Feasibility Research Report for Insuring Commercial Poultry Production

Deliverable 2. Final Feasibility Report

Contract Number: N10PC18148

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Due Date: September 3, 2010

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SECTION I. EXECUTIVE SUMMARY

The U.S. poultry industry includes production of more than 15 species of domesticated fowl and commercial game-birds and production of eggs from these species for direct consumption and hatching. Production of all poultry and eggs comprise approximately $37 billion of the U.S. agricultural economy. The three largest poultry sectors – broilers, turkeys, and layers – accounted for a total value of over $35 billion in 2008.

The majority of U.S. broiler production is in Southern and mid-Atlantic states. A majority of broilers are grown under contracts to integrators who own the birds, supply feed and medication, and schedule finished bird pickup and house repopulation. The broiler integrator element of the poultry industry has consolidated to 20 highly specialized, vertically integrated firms. Growers are paid for use of their houses, equipment, and labor based on pounds or, less frequently, a count of live birds delivered.

The United States is the world's largest producer of turkeys. The 9 most productive states account for more than 75 percent of the annual national value and span the North American continent from east to west. Every state has some production of turkeys, though production in a number of states is for niche markets. Except for these niche market birds, almost all turkeys are grown under contract.

Commercial egg production in the United States is reported in all 50 states. In 2009, 337.4 million layers produced 90.4 billion eggs. More than 75 percent of the table eggs were produced by integrator-owned operations, with just 12 firms producing 20 percent of all the eggs grown in the United States. In 2009, 31 percent of all table eggs were broken under Federal inspection. Companies with at least 75,000 layers raise approximately 95 percent of all layers in the United States. Larger egg enterprises are aware of, and sometimes use, risk management instruments to manage risks associated with feed prices and energy costs.

Poultry growers, integrators, and producers face production risks, but insurable variability in production (yield) is much lower for poultry than for field crops. The broilers, turkeys, and layers have been carefully bred and selected over time to have a feed conversion efficiency that maximizes "harvestable output." Anecdotal data suggest with poultry that are multi-cropped, there may be more variability from crop to crop. The sophisticated and technologically advanced poultry houses manage not only most weather related risks but also help with disease control by limiting sources of contamination. In the listening sessions, broiler growers and producers expressed concern about feed quality, disease, weather events, building/operational environment issues, and domestic and international market outcomes. Turkey growers and producers were concerned with disease, weather, energy costs, withdrawal of integrators from a region, and market outcomes that indirectly affect their revenues. Growers and producers maintaining layers were concerned about disease, particularly diseases that might be transmitted to humans (zoonotic diseases), bio-security requirements, recalls, and competition.

Stakeholders of poultry in general are subject to substantial institutional risks from regulations related to husbandry, quarantine, and sanitation. Of these concerns, only uncontrollable disease and unmitigated weather problems are typically considered insurable production perils. There are private weather risk management products available to growers, integrators, and poultry

producers fully capable of covering the weather risk. There are government programs providing partial indemnities to poultry producers and integrators who incur disease or natural disaster losses, but issue of ownership limits the ability of these programs to provide grower indemnities.

It is also important to consider the impact of the sector structures on who has an insurable interest in the crop. The integrator/processors are continuously monitoring sales, inventories, and wholesale prices, and adjusting through-put (beginning with bird placements into their own or growers' farms) and product to maximize profits. Their management of production practices and ownership of the birds removes all, or almost all, the insurable interest in the poultry from the growers. The Crop Insurance Act precludes provision of insurance for rent and labor payments to growers under the industry structure involving grower/integrator contracts. In general, if an RMA policy were to be offered, changes in the Act, handbooks, or contracts should identify the grower's insurable interest. Furthermore, processing activities of many producers and the integrators cloud the actual "harvest" value of the "crops." The added value component of some poultry producer and integrator sales dwarfs the harvest value of the birds or eggs.

There are no public data to allow rating or underwriting of flock, farm-level, or county-level yield variability. The private data documenting yield, loss rates, feed conversions, or grower revenues are considered to be highly confidential, and serves as the basis for operating decisions in the industry. The Contractor believes in the current environment there is nearly no chance of collecting sufficient data to support an actuarially sound development effort. Although generic appropriate production practices can be identified, the industry has fine tuned the conversion of inputs (feed and energy) into output (meat and eggs), and the management practices controlled by the integrator often impact a grower's productivity. Data on the impact of management practices are available to integrators and to some extent to growers, but not to the insurers. At the present time, these information asymmetries are not likely to change, even in a rigorous development effort.

Management-related variability (whether imposed by a poultry integrator, a producer, or a grower) would likely need to be addressed through a substantial deductible or burdensome and challenging underwriting constraints; poultry growers and producers have indicated a high deductible is not an insurance construct they would embrace. Coverage of insurable perils will not protect the insured from financial failure as a result of many perils of concern. Named peril insurance products are already available for bird mortality and loss-of-income. There was no evidence of broad interest among the stakeholders in poultry production (yield or yield-based revenue) insurance. While AGR/AGR-Lite products may seem an attractive insurance option for poultry growers and producers, they expressed concerns that the requirements for this insurance are burdensome. Anecdotal evidence suggests participation in the AGR/AGR-Lite programs is limited within the poultry industry. Although smaller layer operations are eligible for the adjusted gross revenue products in some states, many poultry operations are not eligible as a result of their limited crop diversification, size, or location. Furthermore, for some operations, limited diversification of production reduces the maximum amounts of insurance and coverage levels available to producers, creating disincentives for participation. Finally, RMA has made internal determinations that income from grow-out operations is not eligible under the adjusted gross revenue programs.

In light of the many issues identified in this study, including the failure of proposed production insurance for the poultry industry to meet a number of the RMA criteria of feasibility and the lack of transparency in the division of insurable interest between growers and integrators in contracted production, the Contractor has determined it is not **currently** feasible to develop production insurance for the livestock industry. Inasmuch as there has been a substantial change in federal policy regarding poultry industry contract secrecy, it is possible sufficient farm-level data to develop such insurance will become available over time. Consequently, the Contractor suggests RMA consider revisiting the issue of data availability in 2015.

SECTION II. INTRODUCTION

The Statement of Work (SOW) for Project Number N10PS18148 identifies the objectives of the project as "obtain[ing] analysis [and] determin[ing] the feasibility and issues related to insuring commercial poultry production in accordance with Section 522(b) (13) of the FCIA." The Contractor is directed to "produce a research report that determines the feasibility of developing an insurance program for commercial poultry production and recommends the most viable type of insurance program, if any [is] feasible."[1]

The U.S. commercial poultry industry includes production of more than 15 species of domesticated fowl and commercial game-birds, production of eggs from these species for hatching, and production of eggs from a limited number of these species for direct consumption by humans. Poultry species endemic to the United States and raised for meat include ducks, geese, pheasant, quail, and turkeys.[2] Chicken (including pullets), emu, guinea hens, ostrich, and some species of duck, quail, and pheasant were introduced and are now grown commercially in the United States

Production of all poultry and eggs comprises approximately $37 billion of the U.S. agricultural economy.[3] Since more data are available for the larger sectors of the poultry industry, the Contractor focused the research efforts on the broiler (chickens produced primarily for meat), turkey (produced primarily for meat), and layer (chickens raised for egg production) sectors. Together, these three sectors accounted for a total value of over $35 billion in 2008.[4] For comparison, the 2008 corn crop was valued at about $49 billion and the 2008 soybean crop was valued at about $29 billion.[5] Consequently, the financial impact of the three major commercial poultry sectors collectively in the U.S. agricultural economy is comparable to that of the production of the largest field crops. There is also a large processing added-value component in all poultry sectors. This increases the impact of the poultry industry on the overall U.S. economy. Furthermore, although feed costs and costs for transporting feed have led to some concentration of poultry production in the states producing the feed crops, additional production occurs near population centers. This bifurcation of production locales has contributed to the geographic balance in the poultry sector and in the overall U.S. agricultural economy. Data on the other sectors of the poultry industry are geographically limited, sporadic, and in many cases anecdotal.

Much of the poultry industry is vertically integrated. A small number of very large firms have "integrated" many elements of production, marketing, and sales. Integrators for poultry meat production may control feed production, brood egg production, hatching, grow-out, transportation, slaughter, initial processing (preparation of a marketable whole bird), further processing to retail products such as lunch meat, and wholesale distribution. Integrators for egg production may control feed production, layer hatching and grow-out, transportation, processing, and wholesale distribution. Consequently, the major sector stakeholders have a tremendous

[1] SOW. Project Number: N10PS18148, page 10.
[2] Some classification systems include turkeys as members of the pheasant family.
[3] USDA, NASS, 2008, 2007 Census of Agriculture, Table 2, http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_2_US_State_Level/usv1.txt, accessed March, 2010.
[4] USDA, NASS. 2009, 2008 Poultry Production and Value Summary, http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-05-29-2009.pdf, accessed February, 2010.
[5] USDA, NASS, Quickstats, http://www.nass.usda.gov/QuickStats/indexbysubject.jsp, accessed February, 2010.

amount of control of their products and vast market power relative to their contract growers. Even relatively small egg and poultry producers/integrators may own and manage many aspects of their businesses (e.g., rearing of birds, feeding, housing, husbandry, and marketing of their product) and are capable of managing many elements of the process.

In an effort to provide clarity, the Contractor defines below the terms producer, grower, and integrator as they are used in this report.

- Poultry Producer: A person owning and growing poultry for sale into agricultural markets.
- Grower: A person retained under contract by the owner of poultry or an agent of that owner to manage the growth of poultry for sale into agricultural markets.
- Integrator: A person who owns poultry being grown for sale into agricultural markets as well as associated activities providing inputs, services, or processing of the poultry. The term integrator/processor is used occasionally to focus attention on associated poultry processing activities.

The broiler sector of the poultry industry, valued at approximately $23 billion in 2008, is the largest of the domestic poultry sectors.[6] Although the 2007 Census of Agriculture reported more than 300 broiler operations in each of 30 states, production is highly concentrated in relatively few regions.[7] The top six broiler production states account for more than two thirds of the annual production (Table 1) and are located in the south. This regional concentration also supports strong poultry feed and poultry processing infrastructures in these southern states.

Table 1. U.S. Broiler Production: 2008

State	Number of Birds (millions)	Production (million pounds)
Georgia	1,409.2	7,468.8
Arkansas	1,160.0	6,380.0
North Carolina	796.1	5,493.1
Alabama	1,062.9	5,846.0
Mississippi	840.7	4,876.1
Texas	640.8	3,460.3
Maryland	298.6	1,612.4
Delaware	242.9	1,578.9
Kentucky	306.1	1,652.9
South Carolina	236.9	1,516.2
Virginia	250.3	1,251.5
Oklahoma	237.8	1,260.3
All Other States	1,526.8	8,044.0
TOTAL	9,009.1	50,440.5

Source: USDA, NASS. 2009, 2008 Poultry Production and Value Summary, http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-05-29-2009.pdf, Accessed February, 2010

[6] USDA, NASS. 2008, 2007 Census of Agriculture, http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_2_US_State_Level/st99_2_013_013.pdf, Accessed February, 2010.

[7] USDA, NASS. 2009, 2008 Poultry Production and Value Summary, http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-05-29-2009.pdf, Accessed February, 2010.

The turkey sector has an annual value of approximately $4.5 billion. Although a disproportionate share of total domestic turkey consumption occurs between November 15 and January 1, the sector is far less seasonal than it has been historically. The proliferation of processed turkey meat products has led to far less dependence in this industry sector on holiday/seasonal demand. Table 2 identifies the top 12 turkey production states (sorted by pounds of production) in 2008. The 9 most productive states account for more than 75 percent of the annual national value and span the North American continent from east to west.

Table 2. U.S. Turkey Production: 2008

State	Number of Birds (millions)	Production (million pounds)
Minnesota	48.0	1,305.6
North Carolina	40.0	1,208.0
Missouri	21.0	651.0
Arkansas	31.0	610.7
Indiana	14.5	519.1
Virginia	18.0	484.2
South Carolina	12.5	477.5
California	16.0	435.2
Iowa	9.0	360.0
Pennsylvania	11.5	216.2
Ohio	6.0	230.4
South Dakota	4.7	189.4
All Other States	40.9	1,234.8
TOTAL	273.1	7,922.1

Source: USDA, NASS. 2009, 2008 Poultry Production and Value Summary, http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-05-29-2009.pdf, Accessed February, 2010

The layer sector, the sector of the poultry industry focused on production of chicken eggs for consumption, has an annual value of approximately $8 billion. The layer sector is more de-centralized than the broiler and turkey sectors, with production located near both production of feed stuffs (inputs) and population centers (consumption). Table 3 identifies the top 12 egg production states (sorted by number of eggs produced) for 2008.

Table 3. U.S. Table and Breaking Egg Production: 2008

State	Eggs Produced (millions)
Iowa	14,407
Ohio	7,168
Georgia	4,576
Indiana	6,523
Pennsylvania	6,181
Texas	4,928
California	5,272
Arkansas	3,139
North Carolina	3,063
Alabama	2,150
Minnesota	2,767
Florida	2,749
All Other States	28,228
TOTAL	91,151

Source: USDA, NASS. 2009, 2008 Poultry Production and Value Summary, http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-05-29-2009.pdf, Accessed February, 2010.

It is important to note the self-identification of production in USDA surveys may mask ownership issues when identifying producers of poultry. Operations "growing out" broilers and turkey, and some contract egg growers, may not have an insurable interest in the birds they are managing. Under the current federal crop insurance program, an insurable interest is defined as "the value of the producer's interest in the crop that is at risk from an insurable cause of loss during the insurance period. The maximum indemnity payable to the producer may not exceed the indemnity due on the producer's insurable interest at the time of loss."[8] The loss may be measured in terms of lost potential revenue (e.g., loss of yield) or it may be measured in terms of reduced revenue. RMA has made internal determinations that income from grow-out operations is not eligible for coverage under the adjusted gross revenue programs. This ruling is consistent with the terms of the poultry production contract the Contractor was able to study specifically states clearly: "Compensation herein provided for Grower shall include labor and rent on Grower's houses, equipment, and land for the time necessary to grow chicks until marketed…."

The integrator, rather than the grower, generally owns the poultry on a grow-out operation[9] and bears most or all the risk associated with sporadic events. The grow-out operator (the grower) owns the facility and supplies the labor and often pays the utility costs associated with raising the poultry. In this role the grower bears some of the risk associated with differences in production output (i.e., live weight of the birds), but the integrator controls many of the inputs that may impact output and bears some elements of the production risk entirely. Grower contracts are generally structured to reflect this distribution of risk. The relationship between grower and

[8] Electronic Code of Federal Regulations, 2010, http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=059ebb30881ac860b1c2ace12b6bb127&rgn=div6&view=text&node=7:6.1.1.1.1.18&idno=7, Accessed April, 2010.

[9] An enterprise whose purpose is to increase the weight of the poultry.

integrator might be construed as an unusual agricultural "share" arrangement. RMA defines "share" as,

> *"The insured's percentage of interest in the insured crop as an owner, operator, sharecropper, or tenant at the time insurance attaches. However, only for the purposes of determining the amount of indemnity, the insured's share will not exceed the insured's share at the earlier of the time of loss or the beginning of harvest. Unless the accepted application clearly indicates that insurance is requested for a partnership or joint venture, or is intended to cover the landlord's or tenant's share of the crop, insurance will cover only the share of the crop owned by the person completing the application. The share will not extend to any other person having an interest in the crop except as may otherwise be specifically allowed in the Basic provisions.*
>
> > *"Cash Lease (100 Percent Share [to the payor of the cash]). Acreage rented for cash is considered a cash lease. A lease containing provisions for either a minimum payment or a crop share will be considered a cash lease.*
> >
> > *"Crop Share. Acreage rented for a percentage of the crop will be considered a crop share lease. A lease containing provisions for both a minimum payment (such as a specified amount of cash, bushels, pounds, etc.) and a crop share will be considered a crop share lease."*[10]

In general, contract growers (particularly in the broiler and turkey sectors) do not own the birds they are raising. The poultry production contract the Contractor examined indicates, "Title of said birds, feed, medication, and supplies…shall at all times be vested in Integrator."[11] As the grower is required to follow the integrator's management decisions concerning stocking, feed, medication, sanitation, heat, ventilation, and Hazard Analysis Critical Control Points Program, virtually none of the management decisions associated with ownership are retained by the grower.

That the rental and labor contract payments are tied to the integrator's production success is an unusual feature for the real estate and labor markets, and may endow the grower with some fractional insurable interest. However, comments from the listening sessions and by insurance industry personnel who have examined other poultry contracts, suggest many growers understand their insurable interest, if it exists, may be quite limited. Several insurance industry personnel and poultry extension specialists have indicated that some integrators are committed by the contract to pay growers if there is a "crop failure."[12] For contracts structured with this condition, the rental agreement falls under the RMA category "Cash Lease." The landlord has no insurable interest under a cash lease. If more contracts were available for analysis, it might be possible to separate growers who have an insurable interest from those who do not. However, despite numerous requests for contracts, growers, integrators, and producers are unwilling to share contracts and details of the contractual arrangements.

[10] USDA, RMA, 2006, 2007 Crop Insurance Handbook, FCIC 18010, p. 15.
[11] Anonymous poultry meat production contract for 2010 production.
[12] i.e., if the flock or a majority of the flock dies.

II.A. Crop Insurance

Most federally subsidized insurance for agricultural producers focuses on crop plant production or on offering price or margin coverage for certain non-poultry crops. H.R. 2419, the 2008 Food, Conservation, and Energy Act, Title XII - Crop Insurance and Disaster Assistance Programs, Subtitle A - Crop Insurance and Agricultural Disaster Assistance, Section. 12023. Contracts for Additional Policies and Studies, in Subsection 13, called for research activities addressing federally-subsidized insurance for poultry:

> *"POULTRY INSURANCE POLICY.—*
>
> *"(A) DEFINITION OF POULTRY.—In this paragraph, the term 'poultry' has the meaning given the term in section 2(a) of the Packers and Stockyards Act, 1921 (7 U.S.C. 182(a)).*[13]
>
> *''(B) AUTHORITY.—The Corporation shall offer to enter into 1 or more contracts with qualified entities to carry out research and development regarding a policy to insure commercial poultry production.*
>
> *''(C) RESEARCH AND DEVELOPMENT.—Research and development described in subparagraph (B) shall evaluate the effectiveness of risk management tools for the production of poultry, including policies and plans of insurance that provide protection for production or revenue losses, or both, while the poultry is in production."*

Knowledge regarding the potential outcomes distinguishes risk from uncertainty. In addition to having natural causes, insurable sources of production or revenue variation must have a known set of outcomes whose probabilities are also known. Risky events satisfy both criteria, as a probability distribution may be assigned to the known set of outcomes. With knowledge of the outcomes and their respective probabilities, an actuary can rate a product proposed to manage the risks associated with the variation.

Federally-subsidized crop insurance is intended to indemnify producers for the outputs lost or foregone through no fault of their own. With field-crops, the weight or volume (yield) of expected output is insured, not the acres of cropland, tractors, implements, or labor. Insuring poultry production raises challenges that do not complicate development of crop insurance for plants. There are federal crop insurance programs that insure some capital assets, particularly the tree policies that insure nut and citrus trees, and a pilot addressing banana, coffee, and papaya trees. Furthermore, the nursery insurance program addresses nursery inventory rather than yield or yield-based revenue. It is possible either of these approaches might be used to manage some poultry industry risk. However, they would likely focus on measures of risk other than yield.

In a poultry enterprise; the crop (e.g., the harvested bird) resembles a capital input (e.g., the stock birds). In the brood and layer sectors, the distinction between capital input and crop is clear. The brood hens are capital inputs; their eggs and/or poults are the crop. The distinction is not so clear with a grow-out enterprise. It may be difficult to distinguish the poults from the weight gain that represents "production." The grower's risk is primarily associated with this weight gain, since the grower/integrator contract terms are generally based on live weight and feed conversion. Additional challenges in identifying, measuring, and tracking the poultry crop

[13] The term "poultry" means chickens, turkeys, ducks, geese, and other domestic fowl.

emanate from the fact that animals are motile and mortal. Both these characteristics can affect output by reducing (or, in the case of movement, potentially increasing) head count. However, since population density of flocks can affect weight gain, death and motility do not necessarily affect the production output in terms of the overall weight gain of the flock. In addition, within the poultry industry there are prudent, unplanned, mid-year inventory changes (flock size reductions and increases) made as prices of inputs and output change. These are clearly management decisions, but they may be made by individuals other than grow-out producers, particularly managers employed by the integrators. The decisions affect revenues of more than one party, but the revenue losses of the party (the grower) without decision-making authority or ownership may not be considered insurable under the federally-subsidized crop insurance system.

The development of crop insurance requires identification of perils, classification of those perils as insurable or non-insurable, and actuarial assessment of the risks associated with those perils. Most crop insurance addresses either production risks, price risks, or their combined outcomes in the form of revenue risks. Changes in production and revenues resulting solely from management decisions are not insurable. However, variations in production or revenue caused by natural events beyond the producer's control are potentially insurable, as are changes in revenues resulting from market fluctuations under some accepted approaches.

II.B. Poultry Trade and Exports

The United States is the largest exporter of agricultural products in the world. The agricultural sector of the U.S. economy has realized a trade surplus since 1960. While the surplus declined between 2001 and 2006, substantial increases were realized in 2007 and 2008. Lower prices and the global recession appear to have reduced the agricultural trade balance in 2009.[14] When "reliance" on overseas markets is measured as exports divided by total cash receipts, U.S. agriculture is more reliant on these export markets than most sectors of the U.S. economy.

Table 4. U.S. Agricultural Trade Balance: 2000-2009

Year	Exports	Imports $ Billions	Trade Balance
2000	50.8	38.9	11.9
2001	52.7	39.0	13.7
2002	53.3	41.0	12.4
2003	56.0	45.7	10.3
2004	62.4	52.7	9.7
2005	62.5	57.7	4.8
2006	68.6	64.0	4.6
2007	82.2	70.1	12.2
2008	115.3	79.3	36.0
2009	96.6	73.4	23.2

Source: USDA, ERS, 2010, Value of U.S. agricultural trade by fiscal year, http://www.ers.usda.gov/Data/FATUS/DATA/XMS1935fy.xls. Accessed April, 2010.

[14] USDA, ERS, 2010, Value of U.S. agricultural trade by fiscal year, http://www.ers.usda.gov/Data/FATUS/DATA/XMS1935fy.xls. Accessed April, 2010.

The United States is the second largest exporter of broiler products (Brazil is the largest). In 2008, U.S. exports were 7.0 billion pounds, more than 15 percent of total production. Russia, China, and Mexico together import more than half of U.S. broiler product exports. The United States is also the largest exporter of turkey products. Mexico is the largest importer of U.S. turkey meat, accounting for more than half of U.S. turkey exports. It is more difficult to track egg exports since this market has three elements: whole table eggs (fresh); dry and liquid egg products; and fertile, hatching eggs. Canada and Mexico are major importers of U.S. table eggs; Canada, Israel, Japan, Mexico, South Korea, and Spain all import substantial amounts of U.S. processed eggs and egg products; while Canada and Hong Kong are the major importers of U.S. hatching eggs.[15]

II.C. Risk

Generally, sources of risk in agriculture include production, price (market), financial, institutional, and human (personal) risk. Risks associated with the poultry operations have not changed substantially over the last three to four decades. However, recent changes in the relationship between contract growers and integrators have resulted in shifts in risk management responsibility. Understanding risk mitigation for growers requires an understanding of the contract system for poultry. Many poultry contracts have a payment structure known as "tournaments." These contracts have a fixed base payment for each pound of live meat delivered to the integrator and a variable bonus payment based on the grower's performance relative to other nearby growers contracting with the same integrator. Grower performance is measured by a "settlement cost" which is generally calculated by dividing the integrator's costs (feed, chicks, medication, etc.) by the total pounds of live birds produced. An individual grower's performance is compared to the average performance of the growers whose birds were "harvested" at approximately the same time.[16]

Although the vast majority of poultry production is contracted, a small number of independent farms sell to niche markets such as markets for fresh chicken and turkey; kosher chicken, eggs, and turkey; and organic poultry and poultry products. Producers for these niche markets are vulnerable to risk due to their size and may have a greater need for insurance than larger, mainstream poultry farms. Other than anecdotal information, quantitative data regarding this small portion of the poultry industry are generally unavailable. Furthermore, at least one of the smaller, top-ten broiler meat integrators grows-out broilers in company-owned facilities with hired managers and labor. While this eliminates the complication of contracted production, it introduces an alternative to that production that further solidifies the foundation of integration.

Contracts may tie base payments to management practices that impact grow-out costs. Some contracts assign particular input costs or revenue categories to the grower, while others assign the same costs to the integrator. Contract lengths range from just over a month to as long as 15 years. However, most contracts are on a flock-to-flock or year-to-year basis. Variations in contracts reflect differences in location, grower size, and type of housing.

[15] USDA, ERS, 2010, Briefing Room – Poultry and Eggs: Trade, http://www.ers.usda.gov/Briefing/Poultry/trade.htm, accessed April, 2010.

[16] Taylor, C.R. and D. A. Domina, 2010, Restoring Economic Health to Contract Poultry Production, http://www.dominalaw.com/ew_library_file/Restoring%20Economic%20Health%20to%20Contract%20Poultry%20Production%202010.pdf, accessed may, 2010.

