was no, honest to goodness. That surprised me.

Interviewer: And that was two years ago?

Respondent: No, no, no, that was six years ago, seven years ago.

Interviewer: It might be a different answer today.

Respondent: Well, that's possible. That's possible. I didn't ask. I didn't ask. I think having said all this, all this complaining, one thing that (integrator) has done, and that's the new contracts, guaranteed minimum, so much a square foot.

Interviewer: Interesting.

Respondent: That is interesting. That is the best thing that ever happened to this farm. They have a guaranteed minimum, so much a square foot per flock. It takes the games right out of Fredericksburg. It takes middle management off of game mode because the games are now over. I am convinced they did it to get the Delmarva grower interested in growing organic chicken. I think that's the reason it happened.

Interviewer: You're probably right.

Respondent: Yep. I think that's the only thing that they could do down there to get growers interested in doing stupid stuff – building more shade structures when they don't use the ones you have.

Interviewer: It puts a floor underneath it so that it's not much risk.

Respondent: Absolutely. Absolutely. I said, well, I actually had to put cool cells on these here to achieve that. We spent the money. And the people that say, well, they're always asking for upgrades. Where did you ever see a business that doesn't have to upgrade and stay with the times. There ain't nothing like that. If you think you don't have to upgrade in the chicken business or any business, you're a dreamer. So you have to upgrade. So at any rate, I upgraded them, got the guaranteed. That will last another nine years. It'll be 15 years in length. So I said I can upgrade these. It's basically the same thing. But they said the buildings are too old. They've got to be less than 15 years old.

Interviewer: Whatever.

Respondent: Yeah. I'm thinking you know what, it would just be nice if they would allow us that. If they did it, I would do it in a minute, I would do it in a heartbeat because now, every day, the game on in middle management is now done. And if they want to send me bad peeps, and I'm sure sometimes it just happens, but sometimes it happens for a reason. I'm convinced of that. If they want to do that, help yourselves. It's your nickel.

Interviewer: That's really interesting. Just as far as your operation here, what are your plans? Is your family in the business?

Respondent: Yeah. My son-in-law lives at the end of the drive, end of the road here. And yeah, he certainly helps. He enjoys it. He's busy what he's doing, so he doesn't have time to do a whole lot. But I think someday, he'd be interested, or my grandson would be interested in helping out.

Interviewer: Yeah. Grandsons are good, and daughters too.

Respondent: Yeah, exciting. No doubt about it. There are a bunch of them around here. We've got you beat a little bit there. We've got 11.

Interviewer: Oh, my goodness. How do you remember all their names?

Respondent: Oh, man, it's exciting.

Interviewer: I have trouble with five.

Respondent: It's exciting. We love it, no doubt about that. And they come here and help because they live right next door.

Interviewer: As soon as you're getting involved...

Respondent: It's great.

Interviewer: That's really big too.

Respondent: Yeah, it's wonderful.

Interviewer: I like that.

Respondent: We had three daughters here, and then we had three granddaughters, the first three. I said what's a guy got to do.

Interviewer: The sons-in-law are pretty good too.

Respondent: Oh, yeah, no doubt. That's all good.

Interviewer: What else am I missing in terms of your journey here over the last 20, 25 years?

Respondent: Like I said, I did a lot of bellyaching but it's been good to us, it really has. We have had success, so to speak. We have struggled with this fancy chicken. We really have struggled in the last 8 years. But, hey, we managed to stay here. We managed to stay here in those 8 years.

Interviewer: And it's been steady.

Respondent: Right.

Interviewer: It's been a staple kind of situation.

Respondent: Right. It was very busy for a while. There were times we had very little downtime. And then right back in again. But there have been times where we had a decent amount of downtime and you could put chicks back in, use litter there where you weren't scared you were going to damage them.

Interviewer: Okay. Once again, I thank you for taking the time and we'll be making sure that everything is anonymous.

Respondent: Good, I appreciate that.

Interviewer: Your confidentiality is really important. It's going to come out in some ways general, but we think by having multiple people involved, it'll kind of spread it out.

Respondent: Okay. Good. Good.

Interviewer: My thanks.

Respondent: Okay. Thank you.

Interview Six

Interviewer: Thanks very much for taking the time to run through this with me. As I told you, we're going to be talking a little bit about as a poultry producer, how do you get information and how do you use that in your practice, and how have you done that over the last number of years that you've been involved in it. In particular, can you tell me a little bit about how you got involved in the poultry business?

Respondent: Sure. We bought into it I guess is the best way to describe it. Back in I think it was about 2003 we purchased the farm that was already set up with four broiler houses and with a contract with (integrator). That was a big part of our evaluation of the value of the property, and with that already being on it, it was a good way to pay for the farm. It amortized itself actually very nicely. Hired a manager, and he was there up until two years ago. So he was there like 12 years, and then subsequently hired another manager. It didn't work out. I had to let him go in about a year and a half. I have a new manager there that's doing quite well.

Interviewer: You have a bigger farm operation.

Respondent: Yes. There are four broiler houses. It's one of our smaller entities, but one of the values of the broilers is it's one of those things where you're not going to lose money at. It's steady income, and we've appreciated that.

Interviewer: As you were first getting into that, again, you inherited a lot of this but there was still probably a lot of learning that you had to do in terms of getting it up and running and everything. What was that like?

Respondent: Oh, yeah. It was definitely kind of like a new frontier for us. And the manager that we brought in did not have experience necessarily either. But (integrator) did a good job of getting us onboard. And the previous owner actually stayed on and helped us out for a period of time. So the transition went fairly well with the previous owner kind of giving us his help and so on, and then there was a neighborhood who had done a lot of work for him that continued to work for us part time as well. The transition actually was fairly smooth. We learned what we needed to do. The one thing with broiler houses, once you learn, get ready to learn again because it's always changing.

Interviewer: Again, in the early days, you had a lot of help in terms of people who were carryovers and that sort of thing. But you still had to deal with the integrator and all the rest of it.

Respondent: Yes.

Interviewer: What did they bring to the table in terms of the conversion or the transfer – were they helpful, were they not helpful? What did they bring to the table as far as information that would have helped you as the owner?

Respondent: In the beginning, I would say that they were very helpful. Our service people I thought were real good. I'm referring to (integrator) now. I'm referring to the one company. As managers changed, it was dependent on the service manager, the serviceperson. Sometimes that seemed to go very well and sometimes it seemed to be somewhat counterproductive. One thing I have learned with the integrators, and understand why they do it, they're constantly tweaking and changing and so on, and many times we are the Guinea pigs, and sometimes to our detriment. So I've learned to be a little cautious when making a big leap. I fight that a little bit more than maybe I did in the beginning wanting to do everything they asked. Now I'm a little cautious because they'll tell you to do something, and then six months later they'll

scrap that idea after you've invested X amount of dollars in it that you essentially wasted because it didn't work. Well, that doesn't work so well.

Interviewer: Can you give me an example?

Respondent: Oh, well there's...

Interviewer: Tons of them, I'm sure.

Respondent: Yeah, I don't know about there's tons of them, but there would be certain kinds of fencing they'd want you to put in. There would be changes in ventilation. There would be changes in how you handle the litter, what type of equipment you use to process the litter. And then six months later, we don't like that. The specific example was we actually got what they called a composter, and that was the way they wanted to go. And within probably two years, they were pretty much telling us we couldn't use the composter at all over the winter, and very limited throughout the summer, and so on. So we actually ended up trading that in, which was okay. So that's one of the examples.

Interviewer: In the details of the contract, what are they responsible for and what are you responsible for?

Respondent: Well, that has changed drastically from the beginning, and then when we switched companies, it of course changed again. Currently, we're certainly responsible for the building. We're responsible for the electric. We're responsible for the labor. We are of course responsible for any clean out and so on. We actually have to wash the buildings periodically and then disinfect, of course, and handling the composting. They're responsible for the propane, all of the feed, the litter treatment they handle. We do the labor, but they supply the material for the litter treatment, and any kind of medications and so on which are very limited, actually pretty much nonexistent because we have an organic contract now. But anything at all – their supplemental vitamins and additives, they are responsible for them.

Interviewer: How is that different from what you've been involved in before?

Respondent: Before, it started out where the company was responsible for the propane. Then it transitioned to a partnership, and then it transitioned to we were 100% responsible. That was one of the biggest cost savings of changing the integrator that we worked with. Other than that, it wasn't a lot of difference. The contract, although it had some different details, the bottom line, like I said, without the propane, they're fairly similar. The difference with an organic contract is we had some more expense in getting the buildings retrofitted, having outside access to the outside and a couple of other different options that we had to look at. But all and all, there haven't been drastic changes.

Interviewer: The other thing I'm aware of it that there's kind of a formula for how you get paid. Can you explain that a little bit in terms of what are the main metrics that they use in terms of determining that, and are you compared to other people, that kind of thing? What's your situation?

Respondent: Yeah. The way they're setup, I'm probably not going to remember all the comparisons, but certainly feed conversion, your costs of your extras. There are about half a dozen or more different indices that are compared. Then you're rated on a weekly basis with the other producers that finished out that week. And a comparison is made and essentially you're either above average or below average. And if you're above, you essentially get paid by pound of bird. But when you're above average, you get essentially a bonus. And when you're below average, you essentially get a deduction. We had to let go a manager. Since that, we've been doing fairly well, ending up for the most part on the plus side. The biggest challenge for us many times is the quality of the chicks that come in. We have been doing really

well. And then they changed their chick source. This last group just didn't have the weight. In talking with my manager, it's nothing we did. It's just the quality of the chicks that came in. And he said the service manager pretty much admitted that that was the issue.

Interviewer: It seems like the metrics are fairly clear and everything. It sounds like they're doing this in a way that they want to keep as many factors equal among the group that you're involved in. What differentiates you? What can you do that can actually move you to the upper part of the ranking?

Respondent: What I've found out in transitioning managers is pay attention to the details. Be in the houses three or four times a day or more. When an issue comes up, take care of it now, not later. Just constantly be adjusting and making sure that everything is right. It's just a matter of paying attention to the details. That's what you can control. Now, as I mentioned before, some things you can't control – if you get a health issue that was out of your control or certainly the quality of the chicks. But beyond that, there is a significant amount you can control. And if you do it right and pay attention, it works out well. A good service manager is important. I think once you get enough experience, it's not vital. But at times, we've had good service managers that have really helped us kind of climb the ladder a little bit. Other times, he almost got some poor advice.

Interviewer: Just thinking about that whole idea, have you ever had a situation where the service guy gave you bad advice and you had to work around that in some way or another or find a way to resolve it?

Respondent: I've never had an issue where we actually went to the company and filed a grievance but I have already gone above that person and questioned it with their superior, and they were pretty noncommittal on it, which I guess I kind of expected. But it generally got results. With the current integrator we have, the person that you talk to that's kind of overhead is fairly responsive. Even if you may not agree with each other, he's more than willing to explain their point of view and so on. I can't say that I have a huge problem there.

Interviewer: Nothing major.

Respondent: Yeah.

Interviewer: Again, this is a little bit repetitive but just go back to what does the cycle look like. Chicks come in and then what happens?

Respondent: The chicks are scheduled hopefully before your last birds go out, not always, but generally. It depends on their needs as the down time. Now it's actually been pretty short. This last group, I don't think we were down much over a week. But we have been three or four weeks there at one point which gives you a challenge as far as getting your litter ready because you need to process the litter and maintain control of the ammonia. When you're setting the houses up, that's what you're doing. You're getting the houses in order by treating the litter, getting the litter in place, making sure there are no wet spots, making sure it's even, and then putting the litter treatment on to help prevent ammonia. Of course you're getting the feed lines and water lines in place, getting your house set up – as the chicks come in, they're only in a portion of the house – getting that setup, getting the heat to a specific level where the heat is needed. And then when the chicks come in, you have to have a crew available to get them unloaded. They're actually doing that today. There are chicks coming in today. Once the chicks are in, you put the water lines down, get the feed lines where they need to be, and then the birds – you put feed pans out for them. Even though they do have feeders, you also put feed pans out so they can find the feed. You continue with the feed pans and adjusting the water and feed lines regularly as they grow very quickly. After about a week or two, the feed pans come out and then you begin to move them back to half house, three-quarter, and finally full house, all the time monitoring the ammonia. So you may need to adjust the fans, adjust the

heat. A lot of that is computerized, but you're monitoring those things to make sure of the health of the birds and you as well, just watching out for any issues in the house from a feed or water standpoint, and then of course paying attention to the birds all the time making sure that there are no issues. There is also a real necessity to call birds because there are a lot of birds that are smaller and behind, and they're just going to waste feed and never really catch up. So that's necessary to call them. That's something we've learned over the years to be a little more vigilant about. It makes a big difference on the end in your feed conversions and your growth rates and so on. And then when they go out, it's a matter of knowing when they're coming to catch – out of feed times, getting the lines up so that the folks can come in to catch and so on. And throughout, you're monitoring health. Your serviceperson may be changing your vitamins and you're adding certain minerals as well just because it's organic. And then, like I said before, adjusting all the ventilations, water, feed, and so on.

Interviewer: So the feed and the vitamins and all that kind of stuff, they do with their feed supplier?

Respondent: Yes.

Interviewer: They take care of that?

Respondent: Yes.

Interviewer: Do they buy locally?

Respondent: Yes.

Interviewer: Yeah. Okay.

Respondent: Yeah, everything comes through one feed company that's local, and then I think all the medications come through pretty much one outfit.

Interviewer: What's the length of a cycle?

Respondent: The birds are in anywhere from at the low end 46 up to about 54 days. That would be really long. And your down time in between is anywhere from minimum one week to three, four weeks I guess at the maximum.

Interviewer: Is it different for an organic bird than for...

Respondent: It hasn't really been. No, it hasn't really been.

Interviewer: Okay. Pretty much the same.

Respondent: The other thing I forgot to mention, because of the organic, you do have to monitor the outside temperature and so on. When the outside temperature is higher than the inside, they're allowed to go outside. So you have to open the doors up and allow them to go outside into the pasture area.

Interviewer: Do they do that?

Respondent: A little, not a lot.

Interviewer: It's a good idea, but...

Respondent: You think about it, everything is climate controlled inside. They have food, water, everything they need. So unless they're adventurous, yeah, they don't really go out a whole lot.

Interviewer: Right. Right. Okay. So from things that you've experienced and things you know from the history of the operation and all that kind of thing, what would you say are the main things that have changed? You haven't been in it a huge amount of time but you have some sense of the dynamics and everything.

Respondent: I would say one of the big things that changed from the last integrator, it went from them pretty much taking care of all the costs. The return was fairly good. And that slowly got whittled away and actually precipitated the change to organic and the new integrator who kind of took back more of the costs that they were handling. I would say it's definitely been a good move, but there are challenges. There are challenges with organic. You have some enteritis issues that were easily taken care of with medications and not so easy without. So you have to allow the process to take place and you sometimes lose – we haven't had a big issue, but I know folks that have.

Interviewer: It seems like energy is one of the big driving factors in all this. Have you done anything kind of on the side to offset some of your costs, or is that not practical given your contract?

Respondent: You mean as far as...

Interviewer: Solar panels...