Meaningful analysis of contract terms nationwide is complicated by two factors. First, there are a wide range of contract arrangements and terms. Second, most growers and poultry integrators are unwilling to share contracts with researchers in the interest of protecting proprietary relationships. However, on "December 3, 2009, the United States Department of Agriculture (USDA) issued a final rule regarding the records that live poultry dealers [integrators] must furnish poultry growers, including requirements for the timing and contents of poultry growing arrangements [contracts]". The USDA says the new rule, which took effect January 4, 2010, will "increase fairness and equity in the poultry industry by amending regulations under the Packers and Stockyards Act of 1921 to provide poultry growers with new information and improve transparency in poultry growing arrangements." The terms of this ruling are contained in Appendix A. This rule may provide incentive for changes in the contracts between integrators and growers in a way that transfers some of the production risk back to the growers. However, it is too soon to know if this will happen.

The following general risk analysis is organized into sections representing production risk, price risk, financial risk, institutional risk, and human risk, respectively. Production risks specific to a sector are addressed in the appropriate sector's section of the report.

Production Risk

Poultry production risks include fire; physical injury resulting from structural failures, panic, and noises; weather; disease; equipment failure; and input quality. Production risk can be systemic or idiosyncratic. Systemic risks, such as wide temperature excursions or labor shortages, affect all operations in a region. Other elements of production risk for poultry operations are idiosyncratic, affecting individual growers. Examples of idiosyncratic production risk include the breakdown of an automatic feeding system, an isolated disease outbreak, or a "stampede" in a cage-free poultry house.

Weather-related risk in poultry production is minor compared to weather risks in field or row crop production. Severe weather affects a small number of individual flocks every fifth or sixth year.[17] The effects of weather on energy availability and energy costs are a much greater concern to poultry stakeholders than are the direct effects of weather on production, assuming best management practices, such as back-up generators, are followed.

Disease risk includes chronic disease losses, which slowly erode production and consequently affect profits and potential losses to catastrophic diseases, such as avian influenza, which are relatively rare.[18] USDA APHIS historically provided payments for depopulations resulting from major (disastrous) disease outbreaks of either kind. However, these payments rarely reached the operators of grow-out facilities. The participants in listening sessions in the 2004 RMA Livestock Insurance report indicated that APHIS payments were provided only when the disease occurrence was a highly pathogenic ("high path") infection. They also noted such payments appeared to be somewhat *ad hoc* and political in nature. Most of the APHIS payments were to integrators (the owner of the birds), while only a very small percentage of payments were made, either directly or indirectly, to the grower.

[17] Aho, P. and D. Reid, 1988, Risks and Returns, Broiler Industry, pp. 14-16.
[18] Ibid.

Production is impacted by the competence of both the grower, who deals with day-to-day care of the flocks, and the integrators who control feed, stock quality, and other major management strategic decisions.[19] Under the contract system, poultry growers give up much of the control of production and marketing decisions in return for what is effectively a "price guarantee." With payments to growers from integrators based on relative production performance, the common production risks are transferred from individual growers to integrators. By some estimates, more than 95 percent of the risk is shifted from contract growers to integrators through the typical contract arrangement.[20] Growers can affect production through management decisions, but these actions are not technically risks as they are defined in the insurance context and certainly are not insurable. Nonetheless, growers express concern about contracts with tournament pricing, where their payment is influenced by their neighbors' performance. They believe outcomes can be biased through stock quality and other production inputs, all generally under the control of integrators. However, the grow-out contracts may provide growers some risk management through casualty clauses that compensate for losses arising from natural disasters such as a flood, excessive heat, fire, or "losses of potential production."[21]

It is relative production outcomes, not actual outcomes, that most affect grower income. No grower experiences a lower per pound payment when all growers experience an unfavorable (systemic) production outcome. Consequently, growers do not bear the common systemic production risk. If, for example, unfavorable weather reduces all growers' settlement costs, no grower receives a higher or lower per pound payment. Growers bear only the idiosyncratic portion of production risk, which in turn is influenced primarily by management practices. Integrators control most of these practices, while growers control a limited portion which appears to vary somewhat by the terms of particular contracts.[22]

Price Risk

Both poultry (output) prices and feed (input) prices are subject to market forces. Together, risks associated with prices can result in considerable variability in the economic situation in the poultry industry. However, output and input price changes do not directly and immediately affect the poultry grower. Under the terms of most contracts, stock price, feed price, and veterinary cost variability do not directly enter into the grower's net revenue variability. These are either paid by the integrator or fixed in the contract. Grower payments depend on production outcomes (weight of output) but not generally on price of either material inputs (except energy costs) or output prices. Consequently, growers in general do not experience direct price risk. Price risk is transferred from growers to integrators under the two-part tournament contracts. Integrators, whose operations are almost always well-diversified, can manage much of their input price risk through financial instruments and long-term contracts. However, no third-party exchanges offer futures contracts for poultry products. As a result, output price risk is borne almost entirely by the integrators.

[19] Ibid.
[20] Knoeber, C. R. and W. N. Thurman, 1995, "Don't Count Your Chickens…," Risk and Risk Shifting in the Broiler Industry. American Journal of Agricultural Economics. pp. 486-496.
[21] USDA, ERS, Bulletin 748, 1999, p. 13, http://www.ers.usda.gov/publications/aib748/aib748c.pdf, accessed April, 2010.
[22] Taylor, C.R. and D. A. Domina, 2010, Restoring Economic Health to Contract Poultry Production, http://www.dominalaw.com/ew_library_file/Restoring%20Economic%20Health%20to%20Contract%20Poultry%20Production%202010.pdf, accessed May, 2010.

Intense competition within the poultry sector has promoted integrator consolidation, creating a limited number of very large firms competing for the same national and international markets.[23] Although growers do not bear price risk directly, they are dependent on integrators for stock (the chicks). Given the small number of integrators, growers experience lower revenues over the long run through reduced production in the sector or industry, lack of competition among integrators, and/or bankruptcy or default of an integrator.

Competition also plays a role in the price structure of the outputs of poultry production. The poultry markets have experienced little price appreciation over time. Therefore, competitors in the industry are focused on producing more products of higher quality in less time at lower cost. While integrator contracts insulate growers from some competitive pressures, growers remain exposed to curtailments in production by integrators and competition to minimize cost within a pool of growers. Eventually, reductions in output prices are manifested at the grower level through changes in the number of contracts, contract prices, and/or incentive clauses. For example, the 2008-2009 recession had a substantial impact on grower contracts in 2008 and to some extent in 2009. Many growers lost contracts completely.[24] Others faced revenue reductions due to increasing time between flocks. Contracts between growers and integrators result in a substantial loss of farm-level heterogeneity, both regionally and nationally.

Financial Risk

Growers' primary source of financial risk stems from their capital and labor investment. Growers invest substantial amounts of capital and time in the poultry houses. Although contracts are generally renewed, they can be terminated after a single flock. The substantial capital investments, generally highly leveraged and with no assurance of continued productivity, are a significant source of risk.

Another financial risk is the potential need to borrow additional funds. The rapidly changing technology of poultry production may result in growers being pressured to make relatively frequent equipment upgrades. Older equipment may be mechanically sound, but technologically obsolete. The tournament contract system makes it impractical to continue operation without maximum efficiency, so the obsolete equipment may need to be replaced and there is a very limited market for sale of the older equipment, even if it is mechanically sound.

Growers in areas with a single integrator face at least two additional risks. First, the integrator may be in a position to leverage market power given a grower's lack of options. Furthermore, in the event of an integrator bankruptcy or withdrawal from a region, a grower can be left without a market.

Even with the sources of risk described previously, the conclusion from studying the return on investment in broiler production assets in north Georgia was, "growers [under contract with integrators] were given the opportunity to earn a competitive rate of return for their capital and

[23] Calabotta, D. F. 2002. "Change Factors Impacting the Poultry Industry & Resultant New Business Opportunities." http://ag.ansc.purdue.edu/poultry/multistate/Fivestatearticle.pdf, accessed March, 2010.
[24] Cunningham, D.L., 2009, Guide for Prospective Contract Broiler Producers, http://pubs.caes.uga.edu/caespubs/pubs/PDF/B1167.pdf, accessed April, 2010.

management skills," compared to others in production agriculture.[25] While this observation is dated, the Contractor found limited evidence to suggest the pattern of financial returns has changed substantially. This evidence, primarily testimony from producers whose layout times have been extended, reflects management decisions much more than insurable production risks.

As the integrator reduces annual use of the services of a grower, the timing of the grow-out period and the market for the "crop" can increase the variability of outcomes, especially when measured as annual revenue. Nonetheless, growers have been capable of substantial leveraging of the business costs, particularly those associated with construction of houses and purchase of equipment. A consequence of this ready financing is even small changes in production, resulting in modest revenue excursions, may create a substantial risk for the financial security of the operation.

Institutional Risk

Institutional risk of concern to poultry growers includes husbandry standards, environmental policies, and international regulations. In international trade, the greatest concern is the seemingly arbitrary enforcement of sanitary standards. For example, citing a perceived health risk from low-pathogenic avian influenza (AI), both the Japanese and Russian governments imposed a ban on poultry product imports from six states in the United States in 2002.[26] In addition to outright bans, changing sanitary regulations are a source of risk or uncertainty. Russia imposed a ban on all U.S. poultry products in March and April of 2002. The Russian government claimed that poultry products from U.S. plants did not meet protocols for inspection and had tested positive for salmonella. The bans were lifted, but the need for certificates and other delays slowed the resumption of exports to Russia.[27]

A major outbreak of Exotic Newcastle Disease (END) in California in 2002 and 2003 led many countries to restrict imports of poultry or poultry products from the United States. Poultry products produced in other areas, but shipped out of California ports, had to be kept in sealed containers. Some countries took even stricter positions. The European Union, for example, banned import of all poultry meat, hatching eggs, and live birds from the United Sates. The total cost of this outbreak to U.S. agriculture is estimated at $5 billion.[28]

Tariffs and quotas are sources of risk or uncertainty for the industries affected. For example, Mexican, "… tariff rate quotas (TRQs) for poultry products were reduced to zero at the beginning of 2003, as provided for by the North American Free Trade Agreement (NAFTA). However, in response to fears of a large increase in the amount of broiler shipments to Mexico, the Mexican and United States governments are discussing possibly placing TRQs on specific broiler products."[29] There were sharp declines in poultry exports to both Russia and China in the first quarter of 2010. While these declines do not reflect quarantines or quotas, they do represent

[25] Aho, P. and D. Reid, 1988, Risks and Returns, Broiler Industry, p. 16.
[26] West Virginia Extension Service, Poultry Voice, 2002, http://www.wvu.edu/~agexten/poultry/PV1002.pdf, accessed May, 2010.
[27] Ibid.
[28] The Center for Food Security and Public Health, Iowa State University, 2008, http://www.cfsph.iastate.edu/Factsheets/pdfs/newcastle_disease.pdf, accessed April, 2010.
[29] ERS, Livestock, Dairy and Poultry Outlook, 2002 http://usda.mannlib.cornell.edu/usda/ers/LDP-M//2000s/2002/LDP-M-12-17-2002_Special_Report.pdf, accessed March, 2010.

a market risk faced by an industry dependent on exports to support the current levels of production.[30]

Integrators face the direct effects of these institutional risks. Broiler growers are affected indirectly through integrators' responses. Much of this risk is transferred to the growers, whose contracts generally do not specify the number of flocks to be raised each year. For example, the 1998 economic crisis in eastern Europe and the Asian market collapse during the next decade had no substantial effect on grower contract payment per bird. Rather the effect on growers was a reduction in the total number of birds placed by integrators, leading to a substantial annual income reduction.

Other institutional risks faced by the poultry industry include changing environmental policies and emerging public concerns over animal rights. All poultry operations are designated as Animal Feeding Operations (AFO) by the Environmental Protection Agency (EPA) and are required to develop nutrient management plans (in this case nutrients refer to plant nutrients, such as phosphorus and nitrogen, which have effects on ecological systems such as rivers, lakes, and wetlands). As firm size increases, the designation may change from AFO to Concentrated Animal Feeding Operations (CAFO). Regulatory and paperwork requirements increase with a CAFO designation. Operations are required to apply for a National Pollution Discharge Elimination System (NPDES) permit, which requires control of waste disposal and land use. Current regulations play an important role in determining the structure of the grower enterprise. Generally, operations with up to 55,000 turkeys or 125,000 chickens are categorized as AFOs, and operations with more are categorized as CAFOs.[31] Since these populations can generally be housed in four poultry houses, the dominant enterprise in the industry is a four house operation. If regulations change, structural change will undoubtedly follow.

Environmental regulatory issues are a concern to growers, who commonly own the facilities and the litter. Before a new flock is placed, clean litter is spread to absorb droppings. When the flock is finished and delivered, the litter is removed from the house and generally applied to crop land as fertilizer. Such practices may build up nitrogen and phosphorous to unacceptable levels, leading to run-off and leaching, which contaminates ground and surface water.

The public and governments are also imposing new animal husbandry standards on the poultry industry.[32] Many growers are sensitive to the consumer expectations imposed on the industry and are taking steps to mitigate the risks. Some growers are experimenting with raising birds without using antibiotics while others are allowing their birds to range free or are raising layers in cage-free environments. Housing space per bird is a substantial issue in the layer sector, but less so in the broiler and turkey sectors.

[30] USDA, ERS, 2010, Livestock, Dairy, and Poultry Outlook, http://usda.mannlib.cornell.edu/usda/ers/LDP-M//2010s/2010/LDP-M-05-19-2010.pdf, accessed May, 2010.
[31] Tyson, T.W, 2000, AFO/CAFO Registration Requirements, reviewed by the Alabama Cooperative Extension Service in 2010, http://www.aces.edu/pubs/docs/A/ANR-1175/, accessed May, 2010.
[32] See for example The Humane Society of the United States, 2010, Cruel confinement, http://www.humanesociety.org/issues/confinement_farm/, accessed May, 2010 and linked resources.

Human or Personal Risk

Poultry operations must manage human risk in compliance with the Occupational Safety and Health Act (OSHA) and the Fair Labor Standards Act (FLSA). Costs of complying with OSHA standards for protecting workers do not appear to have a substantial impact on the cost structure of poultry operations. In addition to concerns about regulatory rule changes, growers are also asked to express concern with worker health and retention. Poultry workers, including poultry caretakers, farm managers, flock supervisors, and poultry catchers, spend most of their time in buildings and are in high-risk labor categories.[33] Hazards include respiratory hazards (such as ammonia gas, dust, molds, and airborne animal wastes), noise hazards that may lead to worker hearing loss, animal hazards (such as risk of tetanus infections), and mechanical hazards. As with all confinement operations, disease transmission from house to house, site to site, and operation to operation requires constant vigilance and control of access. In addition, as in most agricultural operations, key personnel are subject to retirement, death, and divorce.

II.D. Poultry Programs

Producers can avail themselves of a variety of support programs from the Federal, state, and private sectors. Some of these programs specifically address risk. Others assist in risk management by providing information that allows the producer to make informed decisions. Programs available to poultry producers generally are described herein. Purchased risk management programs supporting individual poultry sectors are addressed in the individual sector sections of this report.

Federal Programs

Federal programs supporting poultry producers are described briefly herein. These programs are offered primarily by agencies and services of the Department of Agriculture.

United States Department of Agriculture

USDA programs supporting poultry producers are described as follows. Agencies and services within the USDA are listed alphabetically.

Agricultural Marketing Service (AMS)

Poultry growers benefit from general services of AMS including the following programs:

- Grading
- Standardization
- International Programs
- Promotion and Research
- Marketing and Economic Research
- Animal Protein Free Certification Program
- Shell Egg Surveillance Program,
- Eggs Products Inspection Act
  - Shell Egg Grading and Certification

[33] Ellington, G., 2002, Improving the Health and Safety of Poultry Facility Workers, North Carolina State University Cooperative Extension, North Carolina State University.

Animal Protein Free Certification Program (APFC): This program provides third-party verification that poultry have never been fed animal protein, animal fats, or animal by-products.

Animal and Plant Health Inspection Service (APHIS)
The Animal and Plant Health inspection Service (APHIS) is responsible for protecting and promoting U.S. agricultural health, administering the Animal Welfare Act, and carrying out wildlife damage management activities. APHIS has been tasked with greater responsibility for enforcing the obligations of the United States under phytosanitary rules such as the *Codex Alimentarius* and responds to other countries' animal and plant health import requirements and assists in negotiating science-based trade restrictions.

APHIS programs important to the poultry industry include:
- Animal Welfare
- Biotechnology Regulatory Service
- Import and Export Services
  - Animal and Animal Product Import and Export Information
  - International Trade
  - Biotechnology Import and Export Information
  - Sanitary and Phytosanitary Management (Trade Facilitation)
- National Poultry Improvement Plan (NPIP)
- Plant Protection and Quarantine
- Veterinary Services
  - Animal Diseases by Species
  - Animal Health Report
  - Laboratory Information and Services
  - Monitoring and Surveillance
  - Professional Development Training
  - Veterinarian Accreditation
  - Veterinary Biologics
  - Veterinary Services Process Streamlining (VSPS)
  - Veterinary Services, Office of the Chief Information Officer (VS OCIO)
- Wildlife Service

The National Poultry Improvement Plan (NPIP), started in the early 1930s, coordinates state programs aimed at eliminating *Pullorum* from commercial poultry. Currently, NPIP concerns itself with certifying that flocks are free of diseases including *Pullorum*, fowl typhoid, avian mycoplasmas, *Salmonella* enteritidis, and avian influenza. Participation in all plan programs is voluntary, but flocks, hatcheries, and dealers must qualify as "U.S. *Pullorum* Typhoid Clean" before participating in any other program.

Cooperative State Research, Education, and Extension Service (CSREES)
The CSREES is the Federal administrative authority for the State Land Grant Agricultural Experiment Stations and the Cooperative Extension Service. Extension and education programs provide important educational and consultancy resources for producers in all areas, including poultry producers.

Economic Research Service (ERS)
ERS provides data and analysis on poultry product supply and demand, as well as information on industry structure, pricing, trade, farm policies, production systems, and processing. ERS reports of particular interest include:

Animal Production and Marketing Issues Briefing Room
Livestock, Dairy, and Poultry Outlook: Tables
Livestock and Meat Trade Data
Meat Price Spreads Data

Farm Service Agency (FSA)
The Farm Service Agency (FSA) provides financial assistance to assist producers facing losses from natural disaster (i.e., drought, flood, fire, freeze, tornadoes, pest infestation, and other "calamities"). FSA's Noninsured Crop Disaster Assistance Program (NAP) provides payments to producers of non-insurable crops when low yields, loss of inventory, or prevented planting occur due to a natural disaster. Eligible producers include landowners, tenants, or sharecroppers who share in the risk of producing an eligible crop. The annual gross revenue of the eligible producer cannot exceed $2 million. The natural disaster causing the loss must occur before or during harvest and must directly affect the eligible crop. There is a requirement that disaster caused by weather, earthquake, volcano, or flood be declared or that losses result from disease or insect infestations arising because of such a declared disaster.

FSA's Supplemental Revenue Assistance Payments (SURE) Program provides benefits to producers for 2008 through 2011 crop year farm revenue losses due to natural disasters. It is the successor to earlier *ad hoc* crop disaster programs. For 2009 and subsequent crop years, producers or legal entities whose average non-farm income exceeds $500,000 are not eligible. A farm is eligible for a SURE payment when a portion of the farm is located in a county covered by a qualifying natural disaster declaration (USDA Secretarial Declarations only) or a contiguous county; or, the actual production is less than 50 percent of the normal production. For producers to be eligible for SURE payments, they must have obtained available insurance for **all** crops through either the Federal Crop Insurance Act or NAP. The farm's SURE guarantee cannot exceed 90 percent of the expected revenue for the farm (i.e., there is a 10 percent deductible). Producers must suffer a 10 percent production loss to at least one crop of economic significance on their farm in order to be eligible for a SURE payment. A qualifying loss must be caused by a natural disaster. A crop of economic significance contributes at least 5 percent of the expected revenue for a producer's farm. A limit of $100,000 applies to the combination of payments from SURE and the livestock disaster programs.

FSA's Livestock Indemnity Program (LIP) provides payments for livestock deaths in excess of normal mortality caused by adverse weather that occurs before October 1, 2011, including losses due to hurricanes, floods, blizzards, disease, wildfires, extreme heat, and extreme cold. The losses must have also occurred in the calendar year for which benefits are being requested. LIP provisions are similar to other livestock indemnity programs implemented by FSA in recent years, although the lost livestock are not required to have been in a county (or contiguous county) designated a natural disaster by the President or declared by the U.S. Secretary of Agriculture. Payments are based on individual producer losses and are available to contract growers. Payments are limited to 75 percent of the fair market value of the lost livestock.

Emergency Assistance for Livestock, Honey Bees, & Farm-raised Fish (ELAP) provides benefits for losses due to natural disasters and diseases not covered under LIP. The Secretary of Agriculture must have declared a disaster in a county for ELAP payments to be made to that county or adjacent counties.

Food Safety and Inspection Service (FSIS)
Both the Federal Meat Inspection Act (FMIA) and the Poultry Products Inspection Act (PPIA) require the Secretary of Agriculture to consult with an advisory committee before issuing product standards, labeling changes, or statements on matters affecting Federal and state meat inspection programs.[34] The National Advisory Committee on Meat and Poultry Inspection (NACMPI) was created to serve that end, and FSIS employees are responsible for scheduling and facilitating the work, actions, and meetings of the committee. Agency employees also identify, assess, and define emerging and standing issues affecting procedures, policies, activities, or resources for consideration by the committee.
Animal and Egg Production Food Safety staff are responsible for identifying food safety concerns associated with animal production, transportation, marketing, and egg production, as well as pre-slaughter preparation of livestock and poultry.[35] These FSIS personnel are also responsible for outreach and liaison activities to develop and sustain risk reduction strategies in animal and egg production.

Foreign Agricultural Service (FAS)
Broiler growers benefit from FAS general services and programs. Due to the growing importance of foreign markets to the poultry sectors, FAS export development and promotion programs are of particular importance. The FAS poultry data includes:

Dairy, Livestock and Poultry Division (DLP)
Data series, analysis of world markets, buyer lists, etc.
Export Program Data

National Agricultural Statistics Service (NASS)
NASS is the primary data collection and publication service of the USDA. Its continuous, consistent data series are widely used by producers and researchers. Poultry industry data are collected and summarized by NASS.

Risk Management Agency
The Adjusted Gross Revenue (AGR) and Adjusted Gross Revenue-Lite (AGR-Lite) policies are available to some poultry producers, particularly to smaller layer operations. These insurance plans provide whole farm revenue insurance coverage, based on a producer's Schedule F from their IRS Form 1040 tax return.

AGR-Lite is a whole-farm revenue plan of insurance which protects producers from revenue losses resulting from unavoidable natural disasters and from market fluctuations. Most farm-raised crops, including broilers, eggs, turkeys, and poultry (generically) are eligible to be insured under this plan. AGR-Lite can be used alone or in conjunction with other Federal crop insurance plans, but not in conjunction with AGR insurance. Under AGR-Lite, the insured liability may

[34] USDA, FSIS, 2009, About FSIS, http://www.fsis.usda.gov/OPPDE/nacmpi/index.htm, accessed March, 2010.
[35] USDA, FSIS, undated, http://www.fsis.usda.gov/OPPDE/animalprod/apfshome.htm, accessed March, 2010.

not exceed $1 million. Consequently, the approved gross income insured must be less than $2,051,282, in which case the coverage level is 65 percent. Furthermore, the insured must have existed as the same tax entity for seven years and must have filed five consecutive years of Schedule F tax forms; unless a change in the tax entity is reviewed and approved by the insurance provider. No more than 50 percent of total revenue may have been derived from commodities purchased for resale and no more than 83.35 percent of total revenue can have been derived from potatoes. AGR-Lite is available in Alabama, Arizona, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Illinois, Kansas, Maine, Maryland, Massachusetts, Minnesota, Montana, Nevada, New Hampshire, New Jersey, New Mexico, North Carolina, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming, and in selected counties in Alaska, New York, and Pennsylvania.

An AGR-Lite approved adjusted gross revenue is based on a producer's five-year historical farm average revenue (as reported on the IRS Schedule F) and on an annual farm revenue report. AGR-Lite insurance indemnity payments are based on Schedule F reported revenues and expenses and on a payment schedule which includes both a deductible and a co-payment. The minimum deductible is 20 percent. The minimum co-payment is 10 percent. Loss payments are triggered when the adjusted income for the insured year is less than the loss inception point. The loss inception point is calculated by multiplying the approved adjusted gross revenue times the selected coverage level. Once a revenue loss is triggered, the producer is paid based on the payment rate selected, at either 75 cents or 90 cents for each lost dollar.

AGR is a pilot insurance program similar to AGR-Lite. AGR insurance protects producers to liabilities as high as $6.5 million. However, only 35 percent of this income can come from animals or animal products. Higher coverage levels and lower deductibles are only available when the number of insured crops increases. Given the structure of the poultry sectors, these constraints limit the utility of AGR for major poultry grow-out facilities. AGR insurance is available in Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, Rhode Island, and Vermont, as well as in selected counties in California, Florida, Idaho, Maryland, Michigan, New York, Oregon, Pennsylvania, Virginia, and Washington. AGR may serve producers in these areas who have highly diversified operations. Poultry is listed generically in the 2010 AGR Standards Handbook. However, AGR as it is currently structured is unlikely to address risk management concerns of those who focus their production on poultry. Furthermore, anecdotal evidence suggests that participation in the AGR/ AGR-Lite programs is limited within the poultry industry. Finally, RMA has made internal determinations the income from grow-out operations is not eligible under the adjusted gross revenue programs.