Respondent: Yeah, we have not done too much here in this operation. We do have contracts on our electric. It's probably something we haven't really taken a hard look at. It's definitely a component that's a fairly large component. On another one of our operations, it's not broilers, we do have some solar panels. The cost of those is really high unless you're getting support, which is available.

Interviewer: Right. Got it. It just seems like what you've said and I've heard other people say is good management, keeping with it, paying attention to details and all that kind of stuff, there needs to be monitoring because the conditions change all the time.

Respondent: Yeah. If you expect that you can go out, walk in the house in the morning and make sure they have feed and water, and walk back out and that's it, you'll get away with that maybe three out of four days. But the one day you don't get away that, it'll kill you. So it's just necessary to be walking those birds three or four times a day. It does several things. First of all, you become aware of any changes, and also it encourages them to eat a little more. They might be just resting and you woke them up – oh, I'm going to go eat. And we've learned that somewhat the hard way. Like I mentioned, I had to let go of a manager. He didn't seem to want to do that as much.

Interviewer: And along those lines, again, over the time you've been in business but also maybe just in terms of the rest of your operation, what do you feel are the big threats to your business? Has anything come up that's been a big deal?

Respondent: Specifically broiler industry or are you saying everything?

Interviewer: Start with broilers.

Respondent: For broilers, the threat that hasn't really been an issue yet is certainly disease. I can't say that we've had a huge one yet. We've had some blips, but certainly if Avian flu would come through, we do have minimal insurance if we're out. The integrator has verbally agreed to share the indemnity with us. I

guess there's nothing that guarantees that they will. But certainly overall from an animal agriculture standpoint, manure management is a challenge. It hasn't been a huge challenge for us. We have the land base and we've been able to handle it. But there's always something new coming out, the next thing, and dealing with the people work in the regulations and so on... We've tried to be proactive and I think we have been, but there's always something.

Interviewer: And then the flip side of that, what's your biggest success that's come out of it? Where do you feel most positive about what you've been doing with broilers?

Respondent: I think it's just the consistency of it. We are a diversified operation with many sectors that are fairly variable. Broilers are not the only one but one of the ones that are very consistent. You know every 8 to 9 weeks, you're going to get a check and you're fairly confident it's going to be within a range. Although there's not a huge profit there, there's profit there and it's important to service the debt that's related to that farm and maybe even some others beyond that.

Interviewer: Good. So when things happen, because it sounds to me like change happens almost all the time. What do you find to be the most helpful resource in terms of issues that come up? Are there different people you go to for different things? How does that all pan out?

Respondent: What I've learned is you need to talk to more than one person. You'll get the directive generally from the integrator, and you need to kind of ask a little bit why. To be honest, the current integrator has been pretty good about that. You need to ask why and then kind of ask the question who else has been doing it and what's their response been, and then talk to those people. It's good to know the other growers and talk with them if they've tried it, especially the ones that maybe have been doing it a little longer. So you talk with them. Some of them, it is kind of comical sometimes. If they think they might be closing out the same week that you are, they don't want to share of good information with you. That hasn't been a real problem. That's just been a minor problem. But for the most part, the other producers have been very helpful. That's probably your best thing because they're down on the ground. They're seeing the results, and if they've already done it, they're going to tell you, yeah, it worked. They're going to tell you one of three things – it worked, it didn't work, or I'm not sure. So if it worked, you're ready to go ahead. If it didn't work, you're going to fight it. And if you're not sure, you're going to be cautious because pretty much the jury is not out yet.

Interviewer: Some specific things in terms of things that are happening in the environment and all the rest of it and maybe who you go to for those kinds of issues. You talked a little bit about Avian Influenza and the sort of thing. Who's leading the charge on that? Who are the good sources of information?

Respondent: Well, I would say definitely the Pennsylvania Department of Ag is the organization that's leading that. They seem to be out ahead of that. Pennsylvania many years ago of course had Avian flu and I think learned from that, and also had the opportunity to watch the folks in the Midwest make a lot of mistakes and learn from that. So I think we're ready for it. We'll never be ready for it, but if it comes I think we'll be more prepared than maybe we would have been. I'm not fearful of it, but I understand that it's a possibility. One thing we are lucky is we are fairly isolated with our operation.

Interviewer: That's true.

Respondent: We probably will be one of the last to get it hopefully if it happens and be able to probably get through it a little quicker, but who knows.

Interviewer: It's a wildcard.

Respondent: Yeah.

Interviewer: You were talking a little bit about environmental issues and kind of staying ahead of those. Do you do that a lot in house or do you have outside consultants that help with that? Who do you go to for those kinds of things?

Respondent: We certainly have some outside consultants we work with that have a ton of expertise. But we also have folks in house that can write manure management plans through conservation plans and so on. But we also understand that they're doing other things. It's not their whole focus, so we rely on some other experts mainly not in the public arena, more so in the private consulting type folks.

Interviewer: I would assume that your integrator deals with any kind of animal welfare issues or anything like that. You're not really all that involved or are you?

Respondent: We get audited from two or three different groups. Yes, they're very much on top of that letting us know what we need to be doing so that we pass those audits. For the most part, you're able to get a heads up on the audit which, to be honest, hasn't been a real issue. You just have to make sure that you filled out your records yesterday. Because sometimes guys will wait a day or something. There have really been no major issues there. It just makes life a little easier if you have a little bit of a heads up.

Interviewer: Is that more because you're doing the organic....

Respondent: Yeah, it's totally because we're doing the organic.

Interviewer: Okay. So that's actually coming from the integrator.

Respondent: Yes. Well, to be qualified, there are actually two different groups. One is actually strictly the organic folks, and then the other, the name slips my mind but it's kind of like an animal welfare type group.

Interviewer: So they set a standard...

Respondent: Yes.

Interviewer: And the integrator is trying to stick to the standard.

Respondent: Yes.

Interviewer: Interesting. Does the integrator share with you any of their marketing strategy? Do you know what they're about in terms of why you have the birds you have, that kind of thing? Or don't you care about that?

Respondent: Well, to be honest, that's actually a fairly interesting question because it brings to mind the integrator we work with is a little larger. They're into organic but they're a little more commercialized. And then I'm familiar with another integrator that's a little more localized and he uses that kind of against his competition. I will say that I can see some of it. This is a business decision by the integrator that we're involved in. They do what's right. They follow the rules, but it's a business decision. Whereas, some of them that are in organic, it's more of a philosophy, a lifestyle decision or whatever. I'd actually much rather work with someone that's doing stuff from a business standpoint that makes sense because you're balancing things a little bit. Yeah, you want to do, but you've got to be a little careful. They have rules to follow, so they can't go around the rules.

Interviewer: And then kind of along those lines, it appears to me that there's competition. In other words, it's not the situation that you only have one integrator you could go to. How you feel about that?

Respondent: For us at this point, I think with our location because we're kind of out of the way a little bit, there probably are only two integrators that would be viable. The third one that I alluded to there, I don't know that they would go that far. It's possible. But is there a lot of competition? No. But I think that's definitely been a good thing because my understanding is our previous integrator has had to improve things because of the competition. So that's a good thing.

Interviewer: Hopefully, that helps the grower.

Respondent: Yeah. It helps the grower get a better contract and ultimately probably helps them decide to do a little better job too.

Interviewer: And then feed is pretty much built into the contract so there's not a lot you have to do with that.

Respondent: No. You have to order the feed. You're responsible for your feed conversions and so on. We made a mistake back in the beginning where we had a feed spill and the manager hauled the feed out and we just fed it to steers, and we got charged for it. So that was not a smart move.

Interviewer: Live and learn, right.

Respondent: Yep. Yep.

Interviewer: You were talking about the kind of communication you have with other growers. Do you run into them places? Do you pick up the phone? Are there meetings? How does that all happen?

Respondent: For the most part, you call them if you have an issue. If you're in question, you call a couple of other guys.

Interviewer: Okay. It's informal.

Respondent: Yeah. We don't really have meetings. (integrator) has had some fun events, but they're not really necessarily geared towards education or communication. They're just more or less...

Interviewer: Okay. So not really doing grower meetings or anything like that that they would sponsor anything along those lines.

Respondent: Haven't that I know of.

Interviewer: Interesting.

Respondent: Not as much as (integrator) probably, as the other (integrator) did.

Interviewer: They would do that kind of thing?

Respondent: Much more so. Yeah.

Interviewer: Really?

Respondent: Yeah.

Interviewer: Okay. Interesting.

Respondent: To back up on that, I'm not really saying that's necessarily a criticism because the current integrator does do a good job of getting out there. When they have an issue or something, they'll get out there and get you informed themselves.

Interviewer: Through the service guy.

Respondent: Yeah, through the service guy or even the guy above him. He'll take a visit or call or whatever, and if you have any issues... I'm not really saying that one is definitely a lot better than the other.

Interviewer: Communication is happening. It doesn't matter how it happens.

Respondent: Yeah.

Interviewer: Okay. Cool. How about things like – in a little more general way – where does 4-H, FFA, all that kind of development kind of courses, where does that all fit into the business? Do you see that having a direct connection? Is it to a little bit more distant? How does that all work?

Respondent: The current manager a have at the broiler was not involved in that. But we have many employees that have gone through more so FFA probably than 4-H. And I definitely think that it's been a positive experience. It's given them exposure to some different things, and also given them an opportunity maybe to get involved in speaking a little better or whatever. I would have to say it's a positive influence. It hasn't been a necessary influence, of course.

Interviewer: Indirect.

Respondent: Yeah.

Interviewer: Yeah. Along the same lines, where does Corporate Extension, those kinds of activities, fit into the mix of the business? Where do they contribute?

Respondent: I would say our history is dairy, and we still have a large dairy operation. And I remember growing up where the dairy Extension agent, he was your lifeline. That's not really the case anymore mainly due to the fact that the funding has changed and every county doesn't have its own a dairy agent. They're more spread out. They have less funding, less opportunity to do some different trials and so on and so forth. So they're definitely there as a resource. I think the poultry – there is a good resource there. On the cropping side, there are some resources there. From the hog and the beef end, there are some resources. There are still some good resources from the dairy end. From the engineering, they still have a pretty good resource there. Whereas, like I said, growing up it was more frontline, now it's more kind of ancillary, not as focused. To be honest, there are experts out there now that you know you've got to pay them. You get what you pay for.

Interviewer: Other kind of resources that you tap, other ways you get information – associations, things you read, listservs that you subscribe to, that kind of stuff, where does that all fit?

Respondent: Specifically for the broiler or more general?

Interviewer: Particularly for broiler, but maybe for just general management, that kind of thing.

Respondent: Well specifically for broiler, it's generally, as I mentioned earlier, more focused on the integrator and then other growers. There is some minimal information gotten through some websites and so on or news like an Ag web or something like that where it might have a story that would kind of get me interested or something, but there's nothing specific. Now more on the broader scale, definitely there are tons of good publications for dairy and for crops. We employ some consultants on the crop side. We employ some consultants on the manure management side, estate planning, money planning and all those, engineering, the regulations and so on. There are definitely those out there and there are definitely some publications that we do get. I do get some farm journal things that are valuable. Certainly Lancaster Farming has some value. There are some out there. There are certainly websites I look at on a regular basis and so on, and news sites that are related to agriculture, but I can't think of anything overly specific.

Interviewer: That's good.

Respondent: I would say on that point, if there's an issue, I start my research. My research starts probably with a Google search, and then I'll begin to call folks that I know were connected to the issue and begin down either a rabbit trail or they'll send me maybe to someone. I think the industry – if you're willing to do some work, you can get the answers. But you can't be afraid to initiate contacts and do some work. There's definitely a lot of good information, good advisers, knowledgeable people out there I've talked to on many issues. I've talked to folks – a lot of them in academia in other institutions across the nation, and certainly here at Penn State as well.

Interviewer: And the internet the allows you to have a broad group of people you can talk to. It's not as confined.

Respondent: If you have a specific question or something and you put it out there, you'd be surprised. That question, you could throw it out there through that big internet, it narrows down pretty quickly to a few resources. And most people are more than willing to talk to you and get you some good information.

Interviewer: Have you ever personally invented anything?

Respondent: No. Not that I could think of. No.

Interviewer: Tweaked anything?

Respondent: Oh, definitely. Yeah. Definitely we tweak stuff. I would say some philosophy that we kind of have is we're not out to be the first person to do it. We like to be second. The first person spends a lot of time and a lot of money going through trial and error to figure something out. We're early adopters but not the first adopters, put it that way. With the diversified operation we have, it's probably we don't have the extra time to be doing some of that stuff. We like to have the latest and greatest, but we'd like to have it if it's proven.

Interviewer: Do you ever find knowledge that kind of carries over from one part of your operation to the other?

Respondent: Definitely. Yeah, definitely.

Interviewer: That's a common thing?

Respondent: Yeah, definitely. Certainly, manure management is across the board in all species. There are different ways you handle it. The difference between broiler litter and dairy manure is a whole lot more water in the dairy and a whole lot less good stuff. But you still are working under the same concepts and so on and so forth. From animal care, it's fairly similar. Buildings – there's definitely a commonality and there are definitely differences. One of the things I guess I didn't mention as far as resources earlier, and it just kind of popped into my head when I said buildings, and I'll mention them by name because it's just easier – it's like a *Construction Company* who not only is involved in building all three types of buildings but specifically more poultry and hogs, but also supplying. And they have people that have a lot of experience and knowledge not only in buildings but in other things as well. So that's another resource. You can't be afraid to call them. The other one is another supplier like a [Beissel 00:43:38]. They'll know what worked and what did work because they're still selling it. If they don't give you good advice – so that's another area that I guess it kind of forgot to mention. But if you have trusted essentially sales people, they're somewhat invaluable. In equipment, in supplies, in seed corn, or in fertilizer and stuff, if you have someone that's going to give you advice that's right for your operation, even though they're selling you something, they can sell it to you once, if you don't give you good advice you won't be buying again. So if they're giving you could advise, they're certainly someone you can value.

Interviewer: Especially as technology changes all the time. They're the ones that are on the front line of all that.

Respondent: Yep. Definitely.

Interviewer: I forgot to ask you, you're cropping as well.

Respondent: Yes.

(Small section of the interview excluded out of confidentiality concerns)

Interviewer: Keep it up. So what do you see as the future? Where is the business going? Where does family fit into that? What do you have in mind for a succession plan, all that kind of stuff?

Respondent: For just the broiler industry or for overall?

Interviewer: Maybe start with the broiler industry but then bigger.

Respondent: To the honest, getting back to my original point how we purchased the farm, one thing that provides is we're looking at it from a business aspect and that's always going to be something that could easily be sold at probably above market price for as far as the land and so on because of the fact that those houses are there and we keep them in good shape. They really don't intend to do that but that would be one of the first ones we would move if we did move a farm. I actually had discussions with family already. The location is a little further away from the rest of our operations. That's been a little bit of a downside. I think there's a potential at some point, we could have a family member in there. From an overall standpoint, we have come up with a family employment policy. Next step is begin to look at a potential transition in the next 10 to 15 years possibly, but nothing is set in stone. But we definitely are looking kind of forward to that opportunity and continuing I guess our legacy. But nothing that says that that has to happen.