Rural Business–Cooperative Service (RBS)

RBS is a small agency with limited funding and staff whose purpose is to finance and facilitate development of small and emerging private business enterprises, and promote sustainable economic development in rural communities.[36] While this agency could potentially serve poultry growers and integrators, the industry structure will limit the impact of RBS services to many producers.

[36] USDA, RD, 2010, About RD, http://www.rurdev.usda.gov/Home.html, accessed May, 2010.

Environmental Protection Agency

Poultry operations are affected by EPA rules administered primarily by the Office of Water Management under the heading "Animal Feeding Operations." Relevant reports may be found through linked topics such as water, waste, and waste management and by reviewing the EPA Website for AFOs (http://www.epa.gov/oecaagct/anafoidx.html). The rules regulate the discharge of pollutants from point sources to waters of the United States. As a point source, some operations require a National Pollutant Discharge Elimination System (NPDES) permit. Application for the permit includes development of a nutrient management plan ensuring litter is properly managed.[37]

State Government Programs

State programs and regulations affect poultry production. State statutes or codes generally define an administrative office and/or an administrator responsible for licensing and enforcing minimum husbandry, sanitary, and environmental standards for poultry operations. Some states have poultry regulations that replace or complement Federal sanitary or environmental standards. The various regulations are similar to Federal standards, often referencing them as minima. The purpose of these regulations is to reduce risks of animal diseases and contamination of poultry products.

The USDA National Poultry Improvement Plan often functions as a centerpiece of most state efforts. Activities, responsibilities, and regulations of state agencies include inspection of poultry flocks and chick hatcheries, issuing inspection certificates, and overseeing rules and regulations for the movement, sale, labeling, and advertising of all chicks, eggs, and poultry produced by flocks and hatcheries. Code sections relating to the movement of birds address health issues, particularly disease prevention and control.

The codes are intended to prohibit movement of poultry from or through areas quarantined due to disease. Any vehicle or equipment permitted into any quarantined area must be cleaned and disinfected in accordance with state and Federal regulations. Disposal of all dead poultry is required, with the means of disposal generally restricted to incinerators or specific composters. Older composters and compost pits, common in the past, are generally no longer acceptable methods for poultry disposal. Code sections concerning health and sanitary conditions often co-join state departments of health, veterinary medicine, safety, and/or other agencies.

States oversee and regulate integrators' slaughter, processing, and distribution activities. The regulatory burden on integrators is often much greater than on growers. Regulations governing slaughter and processing procedures generally follow the FMIA and the PPIA, which control operations and transactions affecting interstate commerce.[38]

While integrator regulation not associated with "crop" production is outside the scope of this feasibility assessment, it contributes to institutional risks that may impact grower well being. These regulations ultimately affect growers. Compliant plans in Maryland must ensure proper

[37] EPA, 2009, National Pollutant Discharge Elimination System , http://cfpub.epa.gov/npdes/home.cfm?program_id=7, accessed May, 2010.

[38] Poultry products are sold under provisions of the Federal Meat Inspection Act, the Federal Poultry Products Inspection Act, or the Federal Food, Drug and Cosmetic Act.

storage, handling, and land application of excess poultry waste. Until the current regulations were set, manure disposal was the responsibility of the contract growers. Now it is the integrator who must bear this cost. As integrator costs rise, so does the probability that processing plants will close, leading to reduced bird placements, lower payments to growers, or abandonment of contracts.[39]

Private Insurance Inventory

Private insurance companies offer coverage to commercial poultry operations, family farm poultry operations, private hatchery operations, and contract growers. Policies and the coverage provided are described herein.

Building Coverage

Although coverage varies by company, "All Risk Coverage" insurance is available for farm buildings. These policies indemnify losses from fire, weather, damage due to snow and ice load, or impact by a farm-owned vehicle. Replacement cost coverage is available for farm buildings. Typically, no depreciation is calculated in establishing indemnities. Building policies tend to cover the repair or replacement of fixed equipment. Replacement cost coverage is also available for all on farm dwellings including the replacement cost of contents.

Companies writing poultry insurance building coverage have various underwriting requirements based on the age of the poultry house. Policies are generally contingent on a favorable inspection of the poultry house. Although insurance companies tend to have a limited range of premium rates regardless of house construction materials (i.e., the premium rate on all-metal houses may be the same as the premium rate on wood frame houses), there is a movement toward differentiating the rates, with all-metal housing receiving discounts. While insurance companies may not fully understand the exposures presented by environmentally controlled housing, computer technology to manage inputs and outputs, and integrated processing equipment, several insurance companies have focused attention on developing coverage that appropriately addresses these details of the poultry industry.

Flock Insurance Coverage

Most insurers offering coverage for the poultry industry do not typically cover animal mortality or loss of business income resulting from loss of birds. However, several carriers and/or agencies are aggressively seeking customers through online sales.[40] Some insurance is available to cover the value of lost poultry as well as the loss of business income resulting from the inability to complete a production cycle. Covered losses include losses to livestock due to contaminated feeds, smoke, failure of environmental controls, suffocation of the livestock, bio-security issues (terrorism and quarantine), and certain defaults by integrators.[41] These product lines are offered in at least 19 states, including most, but not all of the major poultry production locations[42] and are offered by carriers who underwrite insurance in the United States.[43] The

[39] State of Maryland. 1998. BILL INFO-1998 Regular Session-SB 413. April 8, 2003.
[40] e.g., PoultryInsurance.com http://www.poultryinsurance.com/, accessed May, 2010.
[41] Thomas Gregory Associates, http://www.thomasgregory.com/property-casualty/poultry/, accessed May, 2010, Alabama Farm Insurance, http://alabamafarminsurance.com/, Westfield Insurance, http://www.westfieldinsurance.com/farm/farm_insurance.jsp/, accessed May, 2010
[42] Westfield Insurance, http://www.westfieldinsurance.com/farm/farm_insurance.jsp/, accessed May, 2010

terms of the policies are considered proprietary. Agents at three agencies indicated they had not yet seen a policy covering feed conversion (the best measure of production). However, two agents indicated individual policies are negotiated with terms defined by the insured and underwriting and premium defined by the insurer. Most of the existing policies cover catastrophic losses rather than production variability. However since production variability is affected by death, the distinction between these two blurs as the number of deaths in a house increases.

Flock insurance coverage is available for heat prostration due to power interruption (both on and off premises) from any cause including mechanical breakdown and fuse breakage. Some policies require a back-up system or alarm system warranty in order to offer power interruption coverage. Policies may provide schedules to value types and ages of birds differently within the same policy or may value poultry using a simple formula based on both the age at which birds are typically marketed and different values for various types of birds. Coverage is available for full mortality and theft, specific perils and theft, major medical, loss of use, and infertility. Programs are available for insurance under an "agreed value endorsement," wherein the value of breeding stock is insured for a predetermined value regardless of market forces. There is also a "market value endorsement" option where the market value acts as an adjustment increasing the value of the poultry when the market value increases. Coverage available in Canada through mutual insurance arrangements appears to be even more extensive,[44] suggesting that demand over time may drive the development of additional available coverage options in U.S. markets.

Loss of Income Coverage

Loss of income coverage is available to poultry operations from the private insurance industry. Profits insurance is also available with a 12 month loss of income agreement. Some companies offer policies for loss of egg income or income from meat birds. Within these policies, growers may be allowed to choose the limit per bird. Typically, loss of income coverage for poultry houses is included in the Farm Owner's Policy, which stipulates coverage of the entire farm (i.e., house, tractor, barn, and poultry houses). Loss of income coverage is generally for the broiler house growers and producers based on structural and/or mechanical risks. Loss of income insurance is available as a result of damage to the covered poultry houses, generators, freezers, feed equipment, etc. Coverage may not be available for older houses (12 to 15 years) or the premium may be prohibitive. Loss of income coverage for the poultry industry is less common than for some other industries due to the limited loss exposure and reduced amount of risk.

PoultryInsurance.com (a division of the Hill Agency), Thomas Gregory Associates, Alabama Farm Insurance, Westfield Insurance, the Livestock Department of Hartford Insurance, and Nationwide Agribusiness (the agricultural arm of the Nationwide Insurance) offer loss of income and flock insurance. According to industry representatives, Nationwide Insurance, Hartford Insurance, and a third unnamed major company carry most of the poultry risks. Nationwide Insurance and its affiliates Allied Insurance are the largest underwriter of farm owners' property and casualty insurance in the United States. They appear to be aggressively targeting poultry markets with policies customized through negotiations to reflect the risk borne by growers,

[43] Nationwide Agribusiness, the agricultural arm of the Nationwide Insurance, and its affiliates Allied Insurance offer this insurance and are the largest underwriter of farmowners' property and casualty insurance in the United States.
[44] North Blenheimual Mutual Insurance, http://www.northblenheim.ca/insurance-/farm/poultry-coverage, Accessed May, 2010.

producers, and integrators. While the Contractor found mortality coverage for extreme weather conditions is available from a variety of sources, along with corollary business interruption insurance, such coverage for disease is not available in "prepackaged" products. Several agents indicated a willingness to talk about such coverages, but none had had experience negotiating policies for these perils.

Coverage in Transportation
Some policies are available to provide coverage for growers, producers, and integrators requiring transportation of poultry or eggs from one listed location to another, if the vehicle is owned by the policy holder.

Basic Farm Liability
Basic Farm Liability limits start at $2,000,000, with higher limits available.

Employers Contingent Liability
Employers Contingent Liability is available with the ability to add employees as insureds.

II.E. Approach

The Contractor's research and analysis of the poultry sectors was guided by the language of the Act and a focus on the criteria for feasibility as outlined in the SOW. The Contractor sought first to develop an understanding of the relevant risk management literature, current economic conditions, available government programs, and characteristics of the poultry sectors, including currently available risk management tools. Subsequently, the Contractor identified perils and economic risks faced by the poultry industry stakeholders, paying particular attention to stakeholders' most significant risk management concerns and expressed needs. The Contractor then completed a risk analyses on the identified, insurable perils currently uninsured. In the listening sessions, the Contractor gathered information concerning stakeholders' potential interest in federally-subsidized insurance products. The Contractor also sought to understand the applicability of an AGR-like product for the poultry industry stakeholders. The Contractor then applied RMA's criteria for feasibility to evaluate insurability of the perils identified in the preceding step. Finally, after a systematic analysis, the Contractor assessed the feasibility of developing federally-subsidized, stakeholder-acceptable, actuarially-sound, non-market distorting crop insurance products for poultry production.

RMA's criteria for feasibility together identify the requirements to establish an appropriate feasibility recommendation for crop insurance development activities in the broadest terms. Section 2.4.1 of the SOW states:

> *"The contractor when recommending a possible insurance program needs to keep in mind the following criteria:*
>
> - *Conform to RMA's enabling legislation, regulations, and procedures that cannot be changed;*
> - *The insured's and their agents must be will to pay the appropriate price for the insurance;*
> - *The insurance product must be effective, meaningful and reflects the actual risks of the producers;*

- *The perils affecting production must be identified and categorized as insurable and non-insurable;*
- *Be ratable and operable in an actuarially sound manner;*
- *Contain underwriting, rating, pricing, loss measurement, and insurance contract terms and conditions;*
- *There must be an appropriate geographic distribution of production to ensure a sound financial insurance program;*
- *There must be enough interest for the risk to be spread over an acceptable pool of insureds;*
- *Customers must not be able to select insurance only when conditions are adverse;*
- *Moral hazards must be avoidable or controllable;*
- *There must be no change of beneficial gain; and*
- *There must be no change in market behavior or market distortions that change the quantity supplied or shift the supply curve."*

This list by itself provides a context for the evaluation of the feasibility of a proposed insurance product. However, the test of feasibility requires additional context. For this evaluation the additional contextual information is as follows:

The proposed insurance coverage must conform to RMA's enabling legislation, regulations, and procedures that cannot be changed. The enabling legislation is Title 7, Chapter 36, Subchapter I of the U.S. Code, as amended.[45] Amendment of this code requires an Act of Congress. The Regulations and Procedures implementing this Act are the responsibility of the FCIC Board of Directors and USDA RMA. While the Crop Insurance Act, as amended by the 2008 Food, Conservation, and Energy Act, requires "research and development regarding a policy to insure commercial poultry production," the research and development "shall evaluate the effectiveness of risk management tools for the production of poultry, including policies and plans of insurance that provide protection for production or revenue losses, or both, while the poultry is in production." Production insurance and production-based revenue insurance requires appropriate documentation of production and production histories.

Producers or their agents must be willing to pay the appropriate price for the insurance. Since the study was initiated because of industry concerns, there is *a priori* evidence of some customer interest. The willingness of producers or their agents to pay will be influenced by the coverage available and the costs associated with the insurance offer.

The insurance product must be effective, meaningful and reflect the actual risks of the producers. If the risks are identified and appropriately categorized as to their insurability (i.e., reflect the actual risks), an effective product will provide insurance that appropriately addresses the frequency and severity of potential losses. The producers' perception of the utility of the insurance and the ability of the insurance to protect the insured from financial failure affect the meaningfulness of the product.

[45] See for example http://www.law.cornell.edu/uscode/7/usc_sup_01_7_10_36_20_I.html.

The perils affecting production must be identified and categorized as insurable and non-insurable. The proposed insurance product must address definitive causes of loss that can be observed and quantified. Measurement of the outcomes of the enterprise must be such that the uninsurable portions of reduction in productivity or production-based revenues can be identified and quantified. If this is not possible, then uninsurable losses may be indemnified to the detriment of the taxpayer.

The insurance product must be ratable and operable in an actuarially sound manner. It must be possible for an actuarially-sound premium rate to be determined. This is fundamentally a question of data availability in terms of quantity of statistically valid observations or of the quality of non-quantifiable (judgmental) observations. It is secondarily a question of the nature of perils and the ability to associate production and/or revenue data with those perils.

The insurance product must contain underwriting, rating, pricing, loss measurement, and insurance contract terms and conditions. Appropriate management practices can be defined and required of stakeholders. Appropriate loss controls must be available. Unless controllable losses are managed and excluded from insurance, an insurance program will not have an actuarially-sound basis and will tempt the purchaser to manipulate his profits through fraud or deceptive practices.

There must be an appropriate geographic distribution of production to ensure a sound financial insurance program. An appropriate geographic distribution of insurance risk is required to address the need for insurance that is responsible to the taxpayer, since stakeholders operating in a limited geographic area could face collective catastrophic loss not protected by the insurance pool funds. The Contractor understands this requirement to apply to the entire FCIC portfolio collectively, which is distributed throughout the United States. Furthermore, the poultry sectors have wide geographic distribution as demonstrated in the sector descriptions contained within this report.

There must be enough interest for the risk to be spread over an acceptable pool of insureds. An appropriate pool size is also required to address the need for insurance that is responsible to the taxpayer, since a limited pool could face collective catastrophic loss not protected by the insurance pool funds. A sufficient number of stakeholders, who are not identically affected by perils, must be willing to buy the insurance as part of their overall farm risk management strategy. Without an appropriate pool of insured enterprises, the insurer faces the risk of catastrophic losses. Indemnities in excess of the realized premiums may occur, increasing the subsidy costs to the taxpayer. The Contractor understands this requirement also to apply to the entire FCIC portfolio collectively, which involved more than 1.1 million policies and almost $90 billion of insured liability in 2009.

Customers must not be able to select insurance only when conditions are adverse. At the time of enrollment the purchaser must be unable to predict the outcome. If the purchaser can predict the outcome at the time of enrollment, not only will adverse selection occur, but unscrupulous purchasers could "farm" the insurance to maximize profits. Only unpredictable outcomes fall into the category of appropriately insurable risks. Predictable outcomes do not include risks, but are characterized by certainty.

Moral hazards must be avoidable or controllable. There must be a clearly defined outcome or phenomenon to be insured and the outcome must be subject to random variation; the variation in outcome must be separable into that part which can or might be manipulated, and that part which cannot be controlled.

There can be no chance of beneficial gain. Should an insured individual benefit unduly from participation in the program, that gain introduces the possibility that the insurance would change the status of the insured within the pool of stakeholders. Insurance should be only a vehicle to manage risk. There should be no possibility that indemnity payments will become a fundamental element of the typical income stream.

There must be no unacceptable change in market behavior or unacceptable market distortions in terms of either a change in quantity supplied or shift in the supply curve. The intent of crop insurance is not to manage the market, but to manage risks faced by producers. If the insurance unduly increases production, shifts production to new regions, creates unfair advantages for individual stakeholders or particular production regions, then the market distortions will invalidate the rating developed in a neutral market. This presents a danger to stakeholders, to the market itself, and to the insuring entity. Localized interest in insurance has the potential to affect markets if the local becomes significantly more productive because of the insurance. If the locality is a small element of the market, such market distortion is unlikely.

If these minimum criteria are considered appropriately, insuring a proposed crop should be feasible, appropriate underwriting should be possible, and development of the program will fulfill both the needs of the stakeholder and the requirements of being responsible to taxpayers and to the industry.

This report is organized into five additional elements including sections describing the broiler sector; the turkey sector, and the layer sector in that order. Each sector description includes descriptions of the general nature of the industry, the sector production, available data, stakeholder input regarding the specific industry sector, an analysis of risks in the sector, available risk management tools and strategies, and pricing methodologies if insurance is developed. Following the sector descriptions, there is a discussion of the feasibility of developing poultry production insurance. The report concludes with a summary of findings addressing "the feasibility of developing an insurance program for commercial poultry production and [recommendations identifying] the most viable type of insurance program, if any [is] feasible."[46]

[46] SOW, page 10.

SECTION III. BROILER SECTOR

The term 'broiler' is the poultry industry name for a young chicken raised for meat. With the value of broiler production in 2008 totaling $23.1 billion,[47] broilers account for about 62 percent of the value of production and sales of poultry products in the United States.[48] The broiler sector is dominated by vertically-integrated agribusiness firms. People in the industry refer to these firms as either broiler companies or integrators. In the government literature they are occasionally called "dealers" or "contractors." In 2008, 20 vertically integrated firms controlled almost 95 percent of U.S. broiler production (Table 5).[49] Consolidation in the industry has resulted in "…significant structural change in recent decades…the industry has evolved to a structure including vertical integrators that contract with producers to raise their animals under strict specifications." Under this integrated structure, "…contract growers provide housing, equipment, utilities, labor, and bedding to raise contractor-owned birds to contractor-specified weights using contractor-owned feed, services, and supplies. Contractors typically own feed mills, hatcheries, and processing facilities."[50] To avoid confusion in the discussions in this report, the Contractor will avoid using the term "producer," except in those cases where the definition provided earlier in this document specifically applies, and will generally refer to either integrators or growers.

Table 5. Top Broiler Integrators, United States, 2008

Integrator	Percent of Market
Pilgrim's Pride	20.3
Tyson Foods	20.0
Perdue Farms	7.6
Sanderson Farms	5.8
Wayne Farms	4.7
Mountaire Farms	4.4
House of Raeford Farms	3.3
Keystone Farms	3.3
Foster Farms	2.8
Koch Foods	2.5
O.K. Foods	2.5
Allen Family Foods	2.4
George's	2.1
Fieldale Farms	2.1
Peco Farms	2.1
Townsends	1.9
Case Foods	1.5
Simmons Foods	1.4
Gold'n Plump Poultry	1.1

Source: National Poultry Council, 2009, Top Broiler Producing Companies, http://www.nationalchickencouncil.com/statistics/stat_detail.cfm?id=31, accessed May, 2010

[47] USDA, NASS. 2009, 2008 Poultry Production and Value Summary, http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-05-29-2009.pdf, accessed February, 2010
[48] Ibid.
[49] National Poultry Council, 2009, Top Broiler Producing Companies, http://www.nationalchickencouncil.com/statistics/stat_detail.cfm?id=31, accessed May, 2010.
[50] Gillespie, Schupp, Davis, and Basarir, 2001, p. 1.

III.A. The Crop

Modern commercial broilers, typically known as Cornish crosses or Cornish-Rocks, are specially bred for large-scale, efficient meat production and grow much faster than egg or traditional dual purpose breeds. Modern commercial broilers are noted for having very fast growth rates, a high feed conversion ratio, and low levels of activity. Broilers often reach a harvest weight of four to five dressed pounds in only eight weeks. Commercial broilers have white feathers and yellowish skin. These birds also lack the typical "hair" characterizing many breeds that requires singeing after plucking. Both male and female broilers are slaughtered for their meat. The genetic lines for most broilers produced in the United States are managed by four companies: Aviagen, Cobb-Vantress, Hubbard Farms, and Hybro.[51] These companies also have substantial international sales of chicks and parent stock (e.g., Aviagen reports sales in 130 countries).

Growers own the broiler houses, provide labor, and generally have the responsibility to deal with the manure. Broiler farms are managed under a contractual structure that dictates both how returns are distributed and the manner in which the enterprise is managed. The impact of these contracts on grower enterprises is the central focus of literature regarding risk management in the poultry industry.

At the outset, it is important to clarify that farm-level broiler prices, receipts, and values reported by various agencies, including NASS, are calculated or estimated values. They are not the values received by broiler growers. The "prices received" values are live-weight-equivalent prices calculated by subtracting processing costs from ready-to-cook wholesale prices and multiplying that result by the dressing percentage. These values are useful only as industry-wide indicators of the relative price trends. While this report includes these values to a limited extent, the more important descriptive data are the number of broilers produced, the pounds of broiler meat produced, and the number of broiler houses. The value growers actually receive is a contracted payment for capital and labor services rendered. Payment is based on pounds of bird delivered times the contract price, which is derived from a two-part, piece-rate tournament scheme, i.e., a base rate plus an incentive determined by the grower's relative performance. With one exception, growers and integrators declined to supply even redacted copies of contracts for this research effort.

Enterprise Structure

An analysis of broiler operations reported by the ERS in 2008 provides the best snapshot of broiler production.[52] Production contracts dominate the industry, with only about 0.4 percent of birds produced by independent poultry producers and 1 percent produced on integrator-operated farms. Few details about the contracts themselves are available. In spite of recent court actions freeing growers to share information about their contracts, and in spite of repeated requests for redacted copies of contracts from growers, integrators, and crop experts, the Contractor obtained only a single contract. Nonetheless, ERS reports that almost 93 percent of the contracts contain performance-based payment incentives; 87 percent have tournament or similar competitor-comparison-based payments. In contrast only 13.2 percent of contracts have payments adjusted

[51] WattPoultry, 2010, Who's Who.
[52] MacDonald, J.M., USDA, ERS, 2008, The Economic Organization of U.S. Broiler Production, Economic Information Bulletin No. 38. http://www.ers.usda.gov/Publications/EIB38/EIB38.pdf, accessed April, 2010.

to reflect wholesale broiler market price. Less than one fifth of contracts make provisions for catastrophic risk payments from the integrator to the grower.

The turnover in farms producing broilers is relatively low. About one third of all broiler operations have been in business for at least 20 years. These older operations tend to be smaller and to have lower levels of technology. Only 4.5 percent of farms (6.6 percent of production by weight) produced broilers for 5 years or less. Interestingly, these newer operations have houses that are 11 years old on average, suggesting turnover in the grower cohort or farm-level economic restructuring. Just under half of the new operations had new houses. Newer operations tend to incorporate a larger number of houses. New operations with new houses also tend to carry a higher debt load compared to new operations using older houses.[53]

Since newer operations tend to be larger, they also tend to have more substantial investment in housing and technology. These newer operations are more reliant on income from the poultry operations and more sensitive to changes in energy price and contract settlement terms. New large operations typically receive longer term contracts.[54]

From a production perspective, the Southeast and Mid-South offer comparative advantages of climate, land prices, cost of implementing required environmental policies, and lack of alternative uses for the land. Poultry is susceptible to extreme weather conditions and require access to ample supplies of water for their maintenance and growth. Consequently, they can be raised less expensively in warmer climates in regions where ample water is available.

Growers with no debt have a cash flow cushion to withstand market risks due to variability in the number of flocks in a contract for a given year. Conversely, both net incomes and cash flows of growers with large debt are more susceptible to problems due to flock inventory variations.

III.B. The Industry

While the agricultural segment of the U.S. economy has grown slightly on a relative percentage basis from 1999 to 2008, the broiler sector share of the total U.S. agricultural economy declined from 8 percent to 7 percent (Table 6). This decline occurred in spite of increases in production, consumption, and exports.

[53] MacDonald, J.M., USDA, ERS, 2008, The Economic Organization of U.S. Broiler Production, Economic Information Bulletin No. 38. http://www.ers.usda.gov/Publications/EIB38/EIB38.pdf, accessed April, 2010.
[54] Ibid.

Table 6. Economic Indicators–Broiler, United States

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
	billion dollars									
Gross Domestic Product 1/	9,354	9,952	10,286	10,642	11,142	11,868	12,638	13,399	14,078	14,441
Agricultural Cash Receipts 2/	187.5	193.7	202.8	192.9	215.5	237.9	241.0	240.8	288.5	324.2
Value of Broilers 3/	15.1	14.0	16.7	13.4	15.2	20.4	20.9	17.7	21.5	23.1

Source: 1/ Bureau of Economic Analysis, 2010, National Income and Product Accounts Table , Gross Domestic Product, http://www.bea.gov/national/nipaweb/TableView.asp?SelectedTable=5&ViewSeries=NO&Java=no&Request3Place=N&3Place=N&FromView=YES&Freq=Year&FirstYear=1999&LastYear=2009&3Place=N&Update=Update&JavaBox=no, accessed March, 2010
2/ USDA, ERS, 2010, Agricultural Cash Receipts, http://www.ers.usda.gov/Publications/AgOutlook/AOTables/, accessed March, 2010.
3/ USDA, NASS, 2010, http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1130, accessed March, 2010.