Interviewer: Right. You have kind of a vision but you're flexible in terms of how it gets implemented, that kind of thing.

Respondent: Yeah. Yeah.

Interviewer: Cool. How about just the future of broilers?

Respondent: I think there's going to continue to be great opportunity. I think it's going to continue to be specialized. It's not all going to be organic but I think the organic is going to probably continue to grow. There will be some other specialty. At one point, they had an oversupply of organic. So they switched our house for a turn to ABF, which is essentially just no added medications and so on. I think there are niches there. The consumer does have pretty big interest in what they're eating and I guess they're voting with their purchases. I think there's still a place for commodity style chicken and so on, but there are definitely niches available. If it works to take advantage and you get a little extra, I think it's good for the industry.

Interviewer: It seems to be a growing source of protein.

Respondent: Yeah.

Interviewer: Pretty consistent.

Respondent: And the nice thing about poultry is there's such a short turnaround. It's much easier to manage and to make adjustments than in some of the other industries.

Interviewer: That's absolutely what I was looking for. Anything that you feel like I missed in terms of just this whole matter of how you bring information in and use it, that sort of thing?

Respondent: Not really. I guess I maybe just want to hit back on one other point a little bit. I'm not afraid, and I think you'll find that probably across the board that those that are truly trying to do their best aren't afraid to bring ideas to the integrator. Sometimes you'll get told no the first time, but maybe eventually they'll consider it and so on. I think that's important.

Interviewer: The point is that there's some give and take.

Respondent: Yeah.

Interviewer: It's not one way.

Respondent: They're definitely in charge. They own the animals and they've agreed to pay you to take care of them and so on and so forth. But I think we want to see them succeed, and they want to see us stay in business so we'll keep growing bird farms.

Interviewer: Good. Thanks very much.

Respondent: Sure.

Interview Seven

Interviewer: Here we go. Thanks for doing this. I appreciate it. Just to get started, can you tell me how you got involved in the business, particularly the poultry business?

Respondent: I grew up on the farm. I've known it ever since I was young. When I was a senior in high school, we expanded the operation to accommodate me coming of school. It gave me an opportunity to stay on the farm.

Interviewer: When you were a young person growing up on the farm, were you involved in it in terms of helping out, that kind of thing?

Respondent: Not so much. It gave my grandfather something to do it, so he did day-to-day work. We helped getting them in and getting them out, and any time there was an extra work we helped him in that. But my grandfather really wanted to be involved with it, and it was something that my dad was glad to allow him to keep doing as far as he was able.

Interviewer: And I would assume that in those early days, family was really where you got a lot of your information how to do things, that kind of thing.

Respondent: Right. The integrator would always have probably an 80% standard on how to do it. There would be a little variable of what you could do. There's a lot more now as far as ventilation. Bird management – there's a little bit more now I'd say than back then where it was not as detailed back then as it became more competitive as it is now.

Interviewer: Think of me as somebody who doesn't know anything about the business. What's an integrator and what does the integrator do in the process, and then what do you do? Who's responsible for what, and how is that figured out?

Respondent: Say that again. What are you looking for?

Interviewer: Well, in particular, how does the relationship with the integrator work?

Respondent: The integrator needs housing. So you need to provide, to build the barns. Our integrator provides the feed and the propane. They need you and they use incentives to motivate you to take care of those birds as well as possible. We try to keep them as comfortable, no stress on the bird. That's our mentality. You don't want to stress the bird out at all. They provide a foundation. We don't have any say in the feed. They encourage you on how to maintain the water, feed, and air. But we know that it's really up to us and our paycheck if we just do those things ourselves.

Interviewer: And then I assume there's a contract of some kind.

Respondent: Yeah. There's a contract. There's a base contract because it protects the downside if things are out of our control. They recognize that at a certain point. And then there are incentives on the upside to motivate you to give them a good bird.

Interviewer: And then they judge you in some way or another, and that's how your pay is based. How does that whole thing work?

Respondent: It really comes down to feed conversion, how many pounds of feed does it take to put in that bird to get a pound of meat on the truck. And we take into account that the bird will use that feed

several ways. They will use it to keep warm, and they will burn those calories to keep warm if the heat is not there to provide that. They will use that feed to put on weight, and that's what we want that feed to go towards. If there's stress on the bird or if they're sick, they will use a portion of that feed towards that, and that is not weight. So then our feed conversion will increase for a pound of feed. So the majority of the integrator's cost is feed, so they weigh our incentives heavily on how much feed is used for a pound of meat to the plant.

Interviewer: And are you judged alone or is there some other formula for that?

Respondent: No. Because of the weather changes and because the feed maybe is a little different, maybe the batch of chicks that are coming into all of us local farmers, the pay rate – or they look at one week of chickens that come into the plant. So usually between 8 and 13 growers will be processed in one week. So they try to keep it a little bit fair on weather conditions. We all grew that bird about the same weather conditions. The feed would be variable and the hatch would be a little bit variable. But they try as best as possible to group you and then rate you according to your time period that you grew that bird.

Interviewer: And then the rating in comparison with the other growers, is there a financial incentive in that in some way?

Respondent: Yeah. They will find an average for that week, and then they'll put that guy in the middle and they'll separate the top from the bottom. The lower the grower is in performance, the higher the top guy will be. So if you all grew the same chicken in the same week, everybody would get paid the same.

Interviewer: So it's really their way of trying to smooth out some of the things you can't control.

Respondent: Right. And the integrator always pays the same dollar per pound of chicken every week of the year. It's just how they take money from at the bottom and who they give it to at the top. But in the end, they pay the same per pound, so their costs are fixed.

Interviewer: So given that and you have this great deal of consistency in terms of the way the integrator treats all of you, what's the secret to being on the top of the pile? What things can you control or have an influence in?

Respondent: That's a great question because everybody wants to know that. It's interesting, last fall was our 50th year of raising broilers. And I'm just amazed at how often it keeps changing. We think it comes back to doing a thousand little things right. It's not one thing. We've learned that over the years. We've tried this and we've tried that and it's hard to put your finger on it. I think any integrator or any farmer will tell you that. And the top growers, I think they're honest with you when you talk to them on what they're doing. They don't know what they're doing. But at the end of the day, you talk to their service man and their service man says they just know their chicken. They know, they can see stress on a chicken when they're walking through. They're constantly changing ventilation. They're always adjusting. You're always tweaking something. And at the end of the day, you're not going to be on top of every flock because there are some things out of your control. But consistently at the end of the year, it seems the same guys are at the top.

Interviewer: So to pick up on what you're saying, people after doing it for a while they kind of get a sense about what needs to be done because they're there and they see it.

Respondent: Yeah, to a certain point. But we feel like we're always learning. We switched to organic bird. It's two years right on we switched, and that's a different bird. We're management. I think they take

less amount of stress. They're more susceptible to stress. So just more time in the barns and keep them as comfortable as possible.

Interviewer: As you look over, you've been involved in the business in one way or another for and longtime. What's been where you and your family have had your greatest success?

Respondent: In growing chickens?

Interviewer: Yeah.

Respondent: I think it goes back to the times of the year where we can spend more time with them. We've hired a little more help and that has helped. That has shown performance increase. You've got to stay after it. Our down times are sometimes more in the fall than the winter. The birds do well for us over that time and it points to just more time with two birds.

Interviewer: And of course you know the next question is is there anything where you could have done better or kind of the down side of the whole thing?

Respondent: You mean over the years or in the flocks?

Interviewer: Over the years and with your experience as a whole?