The southern and mid-Atlantic states form the major broiler producing areas of the United States (Table 7). Although number of head, pounds produced, and value all track relatively closely, larger birds in North Carolina and Texas, and higher per pound prices in North Carolina disrupt that pattern.

Table 7. Broiler Production by States, 2008[1,2]

State	Number Produced (1,000 Head)	Percent of U.S. Number Produced	Pounds Produced (1,000 Pounds)	Percent of U.S. Pounds Produced	Price per Pound 3/	Value of Production (1,000 Dollars)	Percent of U.S. Value of Production
Georgia	1,409,200	15.64	7,468,800	14.81	0.45	3,360,960	14.54
Arkansas	1,160,000	12.88	6,380,000	12.65	0.44	2,807,200	12.15
Alabama	1,062,900	11.80	5,846,000	11.59	0.45	2,630,700	11.38
Mississippi	840,700	9.33	1,876,100	3.72	0.45	844,245	3.65
North Carolina	796,100	8.84	5,493,100	10.89	0.49	2,691,619	11.65
Texas	640,800	7.11	3,460,300	6.86	0.45	1,557,135	6.74
Kentucky	306,100	3.40	1,652,900	3.28	0.45	743,805	3.22
Maryland	298,600	3.31	1,612,400	3.20	0.49	790,076	3.42
Virginia	250,300	2.78	1,251,500	2.48	0.45	563,175	2.44
Delaware	242,900	2.70	1,578,900	3.13	0.49	773,661	3.35
Oklahoma	237,800	2.64	1,260,300	2.50	0.44	554,532	2.40
South Carolina	236,900	2.63	1,516,200	3.01	0.47	712,614	3.08
Tennessee	199,700	2.22	1,018,500	2.02	0.45	458,325	1.98
Pennsylvania	160,900	1.79	933,200	1.85	0.47	438,604	1.90
Subtotal	7,842,900	87.06	41,348,200	81.97		18,926,651	81.89
U.S. Total 4/	9,009,100		50,440,500		0.458	23,112,184	

1 December 1, 2007, through November 30, 2008.
2 Broiler production including other domestic meat-type strains.
3/ Live weight equivalent price, derived from ready-to-cook prices minus processing costs, then multiplied by a dressing percentage.
4/ Excludes States producing less than 500,000 broilers.

Nationally, broiler production increased 10.6 percent from 1999 to 2008, from 8.15 billion birds in 1999 to 9.01 billion birds in 2008. Over the same time, weight per bird increased by 8.4 percent, from 5.007 pounds to 5.594 pounds. The combined increases in bird numbers and bird weights resulted in a 24 percent increase in total weight produced, from 40.8 billion pounds in 1999 to 50.4 billion pounds in 2008. The average weight per bird by geographic area masks a bi-modal distribution resulting from two genetic body weight groupings, light birds for the whole

bird and parts markets and heavy birds for the breast market (with the remaining meat going into processed products). Some of the state differences in price per pound are explained by the different prices obtained for these two "types."

The recent pattern of broiler production is consistent with the trend of increased production. Alabama, Arkansas, and Georgia accounted for 42 percent of U.S. production in 1995 and more than 40 percent in 2008 when each of these states produced over 1 billion birds. Mississippi, North Carolina, and Texas each produced between 600 and 850 million birds in 2008 to comprise a second production tier. Some states, primarily in the northeast and mountain states, reported little or no commercial broiler production in 2008.[55]

Despite substantial research, the Contractor was unable to identify national data at the county or farm level for broilers other than the USDA NASS Census of Agriculture. NASS annual statistics do not include number of growers or county level statistics in its annual surveys. There are fragmented data available from a few state and county agencies and industry associations.

The 2007 Census of Agriculture reported 27,091 farms with "Broiler and other meat-type chickens sold." NASS reported that 16,107 growers sold more than 100,000 birds in 2007, and 40 percent of those growers sold more than 500,000 birds. A total of 6,841 farms were located in the three states ranked highest in broiler production, and just over 41 percent of farms with reported sales over 100,000 birds were located in the same three states. Commercial broiler production is organized and operated around broiler houses, the major farm-level capital investment. No consistent national dataset was identified that reported the number of houses or houses per farm. However, ERS reported there were more than 70,000 broiler houses in the United States in 2006.[56]

In 2004, there were approximately 50 broiler companies in operation, with the top 10 integrators accounting for over 60 percent of broiler production. In 2008, 20 vertically integrated firms controlled almost 95 percent of U.S. broiler production, with the top 10 integrators controlling almost 75 percent of the market.[57]

Under the integrator/grower contract structure, the broiler enterprise might seem a safe haven for the grower. However, this is not the case; growers must be concerned about performance of the contracted birds. Broiler production is influenced by disease, weather, equipment, building environment, and the quality of feed provided by the integrator. Also, growers are not free from domestic and international market outcomes, even with a contracted payment. An offer of subsequent contracts, and, to a lesser extent, the payment and incentive provisions depend upon the integrator's inventory of processed meat and short- and intermediate-run market forecasts.

[55] USDA, NASS, 2009, http://www.nass.usda.gov/Charts_and_Maps/Poultry/brlmap.asp, accessed 4/22/10.
[56] MacDonald, J.M., USDA, ERS, 2008, The Economic Organization of U.S. Broiler Production, Economic Information Bulletin No. 38. http://www.ers.usda.gov/Publications/EIB38/EIB38.pdf, accessed March, 2010.
[57] National Poultry Council, 2009, Top Broiler Producing Companies, http://www.nationalchickencouncil.com/statistics/stat_detail.cfm?id=31, accessed May, 2010.

III.C. Stakeholder Input

The Contractor gathered stakeholder input during discussions with producers, insurance industry representatives, extension agents, producer organization representatives, and USDA staff (see Appendix B for Listening Session Agenda). The Contractor collected this input during four listening sessions focused primarily on the broiler sector and numerous personal and telephonic conversations outside these more structured stakeholder input gathering exercises. The listening sessions were held in Fayetteville, Arkansas, on April 27, 2010 (2 sessions); in Winnfield, Louisiana, on April 29, 2010; and in Athens, Georgia on May 4, 2010. Most of the conversations outside these venues were held in conjunction with the listening sessions or in follow up as a result of a lead provided at a listening session.

Fayetteville, Arkansas

The session in Fayetteville was scheduled to coincide with the Northwest Arkansas Poultry Conference on the campus of the University of Arkansas. This annual conference includes a gathering of over 150 producers, integrators, extension personnel, lenders, and allied industry representatives and is based around a series of extension and education workshops. The Contractor's presence in Fayetteville at the conference was well advertised through a series of extension program mailings, schedules of the conference distributed prior to the meeting, producer group email messages, and individual phone calls inviting local growers whose contact information was provided by the local integrator. The Contractor was stationed in a "break-out room" and workshop attendees had a choice of which listening session to attend. Unlike the other sessions at the conference, the listening session was intended to collect feedback rather than to provide current extension information. The Contractor facilitated two one-hour sessions, with attendance at the second easily exceeding the first. Those who participated in the listening session were provided a very brief summary of the crop insurance development process and encouraged to express their opinions concerning the feasibility of insuring poultry production, a discussion that ran between 20 and 40 minutes.

<u>Listening Session</u>

The Contractor conducted two listening sessions at the Extension Poultry facility in Fayetteville, Arkansas at 4:00 PM and 5:00 PM CDT on April 27, 2010. Fifty-one individuals attended the two sessions, but only 21 provided any demographic information. Of these, there were 18 growers, 1 represented the broiler integrators, 1 was an extension poultry specialist, and 1 was a lender affiliated with the Farm Credit system. At least 7 of the attendees were from Oklahoma, 11 identified themselves as being from Arkansas, with the balance not indicating their state of residence. The attendees were all involved in either the broiler industry or the layer industry, with two individuals specifying that they were involved in production of pullets. The Contractor understood most of the individuals who did not provide demographic information were broiler growers from Arkansas.

Following the overview of crop insurance and the discussion of initial findings of the research project, there was an extensive discussion of the perils that were of greatest concern to stakeholders. Primary concerns included the cost of energy inputs, with extensive discussion about the credit risk, and the unusual debt situation poultry growers face.

As discussed earlier, poultry growers face substantially different equity positions than most agricultural producers. In most agricultural sectors the ratio of debt (outstanding land, operating, and equipment loans primarily) to assets (the net value of owned land primarily) is very low. As most other agricultural producers have relatively less debt, they are in a stronger position to negotiate with lenders or self-finance their operations. In the poultry industry in Arkansas, growers face a very different situation. A typical new poultry barn (chicken house) costs between $230,000 and $275,000, and a typical operation consists of between 3 and 5 houses. Most poultry growers are small land owners and thus cannot cash finance the construction of the poultry houses, or even provide a substantial down payment on their cost. As a result, local lenders have provided mortgage loans for values as high as 95 percent of the cash cost of constructing the houses. Although the loans are designed to work within a grower's cash flow, a poor flock performance or excessively high costs can make it very difficult for a grower to meet debt requirements.

Growers offered some discussion about concerns related to longer "layout" periods[58] in their area. Historically, this period could range from two to four weeks, but in recent years there have been instances of layouts as long as ten weeks. The layout period is one of the few tools by which the integrator can limit the supply of broilers without taking growers out of production completely. There was also a brief discussion of zoonotic diseases (e.g., AI) and the risk introduced by bio-security issues.

Follow up Interviews

Following the listening session, the Contractor arranged for a private interview with the regional vice president of Farm Credit Services. In the listening session itself, there was extensive discussion of financing issues and the Contractor felt it was important to obtain the perspective of more than one lender. Given the dramatic "tightening" of lending standards that have resulted from the recent financial and property value crises, there is increasing pressure on lenders to assure their underwriting is particularly sound, including requirements for greater collateral (above and beyond the poultry houses themselves), and potentially greater use of FSA loan guarantees where applicable. The vice president of Farm Credit Services noted dependence on credit in the poultry industry is uniquely high and that the high asset specificity of poultry houses did indeed have the potential to lead to a credit-based "stressful period" if integrators reduced through-put. He suggested most poultry house construction loans assume a cash flow based on a specific number of flocks per house per year (or put differently, a specific layout period). If layout periods are increased, then the basis of the loan begins to unravel, putting the performance of the loan under stress.

Winnfield, Louisiana

The session in Winfield was scheduled as a result of a contact provided by Dr. Ron Harrell, poultry expert and commodity director for the Louisiana Farm Bureau. Dr. Harrell became aware the Contractor was scheduling sessions in Arkansas and asked if the Contractor would be willing to conduct an additional session in Louisiana. The Contractor's presence in Winnfield was advertised through individual phone calls, provided by Dr. Harrell, inviting local growers and integrators. Those who participated in the listening session were provided a very brief

[58] The period is the time between the pick-up of the previous finished flock and the placement of the new flock.

summary of the crop insurance development process and encouraged to express their opinions concerning the feasibility of insuring poultry production.

Listening Session

The Contractor conducted a listening session in a meeting room at the "Mama D's Country Kitchen" restaurant in Winnfield, Louisiana at 10:00 am CDT on April 29, 2010. Ten individuals (five producers, two producer group representatives, one lender, one extension educator, and one representative of integrators) attended the session. All the attendees were from the state of Louisiana. The attendees were primarily involved in the broiler industry and therefore all their comments were tied closely to the specific issues and concerns faced by the broiler and pullet industry.

Following the overview of crop insurance and the discussion of initial findings of the research project, there was an extensive discussion of the perils that were of greatest concern to stakeholders. Primary concerns included the risk or integrator pull-out or default, weather (hurricane) related perils, and (to a much lesser extent) major disease outbreak.

Grower concern with integrator pull-out and/or default was based on a recent experience in the region. In the 2008 production year, a major integrator (who requested anonymity) ceased operations in central Louisiana, including both hatcheries and processing facilities. The poultry industry is uniquely dependent on local integrators, who not only provide all the most important inputs (chicks, feed, etc.), but also serve as the market for production. When the integrator closed its local operations, all the growers in the region were suddenly unable to obtain a contract to grow-out broilers. In 2009, a competing integrator came into the region and "picked up" many of the growers, essentially saving the industry. As a result of the first integrator withdrawal, hundreds of poultry houses sat empty, and many growers were unable to meet their debt commitments for a period of nearly a year. Local lenders, in general, worked to restructure debt and now that many of the houses are operational again, debt payments have resumed. The crisis the integrator's action caused was raised repeatedly as the single biggest risk faced by growers. The integrator representative who attended the meeting was not affiliated with the integrator that had withdrawn from Louisiana, but defended the action by noting the demand for poultry was weak, margins have been poor, and simply closing a regional production facility is perceived as one of the few supply control measures available to the industry.

As a result of their geography (proximity to the gulf coast), Louisiana growers expressed far greater concern for weather related perils than any other listening session group. Although private coverage for facilities and ongoing production is generally available and widely purchased, there is a perception that the coverage is costly and that the federal government could play an important role in subsidizing the coverage, particularly in hurricane prone regions.

Athens, Georgia

The session in Athens was scheduled as a result of a contact provided by Dr. John McKissik, economics professor and Extension poultry expert at the University of Georgia. The Contractor's presence in Athens was advertised through individual phone calls inviting local growers and integrators, provided by Dr. McKissik and Jim Collins, the Director of Industry Relations for the Southeastern Livestock Network. Those who participated in the listening

session were provided a very brief summary of the crop insurance development process and encouraged to express their opinions concerning the feasibility of insuring poultry production.

Listening Session

The Contractor conducted a listening session in a meeting room at the University of Georgia main campus in Athens, Georgia at 10:00 AM on May 4, 2010. Ten individuals (six producers, one producer group representatives, one lender, one extension educator and one representative of a small broiler integrator) attended the session. All the attendees were from of Georgia. The attendees were primarily involved in the broiler industry and therefore all their comments were tied closely to the specific issues and concerns faced by the broiler and pullet industry.

Following the overview of crop insurance and the discussion of initial findings of the research project, there was an extensive discussion of the perils of greatest concern to stakeholders. Primary concerns included loss of revenue as a result of both low production and low price, the risk of integrator pull-out or default (an integrator pulled out of Southeast Georgia in 2009), and catastrophic disease outbreak.

There was some discussion of whether growers have an insurable interest in the crop. As growers typically do not own the birds themselves or pay for the most important production costs (feed is provided by the integrators), there was extensive discussion about what asset the grower actually owns and therefore what, if anything, may be insurable under the Act. After an extensive discussion, there was a consensus that under the local contracting structure, the grower did not have an insurable product, but there was interest in the potential for insuring the expected grower net revenue paid for each flock. The Contractor requested copies of settlement sheets from each of the attendees to further assess the potential for this concept, but the integrator in the room commented that these are confidential and that growers are specifically prohibited by most contracts from sharing this information. As an alternative, the Contractor provided a brief discussion of the AGR program available in Georgia which may offer coverage in a multiple-enterprise environment. Several of the growers were aware of the AGR program but found it unsuitable as a result of its complexity and diversification requirements.

There was some additional discussion of the risk growers face in light of an integrator pulling out of a region, but in the Northern Georgia region where the session was held only two attendees were aware of the concerns in the Southeastern corner of the state. There was also some discussion of concerns tied to diseases, particularly END. There was an outbreak of END in Georgia in the mid 2000's and several of the participants had direct knowledge of the event. Growers noted that disease outbreaks were exceedingly rare. Many were aware of previous payments from APHIS programs, but seemed unaware of the most recent changes to USDA programs providing compensation for disease outbreaks.

Follow up Interviews

Following the session, the Contractor arranged an interview with Dr. McKissik. He explained that integrators are very sensitive about their settlement sheets and their contracts, because they feel the information contained in each is proprietary and contains trade secrets. As noted previously, the Contractor formally requested copies of generic grower contracts from many

integrators and with one exception[59] each politely, but firmly denied the request. The Contractor was informed that several grower contracts specifically prohibit growers from sharing their contracts or the contents of any contract with anyone except their attorney. Dr. McKissik had reviewed several grower settlement sheets and explained the calculation of grower revenue. In most broiler arrangements, growers are placed in a pool with all the other growers in the region that deliver finished birds in the same week. They are then paid based on the weight of their birds, the number of live birds delivered, the price stipulated in the contract, and a number of incentives or penalties based on their relative performance in the pool. In an exceptional pool, a typical grower may receive substantially greater or lesser income than another producer with exactly the same flock performance in a pool with more typical performance. Given the reluctance of integrators to provide settlement data, the variability of incentives and discounts between integrators, and the complexity of determining revenues received, it became clear that insuring grower revenue would require a dauntingly complex and detailed loss adjustment process and would not insure the risks the integrator faces.

Georgia Farm Bureau

The contractor conducted a teleconference with Jon Huffmaster, Legislative Director, and Donald C. McGough, Commodities/Marketing Director, of the Georgia Farm Bureau to discuss poultry risk and risk management issues in the state of Georgia. The Farm Bureau is the largest agricultural organization in Georgia, representing all major agricultural commodities. They have offices in each of Georgia's 159 counties, and provide a variety of service to almost 400,000 members and to the general agricultural community. Broilers provide almost 45 percent of Georgia's gross agricultural receipts (more than four times greater than cotton, the crop with the next largest receipts), while the layer industry in Georgia generates more than 6.5 percent of the state's agricultural receipts.

The Farm Bureau has been involved in efforts to increase risk management options for poultry producers for several years. While all poultry production sectors are represented in Georgia, with major production of both broilers and eggs, broiler growers have been particularly concerned about risk management associated with extended lay-outs and integrator actions.

Mr. McGough indicated the greatest concern of growers was the impact on cash flow and annual revenue of a long lay-out period. Poor ventilation, extreme heat, extreme cold, and electrical supply or equipment failure are also risks of concern to growers. The substantial leveraging of the poultry operations means the effects of these events can make thin profit margins disappear overnight. Another risk of concern is the contract pool structures. If excellent growers are grouped into a single contract pool, half will be performing below the "pool average" and consequently will be compensated at a lower rate. This concern about contract structure highlights what appears to be a particularly contentious relationship between growers and integrators. The integrators often manage their business to maximize short term cash flow. The grower's debt level requires a much longer term perspective. The tension between the integrator and grower is evident when market factors like changes in export, price fluctuation, and seasonal preferences for particular parts of the broilers affect integrator choices about lay-out length,

[59] A small independent integrator who attended one of the listening sessions provided a blanked-out copy of his grower contract under the condition that it may not be published in a report and may only be used for background information on the structure of the industry. This integrator requested that the firm not be identified.

chick characteristics, house population density, and feed characteristics. With integrator ownership of the broilers and other major inputs, and integrator control of many management decisions for this crop, it is likely growers will continue to be exposed to many of the risks about which concerns were expressed, both in the Farm Bureau discussions and in the Georgia listening session.

Mr. McGough spoke of grower concerns about risks associated with catastrophic diseases. While the losses due to mortality and depopulation under order from appropriate Federal or state authority are devastating, the effects of idle houses during quarantine, cleaning, disinfecting, and integrator-imposed lay-outs can destroy a business after a single incident. Compensation for some losses due to disease is available under state and/or APHIS programs. However, the greater risk is not mortality, but business interruption.

Delaware, Maryland, Virginia Production Area

The Contractor conducted a telephone interview with Mr. William Satterfield, Executive Director of Delmarva Poultry Industry (DPI). DPI is a nonprofit trade association working to support the broiler chicken industry in Delaware, the Eastern Shore of Maryland, and the Eastern Shore of Virginia. Founded in 1948, DPI's membership include nearly 1,400 growers raising chickens and five broiler integrators (up from four in 2004), as well as numerous poultry company employees and allied industry suppliers)

Mr. Satterfield was first interviewed by the Contractor during a research study exploring the potential for production-based livestock insurance for poultry producers (under contract to RMA) resulting in a 2004 report. During that study Mr. Satterfield provided detailed input into the specific risk management needs of the poultry industry in his region. He was forewarned of the purpose of the 2010 interview, to allow him to obtain any necessary input from integrators and growers. Mr. Satterfield began his remarks by noting he had "heard very little interest expressed by producers in Delmarva since the previous feasibility study wrapped up." He then proceeded to provide a number of useful insights from a feasibility perspective, detailing his sense of the risks and concerns poultry producers in his region shared with him.

- In 2009-2010, the Mid-Atlantic States endured one of the most severe winters on record, including several major blizzard events and extraordinary extended periods of freezing temperatures. Unlike the mid-south and Midwestern production areas, Delmarva producers are not responsible for purchasing natural gas to heat their barns and therefore were spared from the worst of the unexpected cost overruns that other areas endured. There were as many as 78 collapsed poultry houses due to snow loads. Losses to production were small because of the short cycle time and the total number of houses. Lost future income for the growers is a greater concern than the loss of the birds themselves.
- The Environmental Protection Agency and state environmental enforcement entities have substantially increased both their monitoring and enforcement of standards in the Delmarva region. This enforcement has, in some cases, increased the cost of maintaining facilities, managing waste, and overall operations of poultry facilities. While these enforcement activities appear to be more aggressive in Delmarva than other areas (particularly the mid-south), Mr. Satterfield indicated he felt enforcement in Delmarva would be matched by future activities in other regions.

- In past years, concerns tied to the potential for low quality chicks caused strong concerns among producers. Because the chicks that are placed at the initiation of any production cycle are provided and owned by the integrator, the individual producer has no influence upon the quality of chicks that may be delivered, but their overall quality can have very important impacts on the potential production of the given cycle. Mr. Satterfield indicated that he had heard fewer complaint or concerns related to these issues in more recent years.
- At the beginning of the current economic downturn, layout periods for poultry barns were increased substantially in a measure to control the supply of poultry in the market and therefore help in maintaining prices. The result of these extended layouts, as was detailed in discussions in other regions, was fewer production cycles per barn per year and therefore reduced income for producers.

III.D. Pricing and Data Availability

The best way to describe the "price" received by contract growers would be to show contract prices over time. However, reliable longitudinal datasets recording contract payments are not publicly available. In fact, no report of prices actually received by the growers by state is available. Despite efforts by the Contractor to obtain these data from growers or integrators, these data were considered proprietary. An alternative is the "Poultry Yearbook" live-weight equivalent broiler prices, calculated by the USDA ERS. While this can serve as a proxy for prices received by growers, it includes payments for feed and chicks, costs not paid by growers. The 2006 update of these values included estimated live-weight prices received through 2004. Nonetheless, it is interesting to note, real prices for broilers appear to have remained relatively constant since the early 1980s, in contrast to prices for many other agricultural commodities. It may be possible to replicate the live-weight equivalent broiler price calculations if relevant data were available. However, ERS has not reported the component data for the years after 2004. Consequently, the price discovery process is likely to be a time consuming and expensive annual effort. The following data concerning broiler production and pricing are available:

- Urner Barry Price Current, wholesale broiler prices, daily and regionally, by subscription.
- Broiler Sector Profiles: WattAgNet.com, 2008, Self-reported industry statistics, http://www.wattagnet.com/ViewArticle.aspx?id=2884&terms=broiler+profiles, (accessed April, 2010)
- Broiler production data by Year: USDA, NASS, Quickstats, annual data on calculated price, number raised, pounds produced, and values at the national and state level, some very limited and sporadic county level data, http://www.nass.usda.gov/, (accessed April, 2010).
- U.S. Poultry Production by Year: USDA, NASS, Broiler: Pounds Produced by Year, US, 1969-2009, http://www.nass.usda.gov/Charts_and_Maps/Poultry/brlprd.asp, (accessed April 2010).
- U.S. Broiler Production in 2009: USDA, NASS, Broilers: Numbers Raised by State, US, http://www.nass.usda.gov/Charts_and_Maps/Poultry/brlmap.asp, (accessed April 2010).
- U.S. Broiler Production and Value by Year: USDA, NASS, 1999-2009, http://www.nass.usda.gov/Charts_and_Maps/Poultry/brprvl.asp, (accessed April 2010).
- Poultry industry characteristics: USDA, NASS, Poultry and Egg Production, every 5 years,

http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Fact_Sheets/poultry_and_eggs.pdf, (accessed April 2010).

- Poultry Slaughter Reports: USDA, NASS, Poultry Slaughter, monthly and annual reports on head, live weights and condemnations (some limited state-level data), http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1131, (accessed April, 2010).
- Retail to consumer spreads for whole chickens: USDA, ERS Meat Price Spreads, monthly 1970-2009, http://www.ers.usda.gov/Data/MeatPriceSpreads/Data/history.xls (accessed April 2010).
- Retail equivalent value of U.S. broiler industry (2004-2008), USDA, ERS, U.S. Broiler Industry: Background Statistics and Information (domestic retail weight consumption multiplied by the retail composite price), http://www.ers.usda.gov/News/broilercoverage.htm (accessed May, 2010).
- Farm cash receipts, broiler production (2003-2007), USDA, ERS, U.S. Broiler Industry: Background Statistics and Information (domestic retail weight consumption multiplied by the retail composite price), http://www.ers.usda.gov/News/broilercoverage.htm (accessed May, 2010).
- Wholesale broiler composite prices: USDA, ERS Meat Price Spreads, monthly 1990-2009, http://www.ers.usda.gov/Data/MeatPriceSpreads/Data/history.xls (accessed April 2010).

No organized exchanges offer futures contracts for broilers or other poultry products. The recent ERS focus on retail and wholesale prices provides an opportunity for RMA to develop a variety of models for broiler prices. However, long-term data series, particularly those collected by the government, are limited by changing foci in the data collection.

III.E. Risks

Growers are sensitive to the difference between common risk and idiosyncratic risk due to their contractual relationship with integrators. Both broiler price and feed price are subject to market forces. Together, these risks may lead to considerable income variability in the broiler sector over time. Output and input price changes do not immediately affect the broiler grower directly, but over time they are manifested through changes in the number of contracts, contract prices, and/or incentive clauses.

Production risks have not changed substantively over the past several decades. However, the relationship between contract growers and integrators has resulted in many shifts in risk management responsibility. Understanding risk mitigation for growers requires an understanding of the contract system. The majority of broiler contracts have a payment structure commonly known as two-part, piece-rate tournaments. The first part is a fixed base payment for each pound of live bird delivered to the integrator. The second part is a variable bonus payment based on the grower's performance relative to other nearby growers contracting with the same integrator. Grower performance is measured by a 'settlement cost,' which incorporates the integrator's costs (feed, chicks, medication, etc.) and the total pounds of live birds produced. An

individual grower's performance is compared to average performance of all growers whose flocks were harvested during a defined interval.[60]
Although the majority of broiler production is contracted, there are a small number of independent farms. Some of these poultry producers focus on niche markets, including organic and kosher chicken meat. These niche poultry producers are vulnerable to risk due to their size and may have a greater need for insurance than larger, mainstream poultry farms. However, beyond the existence of these operations, the Contractor obtained little information regarding this portion of the broiler sector.

Production Risk
Production risks facing broiler growers include weather, disease, feed quality, and chick quality. Weather-related risk in broiler production is minor compared to similar risks in crop production with severe weather affecting a small portion of one flock out of five or six each year.[61] Disease risk includes both catastrophic losses, such as losses to avian influenza, and chronic disease losses, which more slowly erode profits. Growers are also impacted by the competence of integrators who control feed and chick quality.[62]

Under the current contract system, growers give up control of marketing and production management decisions in return for a guaranteed price floor. With payments based on relative production performance, price risk and the common portion of production risk are transferred from individual growers, who may be risk averse, to integrators. By some estimates, as much as 97 percent of the risk borne by broiler producers is shifted from contract growers to integrators through the typical contract arrangement.[63] As described previously, price risk is transferred from growers to integrators under the two-part, piece-rate tournament contracts. Therefore, any responsibility for hedging risk lies with integrators who, "…may hold well-diversified portfolios resulting in little [net] risk-bearing cost."[64] "The risk-bearing cost [to the integrator] is similarly reduced in multi-product, private companies because these firms produce diversified portfolios and products."[65]

Growers perceive some of the production-related risks they face as disadvantages of the contract system. Growers are concerned with a system where their payment is based on their neighbors' performance. Some growers claim tournament outcomes can be biased through chick quality and other production inputs, all of which may be under the exclusive control of integrators.[66] A small portion of grower contracts provide additional grower security through casualty clauses. These clauses indemnify losses arising from natural disaster such as a flood, excessive heat, fire,

[60] Tsoulouhas, T. and T. Vukina, 2001, "Regulating Broiler Contracts: Tournaments versus Fixed Performance Standards," American Agricultural Economics Association: 1063-1072; MacDonald, J.M., USDA, ERS, 2008, The Economic Organization of U.S. Broiler Production, Economic Information Bulletin No. 38. http://www.ers.usda.gov/Publications/EIB38/EIB38.pdf, accessed April, 2.
[61] Aho, P. and D. Reid, 1988, "Risks and Returns," Broiler Industry, May, 14-16.
[62] Ibid; Taylor, C.R. and D. A. Domina, 2010, Restoring Economic Health to Contract Poultry Production, http://www.dominalaw.com/ew_library_file/Restoring%20Economic%20Health%20to%20Contract%20Poultry%20Production%202010.pdf, accessed may, 2010.
[63] Knoeber, C.R., and W.N. Thurman. 1995. "Don't Count Your Chickens…": Risk and Risk Shifting in the Broiler Industry. American Journal of Agricultural Economics, 486-496.
[64] Ibid.
[65] Ibid.
[66] Tsoulouhas, T. and T. Vukina, 2001, "Regulating Broiler Contracts: Tournaments versus Fixed Performance Standards," American Agricultural Economics Association: 1063-1072.

or losses of potential production. The casualty clauses in contracts vary by integrator and region.[67]

One argument against contracts between growers and integrators is the loss of grower/producer heterogeneity and the resulting control by integrators, leading to potentially negative influences on supply. Intense competition within the broiler sector has promoted consolidation, creating several major firms competing for the same national and international markets. Competition also plays a role in the price structure of the industry. While integrator contracts insulate growers from the intense competition in the processing industry, growers remain exposed to curtailments in production by integrators. For example, WATT PoultryUSA reported in January 2002, "Over the course of 2001, enough broiler firms either reduced production or moderated any increases as to boost industry operating margins a bit after several dismal quarters."[68] These reductions occur at the farm level, usually by increasing time between flocks. While poultry producers would have had to make similar adjustments, the growers had no role in the decision making process.

It is useful to keep a sense of the broiler growers' perspectives on loss severity. A "catastrophic loss" meant the loss (mortality) of an entire house or flock of birds. With a normal rotation of 4 to 6 flocks per year, 100 percent mortality in 1 flock would reduce annual gross revenue 16 to 25 percent. The timing of such a loss is critical in gauging the overall severity of such an event; the later in the grow-out cycle such an event occurs, the greater the financial impact. A catastrophic loss at the end of a grow-out cycle would reduce annual gross revenue by 16 to 20 percent, but expenses would not be reduced. Consequently, the impact on net revenue would be more severe. Specifically, 'Income Above Variable Cost' and 'Net Returns Above All Specified Expenses' would drop by the same amount, but 'Net Returns Above All Specified Expenses' would be decreased by a substantially larger volume. Conversely, if the event occurred early in a grow-out cycle, expenses would be reduced substantially. If the integrator repopulated the house relatively soon, the reduction in annual gross revenue could be significantly less and the reduction in net return would decrease even more quickly. Nonetheless, since disease is a potential cause of catastrophic loss, disease clean-up procedures generally require an extended layout period.

Further reduction in the "impact" of a total flock loss is possible, given the "typical" broiler operation, which includes multiple houses. If a loss occurs in one house, there is a "dilution" of economic effects. Conversely, an event that requires closing all houses for an extended period "magnifies" the impact of the event.

Input quality, including the quality of chicks supplied by the integrator, is considered as a peril by some growers. Chick quality refers to the flock-to-flock variation in the growth rate and performance of company owned chicks being fed company supplied feedstuffs and medication while in a grower-owned house, under the grower's daily care. No quantifiable estimates of variation are available. One of the criteria for feasibility requires "Losses covered under the proposed insurance product must be adjustable." Separately identifying or disentangling the effects of chick quality, feedstuff quality, the effect of medication, or a slight change in the functioning of grower equipment or daily care as the source(s) of production variation is, at least, problematic. Consequently, input quality cannot be an insurable peril and will not be discussed

[67] MacDonald, J.M., USDA, ERS, 2008, The Economic Organization of U.S. Broiler Production, Economic Information Bulletin No. 38. http://www.ers.usda.gov/Publications/EIB38/EIB38.pdf, accessed April, 2010.
[68] Thorton, G., 2002, "Acquisitions, Restraint Key Factors in 2001," WATT PoultryUSA, January. 26A-26F.

further. Similarly, risks arising from EPA regulations, litter and dead bird disposal, energy cost, cost of operation, and banned antibiotics are elements of management that would not be insurable under conventional production (yield) insurance.

Disease

Disease prevention and control are given continual management attention. Most diseases are controlled by vaccination (Table 8) and/or sanitation practices. Broilers are maintained on litter in a controlled-environment facility where the birds roam freely. The environment (temperature, humidity, and soiled litter) is conducive to both broiler growth and to fostering certain poultry diseases. Thus, an important part of broiler management is implementation and monitoring of strict medication and disease prevention procedures and a tight bio-security regimen. With those practices in place, diseases of particular concern are catastrophic diseases such as AI, particularly the high pathogenic form, and END. An infection from these diseases results in mortality or depopulation of an entire house, usually followed by quarantine and costly cleanup and disinfection. Quarantine and cleanup add a business interruption dimension to incurred losses as delayed house repopulation (layout) further interrupts the normal annual cycle.

Table 8. Sample Broiler Vaccination Schedule

Age in Days	Disease	Method
1	Marek's Disease	Subcutaneous back of neck
1	Bronchitis	Beak-o-vac, intraocular, or spray cabinet
1	Newcastle	Beak-o-vac, intraocular, or spray cabinet
1	Inf. Bursal Disease	Subcutaneous or in drinking water
8-12	Inf. Bursal Disease	Drinking water
9-14	Bronchitis	Drinking water, eye drop, intranasal, or spray
9-14	Newcastle	Drinking water, eye drop, intranasal, or spray
14-21	Laryngotracheitis	Drinking water in endemic areas
21	Bronchitis	In place of 9-14 vaccination
21	Newcastle	In place of 9-14 vaccination

Source: University of Pennsylvania School of Veterinary Medicine, 1999, A General Overview of Poultry Science, Typical Vaccination Schedule for Broilers, http://cal.vet.upenn.edu/projects/poultry/Syllabus/page14.htm, accessed May, 2010.

Frequency and Severity

Growers and experts offered very general qualitative statements regarding frequency and severity of disease perils. The only statements made regarding the frequency of disease perils were generic statements such as "rare." Income losses resulting from catastrophic disease outbreaks are generally excluded from indemnification under the loss-of-income coverage products available. APHIS disease monitoring programs are generally available for livestock and the National Poultry Improvement Plan (NPIP) is specific to the poultry industry. Federal programs indemnifying the value of birds lost to disaster declarations have generally not benefited broiler growers because they do not own the birds. The presence of a disease and associated mortality are certainly identifiable. Underwriting related to vaccination schedules, sanitation, and management practices should be possible. Data are limited. Most chronic diseases are controllable or manageable. The risks associated with lost production are of less

concern to growers than are the risks to the business and production cycles, including the number and length of layouts.

Weather

During the listening sessions, growers identified two distinct events – severe storms and extended periods of extreme weather – as the "weather" perils of greatest concern. In the South, hurricanes and tornados are most likely to damage or destroy houses. In Mid-Atlantic states, snow storms resulting in accumulations that exceed roof load limits and cause building collapse are the most damaging. A storm event results in lost revenue from the flock in grow-out, incurred expenses that will not generate any return, unplanned building repair or replacement costs, and, possibly, additional lost revenue from interruption of the annual production cycle during repairs or reconstruction.

Extended periods of severe heat are not considered catastrophic events by growers with modern houses. Rather, energy costs increase when maintaining proper house temperature and humidity. Some claim there may be reduced bird grow-out performance and delivery of fewer pounds of bird leads to reduced base payment revenue. If a grower's tournament ranking drops, incentive payment reductions further reduce revenue. However, because severe heat impacts all growers in a region, changes in tournament ranking more likely result from inferior or outdated house construction. Indemnifying lost incentive payments attributable to obsolete facilities would create a disincentive to technological innovation. Such production losses would rarely occur in more than two of the annual flock rotations. The expressed concern was for the loss of future income coverage. No quantitative estimates regarding frequency and severity of losses from weather events were offered by growers or experts.

Growers and lenders generally considered available property and casualty coverage for house damage adequate though costly. Participation is this coverage is highly variable, but is distinctly higher in highly leveraged/low equity operations

With the data currently available, questions concerning identification and measurement of losses tied to specific weather events seem problematic. The insurability of electric power loss from the RMA perspective revolves primarily around the availability of equipment failure insurance on the public market. Furthermore, any product would need to be carefully crafted to preclude disincentives for innovation in house design and construction, thus avoiding market distortion. It is important to note such innovation has substantially reduced risk in recent years. New controlled environment (closed) houses have greater, more consistent power requirements than do the older, open-design houses. Substantial added power demands arise from year-round operation of ventilation systems to remove moisture and heating and cooling systems to maintain consistent interior temperatures. The primary benefit of higher power consumption is reduced variation (more precise predictability) in chick grow-out performance than can be achieved with older technology. With existing technology and building design, heat and moisture build-up following the loss of ventilating and cooling systems measurably affects flock well being and consequently production. Power loss as a peril in broiler grow-out is, in fact, tied to a specific sequence of events. First, the delivery of commercial power has to be interrupted. Then, one or two automatically-switched, emergency generating systems must have failed.

Many growers considered power loss a peril to production. For some, power loss is the peril of greatest concern. It is still an area event, whose frequency is influenced primarily by the delivery system for commercial power and secondarily by weather affecting that system. It should be noted, if a power outage event were to be covered by a government-subsidized product, the loss adjustment would need to verify the event was the result of a natural rather than a man-made, cause.

Weather related property losses would be indemnified under the grower's usual coverage, and some loss of income coverage is available. Even under a property loss policy, growers would not generally be compensated for the value of birds lost as the integrator retains ownership of the flock. Few growers report purchasing the commercially available income protection coverage, except in Louisiana. Details of the available policies are not known as Contractor requests for information were refused.

Equipment Failure

Equipment failure is very similar to power loss. The difference is a matter of degree. If a piece of bird watering or feeding equipment breaks down there may not be the same urgency to complete repairs as with a loss of power, or for that matter, a controller malfunction. However, given the inventory of replacement equipment and parts that growers keep as a means of self-insuring, the Contractor would conclude the events are not trivial, as lack of attention would transform them into catastrophic events. Conversely, if the failed piece of equipment were an integral part of the environmental control system, then failure could be catastrophic in a very short time. Discussion of insurability would echo the preceding discussions of weather related power loss.

SECTION IV. TURKEY SECTOR

The United States is the world's largest producer of turkeys. U.S. turkey production reached 7.9 billion pounds (live weight) in 2008, with a total estimated farm-gate value of almost $4.5 billion.[69] While most U.S. produced turkey is consumed domestically, the U.S. exports more turkeys and turkey products than any other country. Brazil, with the second largest production, harvested 1.1 billion pounds of turkey and Canada harvested 378 million pounds in 2008, while the European Union-27 collectively produced 6.6 billion pounds.[70] The average estimated price received by U.S. producers during 2008 was almost 57 cents per live-weight pound.[71]

U.S. per capita consumption of turkey has increased from 0.8 pounds in 1910 to 13.6 pounds in 2007. This reflects the evolution from a seasonal market (between Thanksgiving and New Years Day) for a single-turkey product (whole birds), to a year-round, diversified, value-added product line. Nonetheless, the whole turkey continues to be the most popular turkey product, although its sale is no longer associated solely with the holiday season. The structure of the turkey sector, with a wide variety of processed products, has changed turkey production into a year round activity.

The average retail price for whole frozen turkeys in the United States in 2008 was $1.25 per pound.[72] Many processed turkey products have a substantial value added component. A review of internet grocery store prices shows some of these products retail at prices in excess of $9.00 per pound. Smoked and roasted turkey lunchmeats; ground breast meat; pre-roasted and ready to roast turkey rolls; heat-and-eat turkey dinners; and turkey sausage, hot dogs, "bacon," "pastrami," and "ham" illustrate the breadth of turkey products currently available.

In 2008, the United States exported almost 675 million pounds of turkey and turkey products (up 24 percent from 2007), valued at $481.9 million (up 21percent). The majority of exported turkey products are lower value parts (drumsticks, feet, wings, gizzards, livers, and hearts) and ground, mechanically-de-boned meat. In 2008, Mexico was the biggest market for U.S. turkey, accounting for over half of U.S. exports. The same year China imported almost $40 million worth of turkey meat, Canada $25.2 million, and Russia $23.4 million (a slight decrease over the previous year).[73] Imports to Mexico were up 36 percent from a year earlier; Chinese imports were up 82 percent; and Canadian imports were up 2 percent. Many importers of U.S production use turkey meat with other meats to produce sausage. Competition from exporters of turkeys and turkey products, particularly from Brazil, is likely to slow the growth of U.S. turkey exports.

[69] USDA, RMA, 2009, Poultry - Production and Value, 2008 Summary, http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-05-29-2009.txt, accessed April, 2010.
[70] Marsh Laux, Agriculture Marketing Resource Center, 2009, Turkey Profile, http://www.agmrc.org/commodities__products/livestock/poultry/turkey_profile.cfm, accessed April, 2010.
[71] USDA, RMA, 2009, Poultry - Production and Value, 2008 Summary, http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-05-29-2009.txt, accessed April, 2010.
[72] National Turkey Federation, 2009, Turkey Industry Structure, http://www.eatturkey.com/consumer/industry/industry.html, accessed April 2009.
[73] Marsh Laux, Agriculture Marketing Resource Center, 2009, Turkey Profile, http://www.agmrc.org/commodities__products/livestock/poultry/turkey_profile.cfm, accessed April, 2010.

IV.A. The Crop

Turkeys are large birds in the order Galliformes, genus *Meleagris*. In the United States, turkeys are raised only for meat (i.e., not for table eggs). Turkey meat is relatively lean when compared to the meat of other domestic poultry species. The domesticated turkey is a descendant of the Wild Turkey, *Meleagris gallopavo*. The dominant commercial breed of turkeys in the United States is the Broad-breasted White (similar to "White Holland", but a distinct breed). Most commercial breeds have been selected for size as well as meat types and distribution. U.S. producers raise over 250 million turkeys annually,[74] generally with live weights of between 25 and 30 pounds.

Heritage breeds more closely resemble their wild ancestors and can breed naturally. Heritage turkey breeds include Beltsville Small White, Black Spanish, Bourbon Red, Chocolate, Jersey Buff, Lavender/Lilac, Narragansett, Royal Palm, Slate, Standard Bronze, White Holland, and White Midget.[75] These niche market birds command less than one percent of the U.S. market.[76] While these breeds were originally selected for flavor and productivity (i.e., conversion of feed to meat), they require more time to reach maturity than does the Broad-breasted White and are less amenable to production in houses.

As with many Galliform species, the turkey hen (female) is smaller than the tom (male). Both hens and toms are raised commercially. Hens are more likely to be marketed after slaughter and processed as whole birds. Toms are more likely to be processed into turkey products, such as lunchmeats, or sold to restaurants and food services. Parts from both hens and toms may be diverted to export markets. Mature Broad-breasted White toms are so large they are not able to fertilize hens naturally. Consequently, semen is collected from toms and hens are inseminated artificially. Many hens can be inseminated from each collection, so fewer breeding toms than hens are required. The meat from culled breeders is used primarily in processed meat products.

In commercial production, turkey brood farms supply eggs to hatcheries, which may hatch eggs from other species as well. After approximately 28 days, the hatched turkey poults are sexed, boxed, and shipped to the grow-out facilities (a collection of turkey "houses"). At these facilities, hens are raised separately from toms due to their different growth rates. Rations for both sexes and all age cohorts generally include corn meal and soybean meal with added vitamins and minerals. The feed mix is amended to achieve protein, carbohydrate, and fat levels appropriate for the age cohort.

Most turkey grow-out facilities raise 50,000 to 75,000 birds 3.5 times per year (175,000 to more than 260,000 birds a year). Many of the larger facilities have a single structure (the brood house) with the capacity to house as many as 100 thousand poults. Poults are raised with an average density of one square foot per bird. Each of these brood houses generally serves two grow-out houses. Consequently, seven broods can be raised in a year to produce the livestock for 3.5

[74] USDA, NASS, 2010, US Turkeys Raised 1959-2009, http://www.nass.usda.gov/Charts_and_Maps/Poultry/tkyprd.asp, accessed March, 2010.

[75] Heritage Turkey Foundation, 2008, What is a Heritage Turkey, http://heritageturkeyfoundation.org/, accessed April, 2010, and American Livestock Breeds Conservancy, 2009, Breed Information – ALBC Conservation Priority List, http://www.albc-usa.org/cpl/wtchlist.html#turkeys, accessed April, 2010.

[76] Biozine, 2008, Raising Turkeys from Thanksgivings Past, http://biologybiozine.com/articles/feature/raising_turkeys_from_thanksgiv_1.php, accessed March, 2010.

grow-out production cycles per year in each of the grow-out houses. On larger farms, multiple houses may be stocked, although normally all the birds on the farm are of the same age. This stocking approach helps to prevent diseases being passed among birds in different age cohorts.

The majority of U.S. turkeys are grown in controlled-environment confinement houses or in pole barns. The windowless confinement houses use modern systems of environmental control (heating, ventilation, and lighting). Ventilation systems provide sufficient oxygen for the normal growth and development and remove ammonia, carbon dioxide, dust, moisture, and heat. Confinement houses may contain as many as 50,000 birds. Depending on the degree of automation of the environmental control, feeding, and drinking systems, a single employee may provide all the necessary labor for a confinement house.

Environmental control within pole barns is more rudimentary. Consequently, labor requirements are greater and stocking densities are lower. Turkey poults reared in pole barns are generally raised in environmentally-controlled houses to 5 or 6 weeks of age. In the pole barns, the birds are raised in natural light, supplemented during the winter months with electric light. In the North, there is often limited control of temperature or ventilation in pole barns. The floor area of turkey pole barns ranges from 10,000 to more than 20,000 square feet. Automated feeders and watering systems maximize production, although the cost of such systems may limit their use. Turkeys in the pole barns are raised on litter (wood shavings) and allowed to move freely within the barn.

After slaughter, a two- to four-week period is allowed before a new flock is placed in turkey brood and grow-out houses. During this time, the house is cleaned and disinfected. Old litter is generally replaced after each flock is removed from turkey brooder houses; however, wastes may be removed from turkey grow-out houses only once each year.

In most commercial operations, stocking densities are set initially to maximize production, and only change as a result of "normal" mortality until harvest. Hens in their grow-out houses are raised at a density of 2.5 square feet. Turkey hens consume about 40 pounds of feed in their lifetime with a feed conversion rate (pounds of feed per pound of gain) of about 2.5. Ten percent mortality during brooding and grow-out is assumed for planning the size of the houses and their initial population. The hens are collected in "modules" or small cages, which are generally loaded onto flatbed trailers. Some additional mortality occurs during transportation. Slaughter and processing are mechanized to minimize processing time.

Toms, in their grow-out houses, are raised at a density of 3 to 4 square feet per bird, depending on the recommendations of the integrator. Toms consume about 90 pounds of feed with a feed conversion rate of about 2.9. Commercial toms, which are more aggressive, have a higher mortality than hens. Injurious pecking behavior can be a problem in enclosed confinement houses. This behavior is usually controlled by reducing the light levels or by beak-trimming. Some growers provide vegetable material or small objects for the turkeys to maneuver to distract the birds from their aggressive behaviors. Toms are harvested at about 18 weeks. Some producers reduce the density of older toms by moving a portion of the birds into houses vacated by the hens when they are harvested. This may reduce mortality marginally as the large birds compete for space and feed. The harvest process for toms is essentially the same as that for hens.

Free-range birds represent a small niche market in the turkey sector. The only requirement for labeling with the term 'free-range' is the birds have access to the outdoors.[77] Housing for free-range birds is usually of the pole barn type. Natural daylight and green food may be available on the range, but some source of food is generally provided in the barn. Slower growing strains, low nutrient density feed, low stocking density, and longer production cycles characterize this minor sector of the crop.

A typical turkey facility (a group of brood and grow-out houses with supporting storage) costs well over $1 million. A typical facility will have one or two brooder houses and four to six grow-out houses. Most individual houses are larger than 25,000 square feet. Depending on the location, the house may have supplemental lighting, heat, ventilation, and automated feed and watering systems. Most new turkey operations are funded with borrowed money. Loans from an integrator are often based on a six or seven year payback. Typically, bank loans for a facility have a longer term. In either case, the loan structures assume year round production.

Growers furnish the land, facilities, and labor under contract. They are paid based on the grade, weight, and feed conversion ratios of the birds delivered to the processing plant. Each integrator contract is reported to be unique; and contracts between an integrator and individual growers may also be quite different, taking into consideration such things as the physical services available at a facility, mortality experience, and historic and current feed conversion ratios. If the grower realizes a return of $7 to $8 per bird, the facility may generate a cash flow of $1.25 million to $2.5 million per year. Cost of production is more difficult to assess under the current integrator/grower industry structure. The integrator owns the turkeys, supplies feed, medicine, vaccines, and pays a grow-out supervisor. The grow-out supervisor monitors the turkeys' health and growth and decides when medications or vaccinations are required.

IV.B. The Industry

The U.S. turkey sector is dominated by vertically integrated agribusiness firms. In the second half of the 20th Century, after a period of decline in the sector, turkey hatcheries began providing financing for the purchase of poults, while feed companies provided financing for both feed and poults as a means to stimulate feed sales. These financial arrangements eventually evolved into production contracts that shifted risk from grower to integrator. Under contract, the grower provides the buildings, equipment, and labor; the integrator, who is usually involved in a variety of post-harvest processing activities, provides poults, feed, veterinary services, and managerial assistance. Most growers receive a fee per bird or per pound and many contracts appear to provide performance incentives for feed conversion and reduced mortality rates. Most, but not all, integrators produce both whole bodied and further processed turkey products. There are currently 21 major turkey integrators in the United States (Table 9). Approximately 15 percent of turkeys grown in the United States are sold as fresh or frozen whole birds. A similar quantity is processed for parts.[78] Some of these parts and the remainder of the whole birds are used in the production of ground turkey and a large variety of further processed products.