Respondent: It always seems like after a flock, you say you won't do that again. We've been working hard with our water treatment in the last couple of years. I think something that has hurt us – prior to about two years ago, we had I think it was some bacteria and some coliform in our water. The general idea is that the broiler grows so quickly that the water doesn't affect them as much as like pullets and layers and such. But it comes back to the little things, and it was one variable that we weren't getting covered. We got our well tested a couple of times. We thought we had it. They say well water doesn't change, so it was a half year or a year later, we tested again and all of a sudden we realized we had coliform. So to put our finger on whether or not that affected our performance, it's hard to know. But it's something now we definitely cover and make sure it doesn't get out of hand.

Interviewer: So that's an example of one of those little things.

Respondent: It is and we don't know how much it affected us those years we didn't test it as much as we should have.

Interviewer: That's interesting. It really is. Just to go a little bit further, do you see anything as a threat to your business at this point, where we're in right now with our situation?

Respondent: I guess I'm concerned just the overall economic health of the economy. We're in a specialty bird market right now with the organics. We've watched this market grow the last 15 to 18 years. We were always hesitant because of the size farm that we were. We need stability, so it's not like something that was 10% of our farm. It's grown. It's about 60% of our business. So we were careful to not jeopardize or put it at a higher risk entity. It's a consumer driven market and it just looks like it has potential, and we hope it's long term because we've never switched integrators since we were with them 50 years ago. We've always been with the same processing plant. It's changed names, but we were with the same processing plant. So we're concerned that organic, in an economic downturn, would we be viable. So it's a real concern.

Interviewer: You have little bit of a hedge because you have some diversity on the farm. Do you do cows?

Respondent: Yes. We have dairy and we have some side businesses that we throw in there. We are diversified somewhat, but broilers are our driver.

Interviewer: That's your main focus. And again, some of this is a little bit redundant but again long term looking back, what would you say are three things that have changed in the business over those years.

Respondent: Ventilation for sure. The tunnel ventilation was huge. When we built our third and fourth barn, we put tunnel ventilation in all the barns, the first two in '91. That totally changed how we handle our summer time. The other thing would be the water nipples. I wasn't around when we did that, but my dad talks about that just totally changed growing chickens – much drier barn, our weights improved, just the health of the bird, a lot less work. So that was huge. So ventilation and the water definitely changed. Feed delivery has not changed a whole lot. Probably the computers – the computers that control the farm, every fan used to be on their own thermostat. Now the ventilation and heat all work together, and that's been huge. You can really manage a barn.

Interviewer: I know bedding is one of the big issues. Any changes in that over the years?

Respondent: A lot of things have been tried. We used to clean our every flock. We still know how hard that was between flocks. They used to clean out and sweep and wash the concrete floors. And now we switched to dirt floors and we don't clean out – we won't do a complete clean out unless there's a disease problem, one in ten years. They actually do as well or better on reused litter than regular shavings. We've had our most problems, especially with the organics, with fresh shavings. For some reason, they do better on reconditioned litter. It's drier. It's sandier. We don't know if it's part of grit – they use grit in their feed. We're not sure, but we definitely lean towards maintaining the litter in the barns compared to having to go with shavings. It's been a challenge with new shavings.

Interviewer: [Inaudible 00:16:49]

Respondent: Okay.

Interviewer: Have you ever had any conflict with your integrator, any particular thing?

Respondent: What do you want? Yeah, I have. It was at a time where the integrator just had too much chicken, and when they get to a point where they don't need you, it's hard for them to listen to you. And we felt at one point that they were actually hurting themselves by not listening to what the farmers were asking for to provide a better chicken. We were concerned about just the overall condition of the company, and we felt like we could be an asset to grow a better chicken. So we had some meetings with some of the top at the integrators there that we were involved with. But they had too much going on and they just didn't want to hear us. It was a real struggle. It was contentious. Nobody wanted to lose a contract, but we wanted to come to them in a helpful way that it didn't look like we were trying to undermine their management. But the management, at a certain point, was very contentious. They'd come on your farm and they'd never encourage you. They'd always show you five things that you're doing wrong and they'd leave. For an example, we have three separate contracts of the eight barns, and just when you get ready for chicks, you almost have to wait until two or three days before the chicks come, and then it's a real big push to get everything done because just the way the heat works, you don't want to turn your heat on prior to a lot of your work. Anyway, so we designed one feed bin that we could tap all our feed out of quickly and get our feed out, compared to letting the intake auger, which would take about 40 minutes each house. So we had a tap out of one barn, out of one bin, and we could feed all our barns

fairly quickly, and it would improve the process. But we got in trouble with that. They said that we were trying to throw contracts and trying to make one contract look good and throw another one off, and we were potentially cheating other farmers out of money. It was farfetched, and we just felt like it was something that they were not even willing to talk about. It was something that we didn't even expect it to be an issue. It came up because when we were ordering feed, we were ordering feed differently. They threatened our contract at that point. And at that point, I wish they would have taken it and we would have moved to our new company sooner. But it all worked out well, but that was one of the frustrating parts.

Interviewer: It sounds like you're trying to communicate often times with the integrator, but given their circumstances, sometimes they want to hear it, and sometimes they don't.

Respondent: I think a lot of it they have a lot of pressure from their next level management, wherever that's that. I don't blame them for it. It's just that we feel like sometimes we could help them, whether it be delivering chicks a different way – we're trying to eliminate every stress possible on our chicks. And when they come to the farm, we feel like that delivery process, we'd like to fine-tune that. But it adds costs on their end if they take some of our suggestions, so I understand why they wouldn't sometimes.

Interviewer: You were saying about delivery of chicks, but are there other things that you would recommend to them at this point that they could do to make it better?

Respondent: Yeah, there are always things. As far as the chick delivery system, I think different farmers have thought that the idea that the chicks ought to have some kind of moisture, some kind of water before they get to the farm because it seems like when the chicks go down on the floor, if they're just wild – years ago our service guy always used to tell us when they're on the floor and they're wild, they're dehydrated. They need water. So if they get hatched at five in the morning, we don't see the chick until eleven, we've heard of different things – people throwing watermelon in the cart or each tray just a little piece just to wet their throats or something. We don't know if it would work or not. I'm sure they've tried it but I don't know if it would be worth the cost.

Interviewer: Maybe they have and maybe they haven't.

Respondent: Yeah.

Interviewer: Okay. There's an awful lot of change that seems to happen, and it's happened in the past. When change happens, I'm sure you're getting help from your integrator. But where else do you get information? Who else is helpful? Are there other go-to people? Are there things that you do that help you kind of have confidence in the things that you're doing to respond to the change?

Respondent: I always say it's very rare that you're the first one to do it. I feel like I have a circle of friends. Fortunately enough, I have three guys – I have friends from high school that are in the business. I have a circle of friends that several of us are doing broilers. So a lot of times, we'll bounce stuff off of each other. Farmers, we always think we can figure it out some way or another. We like the trial and error. We're not scared to try something new. Even now, we still try something new. That's hard to put a finger on whether it works or not, but it always feels like you're trying if you're willing to do something different.

Interviewer: A couple of real specific things in terms of again the question of who you go to for resources. I know that Avian Influenza is one of the issues that's out and around in the poultry industry. Who are the go-to people on that? Again, your integrator is probably there but who else?

Respondent: Yeah, our integrator pretty much sets the standard of what we need to do. I was at a meeting two weeks ago talking about the Avian Influenza a little bit. And he was a speaker, he was an Ag professor out of Virginia Tech, David Cole. He just really motivated the crowd or the people in attendance that feed companies are going to try to do what they can do. But bottom line, it doesn't matter what people ask you to do or what happens, the bottom line is it's your farm. And if there's something that you think should happen, you're the one that has to make it happen. If you cover all the bases that you know and do it the best you can and still get it, you don't have regrets. Magazines – I read a lot. Circle of friends, probably, but the integrator probably lays 80% down of what we're doing.

Interviewer: I know that there are a lot of environmental regulations in particular. Are those things that you do it in house? Do you have help with that? Where do you go to for any kind of plans that need to be done, things like that?

Respondent: We use a company. Do you want names of the company or not? We've got a company that does that. We're a KFO, so we need to have a plan done. We outsource that.

Interviewer: And I'm sure that the integrator, anything related to animal welfare, all the rest of it, that's built into the processes. Is there anybody else that helps with that?

Respondent: No, not really. The integrator sets the guidelines there.

Interviewer: It's clear to me from talking to you that you have a pretty good feeling about marketing and what the consumer is looking for and all that kind of thing. Is that something the integrator ever shares with you in terms of their vision, where they're going, that sort of thing?

Respondent: No. Marketing has nothing to do with us. They want a presentable bird, and sometimes they'll come out and say, hey, keep the floors drier a little bit because they're using the paws. Maybe in another country, they get a better price or something. But marketing, that's pretty much in house. We're just farms so they're not looking to us too much for that.

Interviewer: And you've built some buildings. Construction – I know that they have specs, but does the builder help with that? What's the relationship there? Are they just laying down the specs and then you have to go figure it out how to do it and you find people that can help with that?

Respondent: Yeah. They give us guidelines of what the building needs to look like when it's done. There are two or three local companies that I use that we've got onto that do the building. I buy the supplies and we get them in here and do the construction. That's been really good. We've been fortunate enough to run across a couple of construction crews that are familiar with what they're doing and they do a good job.

Interviewer: And feed is pretty much in the contract so there's nothing you're really doing with regard to that?

Respondent: No. Feed – we call the inventory and make sure the feed is there and the appropriate levels, but no we don't have anything to do with the feed.

Interviewer: I'm interested in energy because I know that's a major cost in terms of your formula and all the rest of that. Does the integrator allow you to do anything in terms of energy savings, energy generation, anything like that that helps in terms of the mix of things?

Respondent: Yeah, our costs are electric and our propane. Propane is covered by them. But there again, they will rate you on the amount that you use per 1,000 birds compared to everyone as that raised in that

period. So we try to be in the middle, try to conserve best we can. But also we've got to remember that propane is used to keep the birds from using feed to stay warm. So it pays in the long run to run your propane and let that feed put the pounds on the bird. It's hard for us to re-learn that because we always used to pay the propane. As far as electric, we switched all our lighting over to LEDs. It was a pretty big investment for us. But it was twofold. We had some energy savings, and we could control the level of light in the barn. We made that switch over the past six months. We're glad we did that. I guess the other side of electric, the only thing we can control is that we use a broker for our electric usage. He gets a decent rate, so we try to shop that a little bit. But other than that...

Interviewer: That's really good. One of the things I forgot to ask going back to what a flock looks like, can you take me through the cycle? You're doing prep work and then the chicks come in the door. What happens next?

Respondent: We try to make sure that heat is on 48 hours before those birds come. Once those birds hit the floor, probably our number one concern is an animal welfare issue – the ammonia that is present in a reused litter barn. So we work hard to try and make sure that that ammonia is at the right levels. We have testing tubes throughout. Start to finish or just at the chick part, what were you looking for?

Interviewer: Start to finish.

Respondent: Yeah, they'll be in that chamber. We'll do a lot of heating that first 14 days of that chick. Once that bird hits 10 to 14 days, we need to give them more room. Competition for the feed and water is a big indicator at the end of the flock whether or not you stressed them out. If they have any resistance to feed or water, it will show up at the end of the flock. So I'd say between 9 and 14 days, they move into the extra area where they can start growing. We only use half the barn to try to conserve a little heat. We only heat half that barn to start. We move them at 9 to 14 days into the rest of the barn, and then just make sure that their stress levels are nonexistent. We constantly have to move the waters up as they grow. Feeders have to go up as they grow. Ventilation increases. In about 47 to 49 days the majority of the time is when they move out.

Interviewer: And then normally how long in between flocks?

Respondent: That varies – 10 day to about 18 days is our last year and half, two years' experience, but it's varied according to market.

Interviewer: Okay. And about 5 to 6 turns per year?

Respondent: 5 to 6 turns, yeah. If you do the math, if you turn on that 7 to 10 day, which is a real short down time, you won't get that sixth flock in. But usually it's a 14-day down time and then that gives you five and a half in a calendar year.

Interviewer: I just want to make sure we got that cycle thing in because I'm asking that question. You were talking about making connections with other people. Is that just a pick up the phone kind of thing? Do you see people? Is this conversation at church? Where do those conversations happen?

Respondent: Yeah, at church another guy raises broilers and he's with a different integrator, so we compare notes a little bit there. It's a little bit different, but it comes down to a meat bird and it's somewhat similar. The other guys, they raise the same with the same integrator. Yeah, if there's an issue, sometimes when we're renting equipment from each other, we're on each other's farm, we'll stop and we always catch up with each other a little bit, what they're doing, and if they've tried something, if it worked or not.

Interviewer: That's a good way to do it.

Respondent: Yeah.

Interviewer: How about Cooperative Extension? Do they have any role in anything that you're doing? Do you find them helpful in any way or not?

Respondent: No, we don't...very little. When there's an issue in the poultry industry, sometimes they'll pop. We'll start to see some action or see some things come out of there, but very little.

Interviewer: It seems like the integrator has taken a lot of the role that they used to play in terms of providing information, that kind of thing.

Respondent: Yeah. It's in their interest. So I would think they provide the majority of the guidance.

Interviewer: You've been involved in FFA. How does FFA, 4-H, that sort of thing connect with the system of what's actually going on out there?

Respondent: Probably FFA was probably just more as a unity, more camaraderie that you're in agriculture. I wouldn't necessarily say it motivated me in the poultry business. When I was in FFA, it was probably more general Ag. We were pretty diverse. We pretty much hit all the topics and did things together as a group.

Interviewer: Here's one out of the blue. Have you ever invented anything in the farm operation? Don't say no because I know you have.

Respondent: Where did that come from? Yeah. I enjoy that. I enjoy that part. That's just in me. It's an expensive process, I can tell you that. But it goes back to marketing. I still feel like the idea would still be a marketable product, but life, family, and work has consumed it. It's been 16, 17 years ago that I worked on that project. I still actually have it out to a guy in a different concept, and just haven't been more active with it.

Interviewer: Is there anything in terms of new processes? A lot of invention is tweaking things that are already out there. Anything like that that comes to mind of things you've done in the last couple of years?

Respondent: That would be...

Interviewer: Along those lines of kind of inventions but not really inventions, more tweaks, that kind of thing.

Respondent: You mean what I think would be a better improvement?

Interviewer: Maybe things you've actually done, you've actually done and implemented. It kind of goes along with the idea of if something changes and you have to respond in some way and you do it just because it's the right thing to do or you know that it's the right thing.

Respondent: Give me an example of what you're thinking...

Interviewer: A process that you've been thinking about that maybe if we changed this just a little bit it could be better. It doesn't require a big thing with the integrator or anything like that, it's just something small, but you try it and it makes a difference.

Respondent: Gee, I've got to be careful who reads this report because we're competing against everybody who reads this report.

Interviewer: Right. You don't have to tell me a lot of the specifics about it but just in general.

Respondent: Well, I could maybe touch on what we were working on as far as inventions.

Interviewer: That's great.