[77] USDA, Food Safety and Inspection Service, 2006, Food Labeling: Meat and poultry Labeling Terms, http://www.fsis.usda.gov/FactSheets/Meat_&_Poultry_Labeling_Terms/index.asp, accessed April, 2010.
[78] University of California, Cooperative Extension, 1997, California Turkey Production, http://animalscience.ucdavis.edu/Avian/pfs16C.htm, accessed April, 2010.

Table 9. Top U.S. Turkey Processors in 2008

Processor	Live Weight Processed (million pounds)
Butterball, LLC	1450.0
Jennie-O Turkey Store	1342.0
Cargill Value Added Meats	1047.0
Farbest Foods, Inc.	302.0
Foster Farms	273.5
House of Raeford Farms, Inc. Perdue	265.0
Farms, Inc.	274.6
Kraft Foods, Inc. (Oscar Mayer)	252.0
Virginia Poultry Growers Coop.	236.5
Prestage Foods	220.0
West Liberty Foods	220.6
Sara Lee	263.0
Cooper Farms	185.0
Hain Pure Protein Corp.	182.0
Michigan Turkey Producers Norbest,	178.7
Inc. (Western Sales LLC) Dakota	162.0
Provisions	144.0
Zacky Farms, LLC	131.3
Turkey Valley Farms	120.0
Whitewater Processing	42.4
Northern Pride Inc.	40.0

Source: Watt Poultry USA, 2009

Turkey production is scattered throughout the United States. The top five turkey-producing states in 2008 (in order) were Minnesota, North Carolina, Arkansas, Virginia, and Missouri. While U.S. consumers eat more turkey per capita and as a population than any other national consumer population, the U.S. turkey industry is also more reliant on exports than most U.S. agricultural sectors. According to NASS, turkey production in 2008 reached 7.9 billion pounds with a total farm-level value of almost $4.5 billion. The average estimated price received by producers during 2008 was 56.5 cents per pound.[79]

By 1961, feed company contracts for production accounted for almost two-thirds of all turkey production. Subsequently, processors became increasingly involved in production decisions and began raising their own turkeys to better ensure supplies. With the involvement of large feed and processing firms, the share of turkeys sold on the U.S. spot market decreased substantially. In 2007, turkey production contracts accounted for more than two thirds of U.S. production.[80] Vertically integrated operations, in which the processor owns the production facilities and hires labor to care for the birds, accounted for almost one-third of turkey production. With 2008 farm-

[79] Iowa State University, 2010, AgMRC, Turkey Profile, http://www.agmrc.org/commodities__products/livestock/poultry/turkey_profile.cfm, accessed May, 2010.
[80] USDA, NASS, 2008, Census of Agriculture, Volume 1, Tables 27 and 41, http://www.agcensus.usda.gov/Publications/2007/Full_Report/usv1.pdf, accessed May, 2010.

level cash receipts of almost $4.5 billion,[81] turkeys accounted for approximately 12 percent of cash receipts for poultry in the United States.[82]

Most turkey farms are either owned by the integrators or managed under a contractual structure that dictates most elements of the enterprise management. The integrator generally provides the stock, feed, veterinary services, production technical support, and transportation. The grower provides the growing facilities and day-to-day care and management of the animals. The impact of production contracts on turkey enterprises are not as well documented as are the impacts of production contracts on the broiler sector.

The relative importance of direct production in the turkey sector to the U.S. agricultural and overall economies is approximately one-fifth that of the broiler sector (Table 10). However, it should be noted there are considerably more value-added processing activities in the turkey sector than in the broiler sector. These will amplify the financial effects of turkey production in the general economy.

Table 10. Economic Indicators–Turkeys, United States

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
	billion dollars									
Gross Domestic Product 1/	9,354	9,952	10,286	10,642	11,142	11,868	12,638	13,399	14,078	14,441
Agricultural Cash Receipts 2/	187.5	193.7	202.8	192.9	215.5	237.9	241.0	240.8	288.5	324.2
Value of Turkeys 3/	2.8	2.8	2.8	2.8	2.8	3.0	3.2	3.6	3.7	4.5

Source: 1/ Bureau of Economic Analysis, 2010, National Income and Product Accounts Table , Gross Domestic Product, http://www.bea.gov/national/nipaweb/TableView.asp?SelectedTable=5&ViewSeries=NO&Java=no&Request3Place=N&3Place=N&FromView=YES&Freq=Year&FirstYear=1999&LastYear=2009&3Place=N&Update=Update&JavaBox=no, accessed March, 2010
2/ USDA, ERS, 2010, Agricultural Cash Receipts, http://www.ers.usda.gov/Publications/AgOutlook/AOTables/, accessed March, 2010.
3/ USDA, NASS, 2010, http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1130, accessed March, 2010.

U.S. turkey production is geographically dispersed. The top five turkey-producing states in 2008 (by head, pounds produced, and value) were Minnesota, North Carolina, Missouri, Arkansas, and Virginia, in that order. Together these five states accounted for the production of almost 58 percent of the head and 54 percent of the live weight of all U.S. turkeys (Table 11).

[81] USDA, NASS, 2009, Poultry - Production and Value 2008 Summary http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-05-29-2009.pdf, accessed March, 2010.

[82] Based on the estimated $37 billion total U.S. poultry sales from USDA, NASS, 2008, 2007 Census of Agriculture: Poultry and Egg Production, http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Fact_Sheets/poultry_and_eggs.pdf, accessed March, 2010.

Table 11. Geographic Distribution of 2008 Turkey Production in the United States

State	Number Raised (1000 head)	Pounds Produced (1000 lbs)	Price per lb ($)	Value of production ($1000)
Minnesota	48,000	1,305,600	0.57	744,192
North Carolina	40,000	1,208,000	0.54	652,320
Arkansas	31,000	610,700	0.57	348,099
Missouri	21,000	651,000	0.57	371,070
Virginia	18,000	484,200	0.56	271,152
California	16,000	435,200	0.58	252,416
Indiana	14,500	519,100	0.59	306,269
South Carolina	12,500	477,500	0.56	267,400
Pennsylvania	11,500	216,200	0.64	138,368
Iowa	9,000	360,000	0.56	201,600
Ohio	6,000	230,400	0.58	133,632
South Dakota	4,700	189,410	0.47	89,023
Utah	4,100	104,960	0.58	60,877
West Virginia	3,800	102,220	0.56	57,243
Other States	32,988	1,027,597	0.57	583,393
United States	273,088	7,922,087	0.565	4,477,054

Source: USDA, RMA, 2009, Poultry - Production and Value, 2008 Summary, http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-05-29-2009.txt, accessed March, 2010.

Nationally, turkey production by number of head increased less than 1 percent from 2000 to 2008, from 270.5 million head to 273 million head. Over the same time, weight per bird increased by 12 percent, from 25.9 pounds to 29 pounds. The combined increases in bird numbers and bird weights resulted in a 13 percent increase in total weight produced, from just under 7 billion pounds in 2000 to 7.9 billion pounds in 2008.[83]

The recent pattern of turkey production reflects some geographic consolidation of the sector. Although Minnesota, North Carolina, Arkansas, Missouri, Virginia, and California (each of these states had over $250 million in production sales in 2008) accounted for a larger proportion of head in 1990 than in 2008 (68 percent versus 63 percent), production in those states by weight increased from 49 percent to 59 percent and by value increased from 33 percent to 59 percent over the same period. Pennsylvania, Iowa, and Ohio comprise a second tier of production concentration.[84]

Substantial research by the Contractor identified the NASS Census of Agriculture as the only source of national turkey data at the county level. The 2007 Census of Agriculture documents some limited commercial turkey production in every state.[85] NASS annual statistics do not

[83] USDA, RMA, 2009, Poultry - Production and Value, 2008 Summary, http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-05-29-2009.txt, accessed April, 2010, and USDA, RMA, 2001, Poultry - Production and Value, 2000 Summary, http://usda.mannlib.cornell.edu/usda/nass/PoulProdVa//2000s/2001/PoulProdVa-04-25-2001.txt, accessed April, 2010.

[84] USDA, RMA, 1991, Poultry - Production and Value, 1990 Summary, http://usda.mannlib.cornell.edu/usda/nass/PoulProdVa//1990s/1991/PoulProdVa-04-00-1991.pdf, accessed April, 2010.

[85] USDA, RMA, 2008, Census of Agriculture, http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_2_US_State_Level/st99_2_013_013.pdf, accessed April, 2010.

include number of growers or county-level statistics in its annual surveys because there are insufficient numbers of growers in most counties to support statistically reliable estimates. There are fragmentary data available from a few state and county agencies and industry associations. These data do not provide the comprehensive and consistent descriptions available for other enterprises.

Commercial turkey production is organized and operated around turkey houses, the major farm-level capital investment. No consistent national dataset was identified reporting the total number of houses by region or houses per farm. The 2007 Census of Agriculture reported 17,226 farms growing turkeys, a 5.6 percent increase over the 16,586 farms reported in the 2002 Census of Agriculture. NASS reported 827 growers sold more than 100,000 birds in 2007. Just under 2,200 of these operations grew turkeys under contract, producing slightly more than two-thirds of the turkeys reported to have been grown.

The turkey sector has evolved to fewer than 25 highly specialized, vertically integrated agribusiness firms. Under the integrator/contract grower structure, the turkey growers must be concerned about performance of the contracted birds. Turkey production is influenced by disease, weather, equipment, building environment, and the quality of feed. Also, growers are not free from domestic and international market outcomes, even with a contracted payment. An offer of subsequent contracts, and to a lesser extent the payment and incentive provisions, depend upon the integrator's inventory of processed meat and short- and intermediate-run market forecasts. Current inventories are higher than historically.

Both turkey growers and integrators have benefited from economies of scale associated with the industry's horizontal and vertical structure, but, projected gains in efficiency over the next decade are anticipated to be less than recent historical gains. Trade restrictions have slowed growth in many U.S. animal product exports. Concerns in the poultry industry with AI and END have affected poultry trade. Emerging markets, demographic changes in the U.S. population, and continued growth of two-income households which buy more prepared foods will drive expansion of U.S. turkey production.[86]

IV.C. Stakeholder Input

The Contractor gathered stakeholder input during discussions with producers, insurance industry representatives, extension agents, producer organization representatives, and USDA staff. The Contractor collected this input during listening sessions and numerous personal and telephonic conversations outside these more structured stakeholder input gathering exercises. The listening sessions including turkey stakeholders were held in Carthage, Missouri, on April 27; in Clarksville, Arkansas, on April 28; and in Ames, Iowa, on May 20. Most of the conversations outside these venues were held in conjunction with the listening sessions or in follow up as a result of a lead provided at a listening session.

[86] Iowa State University, 2010, AgMRC, Turkey Profile, http://www.agmrc.org/commodities__products/livestock/poultry/turkey_profile.cfm, accessed May, 2010.

Carthage, Missouri

The session in Carthage was scheduled as a result of a contact provided by Dr. Susan Watkins, poultry expert and extension poultry specialist from the University of Arkansas. Dr. Watkins put the Contractor in touch with two individuals who coordinate grower relationships for regional operations of major national turkey integrators. The Contractor's presence in Carthage was well advertised through a grower group email message and individual phone calls inviting local growers provided by the local integrator contacts. The Contractor was prepared to supply information about crop insurance and to receive comments and suggestions concerning the poultry insurance from any stakeholders who wished to supply such information. Those who participated in the listening session were provided a very brief summary of the crop insurance development process and encouraged to express their opinions concerning the feasibility of insuring poultry production.

Listening Session

The Contractor conducted a listening session at the Butterball integrator facility in Carthage, Missouri, at 10:00 am CDT on April 27, 2010. Fifteen individuals (eight growers, two representatives of the turkey integrators, one extension agent, one local insurance agent, and three individuals who did not identify themselves) attended the session. At least eight of the attendees were from the state of Missouri, with four from Kansas, one from Arkansas, and three whose state of origin was not provided. The attendees were all involved specifically in the turkey sector and therefore all their comments were tied closely to the specific issues and concerns faced by the sector.

Following the overview of crop insurance and the discussion of initial findings of the research project, there was an extensive discussion of the perils that were of greatest concern to stakeholders. Primary concerns included the cost of energy inputs, the potential that an integrator would pull out of the area, and a catastrophic disease outbreak.

Growers noted the winter of 2009/2010 was unusually cold in southern Missouri and Arkansas (a theme repeated in Fayetteville, Arkansas, and Clarksville, Arkansas) and the energy costs incurred by growers, particularly for propane, were an important peril. In the region, turkey integrators provide all chicks and all feed stuffs, but the grower is responsible for providing all housing, heat/cooling, electricity, water, and labor to maintain the growing flock. This speaks directly to the grower economics of the turkey industry in the region. For a typical-sized house, the value of the flock at the time of pick-up for slaughter might exceed $250,000 per house. The value of the grower's expected gross income, however, is in the $10,000 to $15,000 range. In a typical winter, the grower might spend $4,000 to $5,000 per house per flock on propane for heat. In the winter of 2009/2010, many growers reported spending over $10,000 for propane alone. This was attributed partially to the higher unit cost of propane, but primarily to the fact that many growers burned nearly twice as much heating gas as they would during a typical year.

Growers also expressed concern about the potential an integrator might pull out of an area, leaving the growers without chick placements. Consequently the growers would own poultry houses with large mortgage payments but with minimal alternative uses. Growers expressed little concern about pricing, which is stipulated in their contracts.

Follow up Interviews

Following the listening session, the Contractor arranged for private interviews with the two representatives of major regional turkey integrators. In the listening session itself, the discussion was dominated by the growers. Each of these individuals offered similar insights. They conceded that growers in their region have "felt the squeeze" as a result of higher energy inputs, but also noted there were many other risk factors from which the growers had been insulated by the integrator relationship. Each integrator emphasized the stress the industry had faced in recent years as a result of record feed costs and softened demand for poultry products. These factors did not generally impact the price received by growers, but could have important impacts on the layout periods between flocks. The closure of regional integrator and processing facilities reflected the financial stress the industry has faced.

Clarksville, Arkansas

The session in Clarksville was scheduled as a result of a contact provided by Dr. Susan Watkins. She put the Contractor in touch with an individual who supports grower relationships for the local operations of a major national turkey integrator. The Contractor's presence in Clarksville was well advertised through a grower group email message and individual phone calls inviting local growers. The Contractor was prepared to supply information about crop insurance and to receive comments and suggestions concerning the poultry insurance from any stakeholders who wished to supply such information. Those who participated in the listening session were provided a very brief summary of the crop insurance development process and encouraged to express their opinions concerning the feasibility of insuring poultry production.

Listening Session

The Contractor conducted a listening session in a meeting room at the Hampton Inn in Clarksville, Arkansas, at 10:00 am CDT on April 28, 2010. Nine individuals (eight producers, one of whom was a retired extension educator, and one representative of the turkey integrators) attended the session. All the attendees were from the state of Arkansas. The attendees were all involved specifically in the turkey sector and therefore all their comments were tied closely to the specific issues and concerns faced by the turkey sector.

Following the overview of crop insurance and the discussion of initial findings of the research project, there was an extensive discussion of the perils that were of greatest concern to stakeholders. Primary concerns included the cost of energy inputs, increased layouts/fewer flock placements per year, and a catastrophic disease outbreak.

Growers noted the importance of increased energy costs as a major peril for production in the region. It was suggested by one attendee that the great concern was simply a result of the bad winter and high energy prices having occurred so recently so it was foremost on their minds. Another grower refuted this, saying, "I've gone through my budget and if I pencil in the amount I spent on heat for every winter, I should just get out of the business. This is a big deal and I don't see it changing." Growers were encouraged to discuss alternatives already available to them to manage energy costs. There was some discussion that one of the gas utilities provided a forward contract from time to time, but the contract price was generally higher than the current price and locking in a price did nothing for years like this when they used a lot more gas than

normal. There was also some discussion of the futures markets, but there was general agreement these contracts were too big for growers to consider individually.

Growers also discussed the increased layouts issue as something that was a growing concern, but noted that in their area, a number of low performing growers had been dropped, which had helped to maintain "reasonable" layouts for the other growers. There was some discussion of disease, specifically END and AI, both of which growers referred to as "totally random" and beyond the capacity of standard bio-security to control.

Follow up Interviews

Following the listening session, the Contractor arranged for a private interview with a representative of the major regional turkey integrator. In the listening session itself, the discussion was dominated by the growers and the integrators' views were under-represented. The integrator stakeholder confirmed that turkey integrators provide growers with all their chicks and all their feedstuffs, and based on this, there had been some discussion of providing gas or energy (or offering a contract price for these inputs) as well. As a potential large buyer, there may be opportunities to lock in attractive prices for energy inputs which could in turn be passed along to growers. However, this aspect of production and risk will likely continue to be borne by the growers.

Ames, Iowa

The session in Ames was scheduled as a result of a contact provided by Dr. Darrell Trampel, extension poultry veterinarian and professor at Iowa State University. Iowa and Minnesota collectively form the largest turkey production region in the United States. The Contractor's presence in Ames was advertised in conjunction with the annual meeting of the Iowa Turkey Federation. Those who participated in the listening session were provided a very brief summary of the crop insurance development process and encouraged to express their opinions concerning the feasibility of insuring poultry production.

Listening Session

The Contractor conducted a listening session in a meeting room at the offices of the Iowa Turkey Federation in Ames, Iowa, at 9:30 am CDT on May 20, 2010. Eighteen individuals (11 growers, 2 grower group representatives, 1 insurance agent, 1 educator, 2 integrator staff members, and 1 state government representative) attended the session. All but two of the attendees were from Iowa (the other attendees were from Minnesota). The attendees were exclusively involved in the turkey sector and therefore all their comments addressed specific issues and concerns faced by the sector.

Following the overview of crop insurance and the discussion of initial findings of the research project, there was an extensive discussion of the perils that were of greatest concern to stakeholders. The turkey sector in Iowa offers an important structural difference relative to other turkey production regions and therefore perspectives were somewhat different than those shared by turkey stakeholders in other regions.[87]

[87] Unlike other turkey production regions, where all production is "controlled" by large integrators who own all birds and therefore control most insurable interest, a grower cooperative "West Liberty Foods" controls a substantial portion of

The attendees expressed concern related to catastrophic disease and the potentially damaging financial effects on whole regions if a large quarantine were put into place. There was a perception that this sort of event was unlikely, but the potential repercussions were very severe. Several attendees expressed distrust for the way USDA administered quarantine programs and felt the compensation offered to affected growers was inadequate.

The session yielded very little additional useful information. Shortly after the discussion of catastrophic diseases was complete, one of the growers in attendance noted he had "no intention of talking about what my risks are so that it can go into some government report." Many of the other attendees appeared to agree with this view and did not participate in the discussion. The other important comment was provided by the insurance agent who commented that coverage for production and for buildings was already widely available and they felt federally-subsidized insurance would only make these current private offerings uncompetitive.

Follow up Interviews

Following the session, from which little information was gleaned, the Contractor was approached by the Executive Director of the Iowa Turkey Federation. She spent several minutes explaining there was widespread discontent with the implementation of a number of environmental and food safety rules in Iowa, including a protest filed by two board members of the Federation (it was not clear if these individuals were in attendance for the session). Consequently, government programs and studies are currently viewed suspiciously. This may have contributed to the lack of feedback provided in the session.

IV.D. Pricing and Data Availability

For a majority of production, turkey growers generally receive a contracted price per pound of live bird and frequently have contracts that include incentive payments for feed conversion rates and survival to harvest. The best way to establish "prices" received by contract growers would be to document contract prices over time. Reliable datasets recording contract payments over time are not publicly available; the integrators consider these data proprietary. They have instilled a sense in the grower population that these data should not be revealed. Payment is based on numbers and pounds of birds delivered times the contract price. Turkey integrators provide the poults to the grower, feed, veterinary services, production technical support, and transportation. The grower provides the growing facilities and day-to-day care and management of the animals. Under this arrangement, the integrator assumes risks associated with the variable costs of inputs and market fluctuations in the price of turkeys in the marketplace. The benefit to the integrator is the ability to grow animals in facilities owned and financed by others. The grower's risk is limited to investment in the houses and risks associated with management of the operation.

The next best data are retail turkey prices published by ERS. There is a substantial history of price spreads between retail and wholesale prices. Using retail prices as a proxy for farm-level prices is fraught with difficulty. Each of the elements of the retail price, costs paid by both growers (management and labor) and integrators (stock, feed, and transportation), payments to

production in Iowa. This cooperative functions on an operational and payment system that is much more like the beef industry structure. The grower owns the birds, provides the ration, and is paid for production delivered.

growers, processing costs, shipping costs, profit margins, etc. is subject to frequent and somewhat unpredictable changes. Nevertheless, sufficient data exist to develop a reasonable model to establish estimated farm-level payments for live-weight turkeys by pound.

Farm-level turkey prices, receipts, and values, including NASS and ERS data, are generally calculated or estimated values; they are not values received by growers. Due to the level of industry integration, farm-gate prices are not generally available for purchase of ready to slaughter birds. The live-weight equivalent price per pound is calculated by subtracting processing cost per pound from ready-to-cook, whole-bird, wholesale price per pound and multiplying the result by the dressing percentage. These values are useful to examine the relative net effects of changes in supply and demand.

There are a variety of resources available to assist with pricing. However, since the prices received at the farm level incorporate additional "settlement" elements, the price discovery process is likely to be a time consuming and expensive annual effort. The following data concerning turkey production and pricing are available:

- Urner Barry Price Current, wholesale turkey prices, daily and regionally, by subscription.
- Turkey Sector Profiles: WattAgNet.com, Self-reported industry statistics, http://www.wattagnet.com/Poultry_USA/13905.html, (accessed April, 2010)
- Turkeys production data by Year: USDA, NASS, Quickstats, annual data on price, number raised, pounds produced, and values at the national and state level, some very limited and sporadic county level data, http://www.nass.usda.gov/, (accessed April, 2010).
- U.S. Turkey Production by Year: USDA, NASS, Turkeys: Inventory by Year, US, 1959-2009, http://www.nass.usda.gov/Charts_and_Maps/Poultry/tkyprd.asp, (accessed April 2010).
- U.S. Turkey Production in 2009: USDA, NASS, Turkeys: Numbers Raised by State, US, 1959-2009, http://www.nass.usda.gov/Charts_and_Maps/Poultry/tkymap.asp, (accessed April 2010).
- U.S. Turkey Production and Value by Year: USDA, NASS, Turkeys: Inventory by Year, US, 1998-2008, http://www.nass.usda.gov/Charts_and_Maps/Poultry/tkprvl.asp, (accessed April 2010).
- Poultry industry characteristics: USDA, NASS, Poultry and Egg Production, every 5 years, http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Fact_Sheets/poultry_and_eggs.pdf, (accessed April 2010).
- Poultry industry characteristics: USDA, NASS, Poultry and Egg Production, every 5 years, http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Fact_Sheets/poultry_and_eggs.pdf, (accessed April 2010).
- Poultry Slaughter Reports: USDA, NASS, Poultry Slaughter, monthly and annual reports on head, live weights and condemnations (some limited state-level data), http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1131, (accessed April, 2010).

- Retail to consumer spreads for turkeys: USDA, ERS Meat Price Spreads, monthly 1970-2009, http://www.ers.usda.gov/Data/MeatPriceSpreads/Data/history.xls (accessed April 2010).

IV.E. Risks

Turkey growers are subject to similar risks faced by the growers of broilers. Growers are sensitive to the difference between common risk and idiosyncratic risk as a result of their contractual relationship with integrators. Part of the production risk is idiosyncratic and affects only a single grower (as when an automatic feeder breaks down), but part is common and affects many growers (as when the ambient air temperature becomes very high). There is also a price risk. Both turkey price and feed price are subject to market forces. Together, these risks may lead to considerable income variability in the turkey sector over time. Output and input price changes do not directly and immediately affect the turkey grower, but over time they are manifested through changes in the number of contracts, contract prices, and/or incentive clauses.

Grower risks have not changed substantively over the past several decades. However, the relationship between contract growers and integrators has resulted in many shifts in risk management responsibility.

Although the majority of turkey production is contracted, there are a number of independent farms and cooperatives. Some of the poultry producers focus on niche markets, including organic and kosher turkey meat. These niche poultry producers are vulnerable to risk as a result of their size and may have a greater need for insurance than larger, mainstream poultry farms. However, beyond the existence of these operations, the Contractor obtained little information regarding this portion of the turkey sector.

Production Risk

Production risks facing turkey growers include weather, disease, feed quality, and chick quality. Weather-related risk in turkey production is minor compared to similar risks in crop production with severe weather affecting a small portion of one flock out of five or six each year.[88] Disease risk includes both catastrophic losses, such as losses to END and AI, and chronic disease losses, which more slowly erode profits. Growers are also impacted by the competence of integrators who control feed and chick quality.

Under the current contract system, growers give up control of marketing and production management decisions in return for a guaranteed price. With payments based on relative production performance, price risk and the common portion of production risk are transferred from individual growers, who may be risk averse, to integrators. Growers perceive some risk-related disadvantages in the contract system, as evidenced by the concern over energy costs discussed in the listening sessions. Production contracts may provide additional grower security through casualty clauses. These clauses would indemnify losses arising from natural disaster such as a flood, excessive heat, fire, or losses of potential production.

[88] Aho, P. and D. Reid, 1988, "Risks and Returns," Broiler Industry, May, 14-16.

Although growers do not bear price risk directly, they are dependent on integrators for stock to grow-out. Given the competitive nature of the turkey processing industry, growers can experience lower revenues through reduced production industry-wide, lack of competition among integrators, and integrator failure or default. Like the broiler market, the turkey market has experienced less price appreciation over time than some other agricultural sectors. Consequently, competitors in the turkey production sector are focused on increasing the weight gain rate and weight gain efficiency of the turkeys being raised.

Disease

Disease prevention and control are given continual management attention in the turkey sector. Most diseases are controlled by vaccination (Table 12) and/or sanitation practices. While a limited number of turkeys are pastured (raised primarily outdoors with free access to natural food and conditions), most turkeys are maintained on litter in pole barns or controlled-environment facilities where the birds roam freely. The environment (temperature, humidity, and soiled litter) is conducive to both turkey growth and to fostering certain poultry diseases. Thus, an important part of management is implementation and monitoring of strict medication and disease prevention procedures and a tight bio-security regimen. With those practices in place, diseases of particular concern are catastrophic diseases such as AI, particularly the high pathogenic form, and END. An infection from these diseases results in mortality or depopulation of an entire house, usually followed by quarantine and costly cleanup and disinfection. Quarantine and cleanup add a business interruption dimension to incurred losses as delayed house repopulation interrupts the normal annual cycle. However, it is important to note that such events are extremely rare.

Table 12. Sample Turkey Vaccination Schedule

Age in Days	Disease	Method
1		Antibiotics subcutaneously in the neck
10	Coryza	If endemic: drinking water
10	Newcastle	Drinking water
14	Coryza	If endemic: drinking water
23-24	Hemorrhagic enteritis	Drinking water
36-41	Newcastle	Drinking water
42-47	Cholera (M9)	Drinking water
56-62	Cholera (other serotypes)	Drinking water
91-97	Cholera (other serotypes)	Drinking water

Source: University of Pennsylvania School of Veterinary Medicine, 1999, A General Overview of Poultry Science, Typical Vaccination Schedule for Commercial Turkeys, http://cal.vet.upenn.edu/projects/poultry/Syllabus/page18.htm, accessed May, 2010.

Growers and experts offered very general qualitative statements regarding frequency and severity of disease perils. The only statement made regarding the frequency of disease perils is that these events are rare. Income losses resulting from catastrophic disease outbreaks are generally excluded from indemnification under the loss-of-income coverage products identified. There are APHIS disease monitoring programs and, specific to the poultry industry, the National

Poultry Improvement Plan (NPIP). Federal programs indemnifying the value of birds lost to disaster declarations provide no benefit to contract growers who do not own the birds.

The presence of a disease and associated mortality are certainly identifiable. Underwriting related to vaccination schedules, sanitation, and management practices should be possible. Data are limited. Most chronic diseases are controllable or manageable. The risks associated with lost production are of less concern to growers than are the risks to the business and production cycles.

Weather

During the listening sessions, growers identified cold as the "weather" peril of greatest concern. The cold did not directly affect the birds, but instead had a major impact on energy costs, and consequently on total production costs. Extended periods of severe heat or cold are not considered catastrophic events by growers with modern houses. Rather, energy costs increase when maintaining proper house temperature and humidity. No quantitative estimates regarding frequency and severity of losses from weather events were offered or obtained.

As in the broiler sector, new controlled environment (closed) houses for turkeys have greater, more consistent power requirements than do the older, open-design houses. These added power demands arise from year-round operation of ventilation systems to remove moisture and heating and cooling systems to maintain consistent interior temperatures. The primary benefit of higher power consumption is reduced variation (more precise predictability) in chick grow-out performance than can be achieved with older technology. With existing technology and building design, heat and moisture build-up following the loss of ventilating and cooling systems measurably affects flock well being and consequently production.

Property losses would be indemnified under the grower's usual coverage, and some loss of income coverage is available. Growers generally consider available property and casualty coverage for house damage due to severe weather adequate. No growers reported purchasing available income-protection coverage. They noted they had difficulty hedging risk associated with temperature.

Morbidity and Mortality

Turkeys develop over a substantially longer period of time than broilers and (particularly among toms) have a higher mortality rate. While the production practices are fundamentally similar, the longer timeline means that any risks or challenges with any aspect of production can have a more pronounced impact on final outcomes. As a result, anecdotal testimony suggests that mortality-based variability in production is much greater from flock to flock in turkeys than in broilers.

SECTION V. LAYER SECTOR

The term 'layer' is the poultry industry name for a light hen maintained for egg production. Hens from all varieties (breeds) of chickens lay eggs, but only hens from a few breeds consistently lay eggs of appropriate size. Hens of laying breeds produce as many as 300 eggs a year. The laying breeds are further divided into birds that produce white shelled eggs (breeds generally developed from Leghorn stock) or brown shelled eggs (breeds developed from Rhode Island Red and other stock).

The egg laying breeds of chickens have been genetically selected for high egg productivity. They usually have small bodies that make them undesirable as meat producers. The small bodies benefit laying breeds because the hens use fewer nutrients to produce and support body mass. Instead, layers direct much of their energy into the egg production. After approximately 12 months, the hen's egg-laying declines. Hormonal changes resulting from changes in diet and photoperiod can be used to stimulate further egg production. Eventually, after two to two and a half years, commercial laying hens are slaughtered. Meat from culled layers is used in pet foods, soup, pies, and other processed foods.

Commercial chicken eggs include two categories of "table" eggs for human consumption, as well as hatching eggs. "Shell" eggs are eggs sold at retail, generally by the dozen. "Breaking" or processed eggs are broken to produce liquid or dry egg products. Specialized in-line breaking plants transform breaking eggs into liquid eggs or further process the liquid eggs into products, such as powdered eggs, that have a longer shelf life. Production of processing eggs is a conscious output decision, rather than a salvage activity. Operators (grower/integrator) of table egg production facilities do not generally raise breeders to produce hatching eggs.[89] Instead hatching eggs are raised by niche market poultry producers.

Table eggs are produced by single-site independent poultry producers, contract operators, and multiple-site, vertically integrated companies. The vertically integrated companies generally operate on multiple-sites, which are distributed either regionally or nationally. Recent trends of decreasing per capita shell egg consumption and increasing per capita processed egg product consumption reflect both consumer lifestyle and industry changes. The increase in production of less-perishable, processed egg products has generally reduced transportation costs for table eggs. Modern in-line production, technologically advanced processing complexes, and lower feed cost has led to increased egg production in the Midwest. In 2008, Iowa, Ohio, Indiana, Pennsylvania, and California (in their order of dominance in the sector) accounted for 44 percent of all table eggs produced. Between 2001 and 2008, Iowa's table egg production increased from 8.7 billion eggs[90] to 14.4 billion eggs.[91]

Substantial consolidation occurred in the layer sector during the last 25 years. The layer sector has exhibited substantial changes toward a vertically integrated system. There are 205 egg-

[89] Perdue University maintains a Website devoted to avian sciences, including a PowerPoint presentation (http://ag.ansc.purdue.edu/poultry/publication/commegg/) documenting most on-farm aspects of shell and breaker egg production.
[90] USDA, RMA, 2004, Final Research Report Livestock Insurance Program Volume V: Layer Segment.
[91] USDA, NASS, 2009, 2008 NASS Poultry - Production and Value 2008 Summary, http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-05-29-2009.pdf, accessed March, 2010.

producing companies with flocks of 75,000 hens or more, 62 companies with more than 1 million layers and 12 companies with more than 5 million layers. Companies with at least 75,000 layers are responsible for approximately 95 percent of all egg production in the United States. In contrast, in 1987, there were approximately 2,500 operations comprising the top 95 percent of egg production.[92] Integrated production sites often have up to one million birds, a feed mill, and an in-line processing plant. While economies of size are likely to be gained at relatively low levels of output (as low as 30,000 hens), diseconomies of size are apparently not realized until output exceeds that of the largest production sites, with more than six houses and more than one million hens.

V.A. The Crop

Shell eggs are usually sold by the carton at retail, while breaking eggs are subjected to a variety of value-added processing. There is an irony in the value-added economics of breaking eggs, since historically these eggs were salvaged, under grade, deformed, or checked. Paul Aho, a national expert on the layer sector noted, "The breaker market was of last resort when a suitable shell egg market could not be found." As the market for processed egg products expanded, processors/breakers began purchasing sound, problem free, shell eggs at a discount to retail prices. "The big difference… compared to the processed egg market of just [20] years ago is that egg products (liquid, dried and frozen) have replaced shell eggs in most industrial food applications."[93] In addition to improvements in in-line breaking plant technology and lifestyle changes among those who used to purchase substantial quantities of breaking eggs, *Salmonella* outbreaks in the 1990s[94] resulted in less use of wholesale shell eggs and increased use of pasteurized liquid eggs and other processed egg products (Table 13). A change from table egg production to breaking egg production resulted from the recent *Salmonella* outbreak (July, 2010). Epidemiologic investigations in 10 states identified 29 event clusters; data from these investigations suggest shell eggs from two Iowa producers were the source of many of the infections. The production from these operations, both of which are quite large, have been diverted to breaking facilities. It should be noted, this recent disease incident suggests grower concerns about the risks of recall are warranted.

[92] American Egg Board, 2010, Egg Industry Fact Sheet, http://www.aeb.org/egg-industry/industry-facts/egg-industry-facts-sheet, Accessed May, 2010.
[93] Watts and Associates, 2004, Final Research Report, Livestock Insurance Program, Volume V: Layer Segment, delivered to USDA, RMA.
[94] Aho, P. Updated 2000. "Regional Egg Production Trends, Poultry Science and Technology Facts." Cornell University, Department of Poultry and Avian Sciences.

Table 13. United States per Capita Egg Production and Distribution, 1984–2008

Year	Cases Produced (millions)	Retail (millions)	Breaker (millions)	Institution (millions)	Export (millions)
1988	169.1	98.1	32.5	37.1	1.4
1989	162.5	92.6	31.6	37.4	0.9
1990	163.1	91.3	35	35.9	0.9
1991	165.8	91.2	38.2	34.7	1.7
1992	168.6	91	41.3	34.4	1.9
1993	170.4	90.3	42.4	35.3	2.4
1994	175.5	91.3	46.8	34.6	2.8
1995	174.4	90.7	47.5	33.5	2.7
1996	179.8	95.3	50.4	31.2	2.9
1997	182.5	98.6	53	28.9	0.2
1998	187.1	102	54.7	28.8	1.6
1999	194.4	107.4	58.6	27	1.4
2000	198.8	112.3	60.4	24	1.7
2001	202.6	118.6	61.2	20.9	1.7
2002	206.3	122	62.7	19.8	1.6
2003	206.9	126.6	60.9	18	1.4
2004	209.9	126.3	64.4	18	1.9
2005	213.9	125.5	68.2	18.2	2
2006	214.1	126.6	67.1	19	1.4
2007	211.1	124.6	66	19	1.5
2008	212.6	124.7	67.5	19	1.4

Source: After American Egg Board, 2010, Shell Egg Distribution, http://www.aeb.org/egg-industry/industry-facts/shell-egg-distribution, accessed April, 2010.

In 2001, 334.9 million layers produced 85.7 billion eggs, an average of 256 eggs per hen, with 85 percent of the eggs used for the table (i.e., breaking or shell eggs). By 2009, 337.4 million layers produced 90.4 billion eggs, an average of 268 eggs per hen, with 86 percent of the eggs used for the table.[95]

Egg production in the United States is widely dispersed (Table 14). Commercial egg production is reported in all 50 states; production in minor production areas is combined to avoid disclosure of data concerning individual operations. The perishable nature of shell eggs explains the historical dispersal of production. Changes in technology and demand are driving regional concentration of production.

[95] USDA, NASS, 2010, Chicken and Egg Summary, February, 2009, http://usda.mannlib.cornell.edu/usda/current/ChickEgg/ChickEgg-02-25-2010.pdf, accessed April, 2010.

Table 14. 2008 United States Egg Production by State

State	Eggs Produced (Millions)	Price ($/dozen)	Value ($1000)	State	Eggs Produced (Millions)	Price ($/dozen)	Value ($1000)
AL	2,150	1.67	$298,550	NC	3,063	1.47	$373,944
AR	3,139	1.60	$418,062	NE	2,777	0.97	$225,242
CA	5,272	1.00	$440,730	NH	65	1.35	$7,321
CO	1,090	1.07	$96,842	NJ	421	1.19	$41,590
CT	780	0.93	$60,116	NY	1,167	1.00	$96,871
FL	2,749	1.02	$234,515	OH	7,168	0.98	$585,477
GA	4,576	1.48	$564,244	OK	774	1.25	$80,888
HI	73	1.42	$8,678	OR	769	1.01	$64,775
IA	14,407	0.93	$1,117,850	PA	6,181	0.95	$487,467
ID	150	1.09	$13,630	SC	1,143	1.09	$104,178
IL	1,453	1.00	$120,770	SD	691	0.97	$55,752
IN	6,523	0.99	$535,571	TN	351	1.46	$42,815
KY	1,140	1.37	$130,387	TX	4,928	1.12	$460,307
LA	479	1.19	$47,694	UT	914	0.95	$72,422
MA	36	1.24	$3,718	VA	726	1.27	$77,103
MD	666	1.13	$62,682	VT	55	1.15	$5,252
ME	1,028	1.22	$104,433	WA	1,533	1.07	$136,448
MI	2,653	0.96	$211,524	WI	1,220	1.01	$102,910
MN	2,767	1.03	$237,237	WV	247	1.48	$30,390
MO	1,885	1.05	$165,703	WY	2	0.97	$193
MS	1,511	1.42	$179,075	Other States	1,315	1.03	$112,563
MT	115	1.00	$9,567				
TOTALS					90,151	0.89	$8,225,486

Source: USDA, NASS, 2009, 2008 NASS Poultry - Production and Value 2008 Summary, http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-05-29-2009.pdf, accessed March, 2010.

Production Profile

Upon arrival at the operator's facilities, chicks are placed in either a pullet house or layer pens. Chicks in pullet houses are raised on open floors covered with wood shavings or similar bedding material. During the first week, pullet chicks are usually beak trimmed. They remain in the pullet house for 10 to 15 weeks. After attaining an appropriate size, they are moved into layer cages. Alternatively, for chicks placed immediately into layer cages, a biodegradable mat is placed on the floor of the pen. The mat allows chicks to locate feed and adjust to the wire mesh floor. Within a week, the mat is removed or degrades. A layer cage may initially be occupied by as many as fifty chicks, but as the chicks mature, the population density is decreased.

The chicks' daily light exposure is increased at 16 to 23 weeks of age. An appropriate lighting program provides adequate light intensity to stimulate a hormonal reaction, but if the light period is constant, electrical costs are high. Chickens perceive dawn as the first light following the longest dark period in the 24 hour cycle. Consequently, photo-schedules often contain a longer dark period to establish a photo-sensitivity phase (perception of dawn) and the timing of oviposition (when the egg is laid). Continuous light triggers laying, but short repeated cycles of light (e.g., an hour light followed by two hours of darkness) can reduce costs of lighting by more than 66 percent. Different operators use different lighting schedules to stimulate egg production

while minimizing electrical costs. If the hen has not reached an adequate body weight by 18 weeks of age, egg production declines. The lighter layers are culled to limit feed consumption.

The layers' diet is also altered to support egg production. Layer pullets are fed according to body weight and/or age. Mature layers are generally fed *ad libitum*. The feed is generally offered to the layers by automated systems (e.g., chain feeding systems). In general, 2 inches of feeder space are allotted for each pullet and 2.5 inches or more are allocated for each adult layer. Dietary protein and energy composition are adjusted based on age of the hens. Young layers are fed a high protein diet (e.g., 20 percent protein) during the first few weeks of life. This level is gradually decreased to12 to 15 percent protein during egg production. Feed lysine, methionine, calcium, and phosphorus are also adjusted to support maximum egg production.

At 18 to 22 weeks of age, 10 to 20 percent of the hens are laying eggs each day when the flock begins to produce eggs. At about 30 to 32 weeks of age, 90 percent of the hens are laying each day. By the time the hens are 70 weeks old, laying decreases to approximately 50 percent, where variable costs are approximately equal to the income from production. Induced molting can increase production for another 20 to 30 weeks. Whether a second molt is induced is influenced by egg prices and the availability of replacement birds. Layers may be molted a second time to maintain production through 120 to 130 weeks of age or sent directly to slaughter after a single molt when they reach 100 to 110 weeks of age.

Hens lay their eggs onto an angled cage floor (sloping 8 to 10 degrees toward the collection belt). The eggs roll toward the front of the cage onto a slowly moving belt. The belt transports eggs out of the house to either the egg processing facility or refrigerated storage. Eggs are removed from the belt based on demand. Most are removed from the belt within a few hours, but they may not be removed for up to 14 hours.

In an in-line shell facility, eggs move directly from the layer house to the egg processing facility. Once the eggs enter the egg processing center, they are washed, inspected manually, graded for packaging, and moved into cold storage. Operators generally deliver eggs to retailers approximately a week after being laid. In an on-line breaking facility, the eggs are washed, inspected manually, and broken. The raw liquid eggs are moved to storage silos, then to pasteurization units, and finally to processing units to make dry, liquid, or frozen products. Since the facility is highly mechanized, there are relatively few employees and the facility can be operated 24 hours a day. In off-line production facilities the eggs are moved from the house directly into refrigerated storage. The eggs are stored two to three days, and then they are transported to a packing or processing facility by refrigerated trucks.

After the flock is removed from the layer house, the house is stripped of all organic matter. It is then sanitized with liquid disinfectants. Drying is required before another flock enters the house. The total down time lasts one to several weeks.

As noted earlier, most operators in the layer sector are concerned with table egg production. A second, smaller category of layer production is hatching eggs. These are produced on breeder farms. These breeder farms produce fertile eggs that hatch into chicks for production of both

heavy broiler and lighter layer stock.[96] Breeder farms are particularly concerned about genetic characteristics of their stock. Due to the unique niche market and research orientation of breeder farms, the assessment of the feasibility of insuring egg production will focus primarily on the production of table eggs.

V.B. The Industry

The two primary types of operating arrangements within the layer sector are contract farms and company-owned farms. Contract operators own or control the land, buildings, and labor inputs used to produce eggs under contract to processors. In company-owned farms, there are independent operators who own farm assets, own and manage the flock, and sell eggs and enterprises within large, vertically integrated, regional and national egg producing, processing, and marketing firms.[97] The large integrated firms (both company-owned and integrator firms) are the result of a turbulent period of consolidation and bankruptcies during the late 1970s and early 1980s; consolidation has continued as some poultry producers integrated vertically into processing, and some processing firms acquire ownership of layer operations. Maximum integration is realized when the producer/processors also own feed mills. The company owned category, with its vertical integration, includes some smaller independent operations. However, independent farms are the most likely candidates for consolidation. Compared to large, integrated companies with a national presence, independent poultry producers are at a bargaining disadvantage when dealing with the rapidly consolidating wholesale-food industry.

The Census of Agriculture reported 3,331 farms produced eggs under contract in 2007 (a 2.25 percent decrease from 2002). Almost 22 billion eggs were produced under contract in 2007;[98] more than 97 percent of the table eggs were produced by integrator-owned operations. In 2009, 66.5 million cases of eggs (approximately 31 percent of all table eggs) were broken under Federal inspection, a 2.6 percent decrease from 2008.[99]

The layer segment accounts for approximately 2 percent of the U.S. agriculture economy (Table 15). The distribution of this economic impact by state is evident in the production value in Table 14. In 1995, egg production in California, Georgia, Indiana, Ohio, and Pennsylvania, the top five egg producing states, accounted for 37 percent of U.S. table egg production. By 2001, the top five egg producing states accounted for 41 percent of table egg production and Georgia had dropped out of the top five egg producing states. By 2001, egg production in Iowa had doubled, increasing from 4.3 billion eggs in 1995 to 8.7 billion eggs. By 2008, the top five states accounted for 43 percent of egg production, and included (in order of size of production) Iowa, Ohio, Indiana, Pennsylvania, and California.

[96] Aho, P. Updated 2000. "Regional Egg Production Trends, Poultry Science and Technology Facts." Cornell University, Department of Poultry and Avian Sciences.
[97] Paul Aho, personal communication.
[98] USDA, NASS, 2008, Census of Agriculture, Table 41, http://www.agcensus.usda.gov/Publications/2007/Full_Report/usv1.pdf, accessed March, 2010.
[99] Egg Industry, 2010, Egg production increased 1% in 2009, http://www.wattagnet.com/Egg_Industry/14881.html, accessed March, 2010.

Table 15. Economic Indicators–Layer Segment United States

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
	billions of dollars									
Gross Domestic Product 1/	9,354	9,952	10,286	10,642	11,142	11,868	12,638	13,399	14,078	14,441
Ag Cash Receipts 2/	187.5	193.7	202.8	192.9	215.5	237.9	241.0	240.8	288.5	324.2
Value of Egg Production 3/	4.29	4.35	4.45	4.28	5.33	5.3	4.05	4.43	6.72	8.23

Source: 1/ Bureau of Economic Analysis, 2010, National Income and Product Accounts Table , Gross Domestic Product, http://www.bea.gov/national/nipaweb/TableView.asp?SelectedTable=5&ViewSeries=NO&Java=no&Request3Place=N&3Place=N&FromView=YES&Freq=Year&FirstYear=1999&LastYear=2009&3Place=N&Update=Update&JavaBox=no, accessed March, 2010
2/ USDA, ERS, 2010, Agricultural Cash Receipts, http://www.ers.usda.gov/Publications/AgOutlook/AOTables/, accessed March, 2010.
3/ USDA, NASS, 2010, http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1130, accessed March, 2010.

The 2007 Census of Agriculture reported 145,615 farms with an inventory of layers.[100] However, 125,195 (86 percent) of the reported farms had fewer than 50 hens, and only 4,771 (3.3 percent) had more than 400 hens. Only 434 of those farms with more than 400 hens had more than 100,000 hens. As noted earlier, the American Egg Board reported 205 egg producing companies had flocks of 75,000 hens or more. These companies owned approximately 95 percent of all U.S. layers in 2008.[101]

Cal-Maine Foods of Mississippi is the largest shell egg producer (Table 13). Cal-Maine is a "pure" shell egg producer without any egg processing facilities. National and regional supermarket chains buy directly from this company, with sales made daily on open account terms ranging from 7 to 30 days. A majority of the firm's sales are in 26 states scattered across the Southwest, Southeast, and Midwest. The second-largest producer, Rose Acre, is a privately owned company with both shell egg and processed egg production. Michael Foods, the third-ranked producer, produces eggs for processing and sells egg products and other food items. Depending on demand, Michael Foods does purchase some eggs from other companies.

Table 16. Top Ten Egg Production Companies: 2008

Company	State	Layers in Production (million)
Cal-Maine Foods	Mississippi	22.8
Rose Acre Farms	Indiana	22.6
Michael Foods Egg Products	Minnesota	14
Moark LLC	Missouri	12
Sparboe Companies	Minnesota	12
Decoster Egg Farms	Iowa	10.5
Daybreak Foods	Wisconsin	7.9
Ohio Fresh Eggs	Ohio	7
Golden Oval Eggs	Alabama	6.8
Fort Recovery	Ohio	6.2

Source: U.S. Poultry and Egg Association. http://www.poultryegg.org/economic_data/, Accessed April, 2010.

[100] USDA, NASS, 2008, Census of Agriculture 2007, http://www.nass.usda.gov/census/census97/volume1/us-51/us2_16.pdf, accessed March, 2010.
[101] American Egg Board, 2009, Egg Industry Fact Sheet, http://www.aeb.org/egg-industry/industry-facts/egg-industry-facts-sheet, accessed March, 2010.

The integrated firms are attempting to differentiate their shell egg product. For example, Cal-Maine's "Eggland's Best" specialty line includes products that do not increase serum cholesterol when eaten as part of a low fat diet. Eggland's Best are marketed at a premium of approximately $1 per dozen over ordinary shell eggs. Cal-Maine has another specialty egg product, "Farmhouse Eggs," produced by uncaged hens that are fed a "natural" diet. Between 1999 and 2006, sales of these premium branded eggs more than doubled.[102]

Price, consumer lifestyle changes, and industry integration are key factors reducing per capita shell egg consumption while increasing per capita consumption of broken (processing) eggs. Breaking eggs are an output product of specialized, in-line breaking technologies. Processed eggs reduce volume and consequently transportation costs for the now less-perishable product are reduced.

Given the current industry structure, feed transportation costs, and weather, the north central United States currently has an advantage in the production of shell eggs. This is evident when the number of large farms is considered (Table 17). The north central United States also currently dominates in the production of eggs to be broken. Although dominant in egg production following World War II, the North Central region lost its technological and organizational lead to the South and West as its facilities aged, and its production systems became outmoded. However, in-line production and processing complexes with on-site feed preparation facilities were constructed in the region during the 1980s. These complexes are now operated by low cost producers with large markets for processed egg products. Since feed costs account for about 66 percent of the total farm cost of egg production, the lowest feed cost area in the United States is likely to have the lowest total cost of egg production.