Respondent: Something that we really felt like was needed, and I guess it was the amount of barns that we've had. We always felt like especially in the summer time, the birds would sit. And when it got full, when the barns in that that last 10 days or 2 weeks, the barns got full, it goes back to their stress – can they get to their feed and water or do they sit there and it's very full and they look at the feed and think look at all the chickens I have to step over to get to my feed. I'll just wait. Maybe when my buddy goes, I'll go. So what we designed in the barn is a system that would go around the barn at the ceiling near the wall about three to five feet from the wall and it was mimicking a dummy, like a person. It would hang maybe two or three feet off the floor. And it was on a timer. And we really worked with that. We ran that thing through the barn every hour. We ran it through every two hours. We'd run it in the morning. So we had it that it would run maybe 8, 10 times a day. And the birds would get up and move across, and you would see the bird. Actually, the temperatures in the barn would actually rise 3-4° because of all the heat trapped underneath their breasts and their stomachs when they'd stand up and they'd flap their wings and it would get dusty in there. We would exhaust a lot of heat. We did that. We actually had a couple of barns we installed them in just to try to get people to use them and try to help us in our research. At the end of the day, we were not putting out a bigger and better bird. It's very, very hard. We always say the chicken industry is splitting pennies on how competitive it is. So it was hard to put our finger on it. At that time, we started another business and we got into some other things. So it kind of went to the side. We didn't maintain the units that we put out to other customers. I still like the idea. I still think the idea of gently moving them up and encouraging them to eat and drink – the integrator wasn't real impressed with it, thought that we were trying to replace the person that was going through the barns. They'd rather see a person walk times a day through the barns. But realistically, we just weren't going to be in there, we weren't going to walk that barn 10 times. So we came up with that and we played with that for about two or three years.

Interviewer: That's great. That's exactly what I'm talking about. I can tell you still have that in your head.

Respondent: Yeah.

Interviewer: And some way or another, you'll come back to that.

Respondent: Yeah. Well it's out there. We actually used it. We're trying another method of that, so we'll see what comes of it.

Interviewer: Okay. Good. So what do you see as the future for, in particular, the broiler industry?

Respondent: It's at a crossroads I think with satisfying the customers' in the grocery stores perception of how that chicken was raised, and the economics of getting cheap protein, cheap broiler meat on the table. If the industry satisfies the consumer that a conventional GMO fed bird is safe, I'm concerned that natural

organic is going to be in trouble. But what I've noticed the last several years of why we made the switch is that social media plays such a huge role, and there's a social status what is put to your kids. People's kids are the variable. They will spend anything. And when they're with friends, they say they feed their kids all organic. And that perception that they are doing everything they can to love their child, just only give them 100% success, and success is such a huge driver in the American economic status. I just feel like until we have an economic downturn that we can't afford it, natural and organic is still going to be a driver. It's still a niche market. I think it'll be a long time until it's a majority. But that's where even in layers, pullets, turkeys, broilers, everybody's watching – is the consumer willing to pay that much more for a system to raise a bird that's so expensive. And at this point, they continue to move that way. But it's scary the amount of money farmers are spending to build the facilities for that natural and organic housing. It's very expensive to produce that egg and that broiler. And nobody knows the future. You deal with your current conditions now and you adapt if it changes, and that's just all you can do.

Interviewer: I know that you have a choice of integrators. Does that help in terms of feeling good about the future?

Respondent: We don't have choice integrators like the Eastern Shore. We used to have no choice, I felt, until (integrator) and (integrator) expanded. We felt like we were tied in. Now we have a little bit and it definitely feels different that the integrators want you, they want the grower. That has felt different that it had in the last 15, 20 years. There's a little competition among housing right now, and that's a good place for a farmer to be.

Interviewer: How about the future of your business? Where do you see that going?

Respondent: Yeah, that's a great question. I have one boy. My brother has one boy. Our core is here on the farm. Our core businesses on the farm. We're working at that. We're trying to figure out what that looks like. Do cousins want to work together? Can we make that work, or do we try to expand? Is it farming or is it, yeah – I feel good about where we're at. But, yeah, the future is something we've got to try to nail down the next 5, 10 years from where our boys are.

Interviewer: Right. Definitely, you're both thinking about the next generation and how that all happens. If you're diversifying, how do you see that going? Will you continue to diversify or kind of like where you're right now and just keep pushing those things?

Respondent: Yeah. We've been working on that. Diversity isn't for everyone. There are a lot of farmers that want to do one thing and do it well. But I think over the years, we've come to realize that diversity is our strength. We enjoy doing different things. I enjoy the chickens, but I also enjoy working in other businesses. We kind of have a philosophy. The reason for our diversification is that once the kids are of age, we don't want to hold onto the farm until we're 70. We want to be able to move into maybe pick up on that side business and allow the children to be in the farm a little sooner or partnership or however. I want something else besides the farm that I can move into. I would continue to be involved, and maybe that will create a little bit more opportunity and get the kids in a little sooner because my dad was very gracious with us in getting us involved.

Interviewer: Having that experience with your own father I think helps when you think about the next generation.

Respondent: Definitely. Yeah, definitely.

Interviewer: Great. You've answered all my questions.

Respondent: Okay.

Interviewer: Did I miss anything from your point of view?

Respondent: I don't think so. It's been a stable business. I think one thing with broilers, I have family in dairy and I've got family in construction. And what I see watching the dairy and construction, they have their tremendous years and then they have years where it's thin. And with broilers, it's hard sometimes to watch that because you don't have those huge years. You can fluctuate your income maybe 20% from year to year. But at the end of the year, as long as there isn't AI or Avian, you know at the end of the year where you're going to be which is a good thing. But sometimes, as just entrepreneurs, you want to have that better year. So that's a big difference with broilers or contract farming compared to being independent. We always call it boom or bust.

Interviewer: You're always trading that stability for the possibility of doing better.

Respondent: Right.

Interviewer: Which advantages and disadvantages.

Respondent: Yes. Exactly.

Interviewer: Thank you for doing this. I appreciate it.

Respondent: Oh, yeah. No problem.

VITA

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Education

- M.S. in Personnel Counseling, Wright State University, Dayton, OH. Graduated June 1976.
- M.Divinity in Pastoral Counseling, United Theological Seminary, Dayton, OH. Graduated June 1976.
- A.B. in Government, Franklin and Marshall College, Lancaster, PA. Graduated June 1972.

Work Experience

- Special Assistant for Workforce Development, PA Department of Agriculture, Harrisburg, PA. May 2015-present
- Executive Director, Lancaster County Workforce Investment Board, Lancaster, PA. January 2001-February 2015
- President/Chief Executive, Sheely Wholesale Distributors, Inc., Lancaster, PA. January 1997-October 2003.
- General Manager and Sales Manager, James J. Sheely Wholesale Jewelry and Supplies, Lancaster, PA. August 1987-December 1996.
- Director of Operations, Carriage Inn Management Corporation, Dayton, OH. February 1986-February 1987.
- Director of Marketing and Community Services, Mental Health Resource Corporation, Xenia, OH. February 1985-February 1986.
- Director of Planning and Marketing; Director of Human Resources; Staff Services Administrator; Eastway Corporation, Dayton, OH. July 1978-February 1985.
- Associate Director of Field Education, United Theological Seminary, Dayton, OH. June 1976-June 1978.

Professional Affiliations

- Elder, Eastern Pennsylvania Conference, United Methodist Church.
- Licensed Professional Counselor, State of Ohio.
- Certified Workforce Development Professional, National Association of Workforce Development Professionals.

Other Professional Activities

- Chair, PA Workforce Development Association, July 2013-February 2015.
- Member, Board of Directors, National Association of Workforce Development Professionals, July 2013-June 2015.
- Faculty, National Sector Skill Academy, 2006-2014.
- Consultant in workforce and economic development, 2006-present.
- Regular speaker at the annual meetings of the National Association of Workforce Boards and the National Association of Workforce Development Professionals, 2002-present.