[102] Eggland's Best, 2010, Healthy Eggs Hatch Success for Eggland's, http://www.egglandsbest.com/news/eb-news/in-the-news/story/06-04-04/healthy-eggs-hatch-success-for-eggland-s.asp, accessed March, 2010.

Table 17 Top Ten States Number of Farms Reporting Layers 2007 Census of Agriculture

Number of Layers	Iowa	Ohio	Indiana	Pennsylvania	California	Georgia	Texas	Arkansas	North Carolina	Florida	Total	U.S.	Percent of U.S.
1 to 49	2,403	4,257	3,053	6,244	4,553	2,094	12,965	2,260	2,891	3,038	43,758	125,195	34.95
50 to 99	286	543	271	643	265	166	1,043	181	267	198	3,863	10,648	36.28
100 to 399	143	299	150	379	159	82	328	58	118	86	1,802	5,001	36.03
400 to 3,199	30	30	18	71	48	22	44	6	25	16	310	785	39.49
3,200 to 9,999	40	5	4	78	4	80	6	74	111	1	403	626	64.38
10,000 to 19,999	9	13	19	57	9	153	37	252	139	8	696	1,373	50.69
20,000 to 49,999	6	17	21	41	15	216	99	201	159	6	781	1,292	60.45
50,000 to 99,999	8	39	11	50	8	22	22	10	18	1	189	261	72.41
100,000 or more	41	52	36	41	37	35	18	5	8	7	280	434	64.52
Total	2,966	5,255	3,583	7,604	5,098	2,870	14,562	3,047	3,736	3,361	52,082	145,615	35.77

Source: (After) http://www.nass.usda.gov/census/census97/volume1/us-51/us2_16.pdf. Accessed 4/2/03.

Although the feed cost differences between the Midwest and other parts of the country are well understood, production cost differences from west to east within the Midwest are often overlooked.[103] These have influenced the concentration of production among the Midwestern states and within individual states. The North Atlantic region, with high grain, labor, and land costs, has imported a large percentage of its eggs over the last 50 years. More recently, compliance with environmental guidelines, urban encroachment into rural areas, and food safety issues have further increased the region's relative costs. However, as a result of its proximity to large population centers, the North Atlantic region will continue to produce a substantial quantity of shell eggs. However, in the North Atlantic states, only under-grade eggs are likely to be broken.[104]

Market Structure

Both shell eggs and liquid eggs can be transported long distances using refrigerated trucks. Producers typically sell to a variety of markets, including both local and national prepared food industry buyers (e.g., McDonald's and Burger King), national supermarket chains, smaller regional grocery buyers (e.g., IGA), independent egg product processors, and institutional buyers (e.g., prisons, colleges, etc.). Given the vertical integration of large firms and contract egg production, egg buyers at the "farm gate" are frequently the integrators themselves. The estimated 209.1 million cases of eggs produced in 2008 were distributed as follows:

- 68 million cases (32.2 percent) were further processed;
- 121.7 million cases (58.2 percent) were sold at retail;
- 18 million cases (9.0 percent) were used in food services; and
- 1.4 million cases (.7 percent) were exported.[105]

Independent poultry producers have incentive to increase in size or to act jointly to achieve a more equal bargaining position with the large, national firms which are potential buyers of their products. Consequently, bargaining associations and marketing cooperatives are active in the industry. Urner Barry's Price Current Index (http://www.urnerbarry.com/pdf_files/pceg0414.pdf) serves as a basis for establishing the price for most contract sales. Contract length and settlement terms are extremely varied. While contracts are common, spot market transactions for some egg output are a matter of routine for nearly all firms as a way to deal with inventory fluctuations.

Egg producing operations are successful over a considerable range of potential output. It appears the long-run average cost curve is relatively constant over an extended range of targeted production. While there are economies of size to be gained moving up from the very low levels of output, diseconomies of size are not realized until output levels reach or exceed those of the largest firms. With such large integrated firms, the layer enterprises tend to be focused on egg production. Few layer sites include other agricultural activities.

[103] Aho, P. Updated 2000. "Regional Egg Production Trends, Poultry Science and Technology Facts." Cornell University, Department of Poultry and Avian Sciences.
[104] Ibid.
[105] American Egg Board, 2009, Egg Industry Fact Sheet, http://www.aeb.org/egg-industry/industry-facts/egg-industry-facts-sheet, accessed March, 2010.

To the layperson, eggs are produced in chicken houses. However, "chicken houses" are extremely sophisticated, controlled-environment facilities. If there is a mechanical failure in the climate control system, growers and producers have a 15-minute window before egg production is measurably affected and a 30-minute window before hen mortality begins. The environment is further regulated with thorough and strict sanitary practices and disease prevention and security regimens. Thus, competent managers of very large firms are confident in their perception of the "things that could go wrong," analysis of alternatives to prevent occurrence of those events (or at least mitigate the effects), and ability to implement the "best" strategy. Under such tightly managed conditions, there are few risks for which contingency plans do not exist. As large consolidated firms have grown to increasingly dominate the market, the fraction of total production under less intensive management schemes has grown very small.

Commercial egg growers and producers are subject to state regulations regarding flock management, egg grading, egg handling and transport, and the environment. Some state regulations specify aspects of building design and construction, husbandry practices, and bird space requirements. In November, 2008, California voters approved Proposition 2, effective in 2015, which will require egg-laying hens be housed with sufficient room to lie down, stand, turn around, and fully extend their limbs. State regulations regarding egg handling generally parallel USDA Egg Grading Standards[106] and Shell Egg Surveillance Inspections.[107] Egg quality assurance is a part of state code. Environmental standards address manure and dead bird disposal and parallel AFO and CAFO designation standards. However, some exceptional state regulations are in place. Thirteen states prohibit repacking shell eggs to limit the spread of *Salmonella*.[108] Pennsylvania requires all eggs be refrigerated throughout the distribution chain. Brand names must be registered by California egg handlers. Ohio poultry farms that discharge waste water into waterways are required to have a National Pollutant Discharge Elimination System (NPDES) permit, regardless of federal requirements for such a permit. These changes in the regulatory environment have been perceived by producers to add substantially to production costs.

V.C. Stakeholder Input

The Contractor gathered stakeholder input during discussions with poultry producers, growers, and integrators), insurance industry representatives, extension agents, producer organization representatives, and USDA staff. The Contractor collected this input during listening sessions and numerous personal and telephonic conversations outside these more structured stakeholder input gathering exercises. The listening sessions were held in Fayetteville, Arkansas, on April 27, 2010, and in Urbandale, Iowa, on May 18, 2010. Most of the conversations outside these venues were held in conjunction with the listening sessions or in follow up as a result of a lead provided at a listening session.

[106] USDA, AMS, 2000, United States Standards, Grades, and Weight Classes for Shell Eggs, http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELDEV3004376, accessed May, 2010.
[107] USDA, AMS, 2006, Regulations Governing the Inspection of Eggs, http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELDEV3004691, accessed May, 2010.
[108] Eskin, S.B., 2004, "Putting All Your Eggs in One Basket: Egg Safety and the Case for a Single Food-Safety Agency," Food and Drug Law Journal, 59: 441-452.

Fayetteville, Arkansas

The session in Fayetteville was scheduled to coincide with the Northwest Arkansas Poultry Conference on the campus of the University of Arkansas. This annual conference includes a gathering of over 150 poultry producers, operators, integrators, extension personnel, lenders, and allied industry representatives and is based around a series of extension and education workshops. The Contractor's presence at the conference was well advertised through a series of extension mailings; conference programs distributed prior to the meeting; grower group email messages; and individual phone calls by the local integrator contacts inviting local growers. The Contractor was stationed in a "break-out room." Workshop attendees had a number of choices of which break-outs to attend, including the two poultry listening sessions. Unlike the other sessions at the conference, the listening session was intended to collect feedback rather than to provide current extension information. The Contractor facilitated two one-hour sessions, with attendance at the second easily exceeding the first. Those who participated in the listening sessions were provided a very brief summary of the crop insurance development process and encouraged to express their opinions concerning the feasibility of insuring poultry production, a discussion that ran between 20 and 40 minutes.

Listening Session

Fifty-one individuals attended the two sessions, but only 21 provided any demographic information. Of these, there were 18 growers, 1 represented the broiler integrators, 1 was an extension poultry specialist, and 1 was a lender affiliated with the Farm Credit system. At least 7 of the attendees were from Oklahoma, 11 identified themselves as being from Arkansas, with the balance not indicating their state of residence. The attendees were all involved in either the broiler sector or the layer sector, with two individuals specifying they were involved in production of pullets, which most likely meant raising birds for the layer growers. The Contractor understood most of the individuals who did not provide demographic information were broiler producers from Arkansas. Please see the description of this listening session under the broiler sector stakeholder input documentation. A brief discussion of zoonotic diseases (e.g., AI) and the risk introduced by bio-security issues (including elements of institutional risk discussed later) were the two issues discussed that impacted the layer sector.

Urbandale, Iowa

The session in Urbandale, a suburb of Des Moines, was scheduled as a result of a contact provided by Dr. Darrell Trampel, extension poultry veterinarian and professor at Iowa State University. Iowa is the leading egg producing state in the United States, accounting for roughly one in five eggs produced domestically. The Contractor's presence in Urbandale was advertised in conjunction with the annual meeting of the Iowa Poultry Association. Those who participated in the listening session were provided a very brief summary of the crop insurance development process and encouraged to express their opinions concerning the feasibility of insuring poultry production.

Listening Session

The Contractor conducted a listening session in a meeting room at the offices of the Iowa Poultry Association in Urbandale, Iowa at 9:30 am CDT on May 18, 2010. Six individuals (five operators and one producer group representative) attended the session. Five attendees were from Iowa and one was from Minnesota. The attendees were primarily involved in the layer sector

and therefore their comments were tied closely to the specific issues and concerns faced by this sector.

Following the overview of crop insurance and the discussion of initial findings of the research project, there was an extensive discussion of the perils that were of greatest concern to stakeholders.

Egg production is unlike the other poultry sectors. In the layer sector in the upper Midwest, most laying operations are entirely self-contained. The grower is a vertically-integrated producer in the more traditional sense, controlling the genetics, the rations, the maintenance and welfare of the birds, and the cleaning, sorting, packaging, storing, and sometimes marketing of the eggs. As a result, the risk considerations involving grower revenue pools, the integrator to grower relationship, and many other factors are irrelevant. This structural factor provides important insight into the risk perception of egg operators.

Egg operators noted their biggest concerns, from a risk management perspective, are tied to catastrophic diseases (as a result of some sort of bio-security breakdown or bio-terrorism event), liability as a result of a food-borne disease or recall, and market forces for the sale of their production. The operators noted most egg operations are already actively involved in the hedging of key feed ingredients (primarily corn) and sometimes even forward contract for planned consumption of electricity and/or heating. The sheer large scale of egg operators allows self-insurance for most production issues. Due to the proprietary nature of much of the information relevant to risk and the structure of the industry, participants were very reluctant to elaborate on their concerns in the meeting setting.[109]

V.D. Pricing

The only federally funded, nationally coordinated collection and publication of county- and farm-level egg production data is the NASS Census of Agriculture. NASS does not include the number of egg producers or county-level statistics in its annual surveys. However, NASS publishes Monthly Chickens and Eggs Reports. The Chickens and Eggs Reports include information on the current supplies of eggs and on future supplies based on the size of the laying flock, number of replacement pullets, and placements in breeding flocks. In December, a full survey targets all flocks in the United States. Many state Agriculture Statistics Service offices report prices received by farmers for eggs. These are translated by NASS into prices received by farmers by state. ERS gathers information regarding egg production and prices through a variety of survey instruments.

It is important to note farm-level egg prices and values reported by various agencies, including NASS, include actual, calculated, and estimated values. The prices contract growers receive are primarily payments for capital and labor services rendered. Since the contracts vary by region, and by grower, the prices may include the costs of other inputs as well. The value integrator farms receive for the eggs are extrapolated from their overall income associated with production

[109] In a brief follow up meeting, Iowa Poultry Association CEO Kevin Vinchattle noted he was surprised growers had been willing to visit at all. He offered to provide follow up questions related to risk issues to his full membership and at the time of this report was collecting information. This information will be provided in the final draft of this report if Iowa Poultry Association shares them with the Contractor.

and processing. The USDA ERS Poultry Yearbooks include national price data through 2004. The USDA ERS Livestock, Dairy, and Poultry Outlook reports include more recent data for relative egg prices. The USDA AMS publishes weekly Egg Demand Indicator reports. There is seasonality in egg prices, with operator costs sometimes exceeding income during summer months. The seasonal pattern in prices results from the interaction between the seasonal supply and demand for eggs and egg products.

In 1995 and 2001, the nominal price for table eggs was $0.52 per dozen and $0.47 per dozen, respectively.[110] The ERS Poultry Yearbook reported prices of $0.63 per dozen in 1995 and $0.62 per dozen those same years and 2004 prices of $0.71 per dozen (Table 18). USDA ERS reported average 2004 and 2008 first receiver egg prices of $0.74 and $1.21, respectively (Table 19)

[110] USDA, NASS, 2002, Prices Received by Farmers: Historic Prices and Indexes 1908–2001.

Table 18 Poultry Yearbook Egg Prices 1955 to 2004

Year	Price per dozen ($/100)	Year	Price per dozen ($/100)
1955	39.5	1980	56.3
1956	39.3	1981	63.1
1957	35.9	1982	59.5
1958	38.5	1983	61.1
1959	31.4	1984	72.3
1960	36.1	1985	57.2
1961	35.6	1986	61.5
1962	33.8	1987	54.7
1963	34.5	1988	52.8
1964	33.8	1989	68.9
1965	33.7	1990	70.8
1966	39.1	1991	67.6
1967	31.3	1992	57.6
1968	34.0	1993	63.4
1969	40.0	1994	61.5
1970	39.1	1995	62.5
1971	31.4	1996	75.0
1972	30.9	1997	74.9
1973	52.5	1998	66.8
1974	53.2	1999	62.1
1975	52.4	2000	61.7
1976	58.3	2001	62.2
1977	55.6	2002	58.9
1978	52.2	2003	73.2
1979	58.3	2004	71.4

Source: USDA, ERS, 2006, Poultry Yearbook (89007), http://usda.mannlib.cornell.edu/usda/ers/89007/table0002.xls, accessed April, 2010.

Table 19 ERS Prices Paid Egg Prices 2004 to 2008

Year	Price
2004	0.74
2005	0.59
2006	0.63
2007	1.05
2008	1.21

Source: USDA, ERS, 2009, Prices paid by first receiver for organic and conventional eggs 2004-08, http://www.ers.usda.gov/data/organicprices/data/EggsFirstReceiver2004-08.xls, accessed May, 2010.

Many wholesale egg sales are priced based on contracts tied to the Urner Barry Price-Current. A range of price data, regionally, by grade, use, and by size (including nest run) are available by

subscription. While none of these sources reflect farm-gate prices, the datasets have been constructed using consistent processes and algorithms. While historical data is available, the Contractor was unable to determine the length and cost of any long-term egg price series.

There are no egg futures contracts traded on organized exchanges. With increased consolidation and vertical integration, the proportion of eggs exchanged on the spot market is decreasing. However, the Egg Clearinghouse (a nationally recognized marketplace for both buyers and sellers of eggs) seems to function reasonably well and continues to have producer confidence as a price discovery mechanism. Regardless of the data source, it is important to remember there are regional price differences, as well as price differences based on the market (shell or breaking) into which the eggs are sold. Furthermore, for many of the largest operations, and consequently for the majority of eggs produced, the first receiver is part of the same integrated enterprise that produced the eggs.

V.E. Risks

Like other agricultural enterprises, layer growers and producers are exposed to production risks such as disease and weather. Producers also face price or market risks for outputs and production inputs. The risks faced by egg producers and growers are similar to those faced by broiler growers, except in many cases the egg producers and growers are also the processors. Furthermore, many egg producers and growers buy their feed on the open market. However, as noted in the stakeholder input section for this sector, these operators are aware of futures markets for feed and energy and hedge some or most of their input price risk.

Production Risk

Contract egg growers and producers face similar risks to those faced by the contract growers in the broiler and turkey sectors. The unique element of the layer sector is the greatly vertically integrated operator (i.e., grower/integrator). Growers and producers may own or control feed milling, grading, breaking and processing facilities, and distribution resources. By owning assets in the value chain, these producers and growers better control cost structures. While becoming vertically integrated has helped layer enterprises manage cost structures, they are now responsible for managing all risks at many levels in the value chain. In addition, this high level of integration results in far less interaction between individual operations, and thus greatly reduces the potential for inadvertent exposure to disease vectors from neighboring operations.

<u>Disease</u>

Although many ailments can impact flock production, two viral disease risks are of particular concern: END and AI. END is dispersed as an aerosol in feces and from the respiratory tract of infected birds. Consequently, the virus is easily spread, contaminating feed, water, footwear, clothing, tools, equipment, and the environment. Most END-infected chickens eventually die. Recommended practices for preventing the spread of END include the following:

- Vaccination
- Isolating the facility;
- Reducing introduction of potential carriers such as birds, people, and vegetation;
- Controlling farm traffic and employee travel; and

- Maintaining sanitation standards for buildings, organic matter, equipment, and vehicles.[111]

At the hatchery, chicks are typically vaccinated against Marek's Disease, while six or more additional vaccinations may be required before or during production (Table 20).

Table 20. Sample Layer Vaccination Schedule

Age in Days	Disease	Method
1	Marek's Disease	Subcutaneous back of neck
9-14	Bronchitis	Drinking water or spray
9-14	Newcastle	Drinking water or spray
14	Inf. Bursal Disease	Drinking water or spray
28	Inf. Bursal Disease	Drinking water or spray
28-34	Bronchitis	Drinking water or spray
28-34	Newcastle	Drinking water or spray
56-62	Laryngotracheitis	Eyedrop
56-62	Fowl Pox	Wing web stab
56-62	AE	Wing web stab
Every 3 months	Newcastle-Bronchitis	Drinking water or spray
112	Laryngotracheitis	Eyedrop
112	Bronchitis	Inject IM
112	Newcastle	Inject IM

Source: University of Pennsylvania School of Veterinary Medicine, 1999, A General Overview of Poultry Science, Typical Vaccination Schedule for (Pullets (Layers), http://cal.vet.upenn.edu/projects/poultry/Syllabus/page16.htm, accessed May, 2010.

Standards for preventing the introduction and/or spread of AI are the same as those recommended for END, except vaccines are not available. Furthermore, more stringent protocols for manure handling are recommended for AI prevention.[112]

Historically, federal indemnification for catastrophic disease has been through APHIS or state sponsored *ad hoc* disaster programs. When infestations result in disaster declarations and quarantine areas, owners of birds may be eligible for payments reflecting the value of birds destroyed. To the extent those values represent the current value of future production, there was indemnification for lost production. However, such payments do not compensate for clean-up costs, costs associated with unplanned depopulation and repopulation, or any part of discounted future production not captured in the declared value of birds destroyed.

[111] Ibid.
[112] Cardona, 2003, p. 4.

Weather

Heat stress is no longer reported as a common weather-related cause of loss in the layer sector. While mortality due to overheating resulted in substantial losses to production, production efficiency losses also occurred, including reduced growth rates, lower egg production, reduced shell quality, and smaller egg size. Producers and growers minimize losses from heat stress by utilizing heat-reducing building features promoting radiant heat management and proper ventilation, providing additional calcium and phosphorus in feed rations, and allowing access to feed during cooler times of the day.

With the exception of major disease outbreaks, egg growers and producers have relatively predictable revenue streams, and are therefore able to leverage the business and hedge risks. Many egg producers have geographically diverse enterprises both within counties and between states.

Power/Equipment Failure

Power failure and equipment failure are not identical. The difference is in the time between a failure and when losses in production are measurable. Given the controlled environment technology of modern facilities in which layers are housed, power failure is a term used to describe a sequence of very specific events. Nearly all systems within the house have redundant back-up systems in place. Consequently, power failure means both that the delivery of commercial power has been interrupted and at least one of the automatically switched standby generating systems has failed. Privately offered loss of income coverage is available that indemnifies the estimated value of the lost production. Available named peril insurance coverage for the value of the hens and to some extent loss of income generally requires two automatically switched, rather than manually activated, back-up generating systems.

Much of the operating equipment has alarms triggered by any malfunction. There is often either a back-up piece of equipment in place or in inventory. The sense of urgency in repair depends on the specific piece of equipment. If the equipment is part of the climate control system, then the event is no different in consequence than power loss. If the equipment is part of the hen watering or feeding systems, then the urgency for repair is reduced, but cannot be delayed for long without some production loss. In terms of severity, an extended power failure would nearly always be catastrophic, resulting in mortality of the entire flock of hens in the affected house(s). Equipment failure is likely to be catastrophic only if the piece of equipment were part of the climate control system and repair or replacement were not possible.

Price or Market Risk

Feed costs amount to as much as two-thirds of the total production cost of eggs. In layer production, a rise in corn and soybean-meal prices can be financially devastating. Egg producers and growers are always "short" grain by definition. Large layer enterprises can manage their feed costs through hedging on the Chicago Board of Trade. Long futures hedges and long call options hedges can help to manage some of the feed cost risks.

Shell egg transactions at all levels are typically priced by formulae using the wholesale-level price quotations published in Urner Barry's Price-Current. Urner Barry reports prices from daily Egg Clearinghouse, Inc. (ECI) trading and pricing information involving farms with more than

one million birds. Producers utilize the Urner Barry pricing indexes and trading volumes to assess and manage price and market risk in both the short and long term.

Market period risk is price and/or quantity change during the marketing process. With industry consolidation, the market period has been shortened and the number of actual transactions has been reduced as most eggs pass from the farm to the processor (both of which are likely elements of the same enterprise). Historically, the volume of all sales into the retail markets is more variable than the volume moving off farms.

Institutional Risk

Animal welfare husbandry standards influence the layer sector more than the broiler or turkey sectors, as most layers are housed in cages. United Egg Producers (UEP) developed husbandry standards in 2002 following efforts begun in 1999 with the formation of an independent scientific advisory committee charged with reviewing all scientific literature on animal well-being for egg-laying hens. UEP then prepared industry guidelines (i.e., "Animal Husbandry Guidelines for U.S. Egg Laying Flocks"). These guidelines are used in a program called "United Egg Producers Certified." Growers who participate in the UEP certification program are inspected annually by independent auditors. California's Proposition 2 has the potential to substantially distort the market as much more stringent animal welfare requirements are imposed in that state but not in others.

Large institutional buyers also negotiate separate animal welfare policies as elements of their purchase contracts. The Federal government issued final rules for the "Egg Safety Action Plan" in 2009.[113] Regulations are political or market outcomes that are clearly not insurable perils even though they commonly require management attention, resource expenditures, and some level of compliance.

[113] FDA, Department of Health and Human Services, 2009, Prevention of *Salmonella enteritidis* in Shell Eggs During Production, Storage, and Transportation; Final Rule, http://edocket.access.gpo.gov/2009/pdf/E9-16119.pdf, accessed May, 2010.

SECTION VI. FEASIBILITY ASSESSMENT

Poultry producers, growers, and integrators face production risks. The causes of many changes in productivity are similar to those affecting field and row crops. However, the variability in production (yield) grown under best management practices appears to be much lower for poultry than for plant crops. The broilers, turkeys, and layers have been carefully bred and selected over time to have a feed conversion efficiency that maximizes "harvestable output." Anecdotal data suggests with poultry that are multi-cropped, there may be more variability from crop to crop. This may reflect input (stock and feed quality) and seasonal weather. However, when production inputs are optimized, the annual productivity is relatively constant. One hypothesis to explain this pattern is that regardless of inputs, seasonal factors will affect output. This hypothesis is supported by substantial literature addressing the effects of light and, to a lesser extent, temperature cycles on egg production.

Due to the unique nature of poultry production, the feasibility analysis of a poultry production insurance product must be addressed not only by the literature on agricultural risk, but also by stakeholders' perceptions about the perils that concern them. Many risks in the poultry industry are managed using non-insurance approaches. The sophisticated and technologically advanced poultry houses manage not only weather related risks, but also maximize throughput (e.g., by control of light cycles), and help with disease control by limiting sources of contamination. Hedging can be used by some participants to manage some input risks.

Nonetheless, in the listening sessions and poultry production literature, growers of broilers express concern about feed quality, disease, weather events, and building/operational environment issues (i.e., sanitation, regulation, ventilation). They are also concerned with domestic and international market outcomes that indirectly affected their revenues because these market forces may cause their integrators to change/reduce the number of flocks maintained in a year. Growers maintaining turkeys are also concerned about disease and weather events, as well as energy costs and withdrawal of integrators from a region. Turkey growers, like broiler growers, are concerned with market outcomes that indirectly affect their revenues through changes in the number of flocks maintained in a year. Producers and growers maintaining layers are concerned about disease, particularly diseases that might be transmitted to humans (zoonotic diseases). They also express concern about bio-security requirements, recalls, and competition. Stakeholders of poultry in general are subject to substantial institutional risks from regulations related to husbandry, quarantine, and sanitation (e.g., disposal of dead birds and litter).

Of these concerns, only uncontrollable disease and unmitigated weather problems are typically considered insurable production perils. Feed quality, ventilation, and sanitation reflect management decisions that are *a priori* uninsurable. Energy costs and market outcomes, while affecting stakeholder's net revenue, are outside the purview of production (yield-based) insurance as it is typically defined and not normally tied to the price X yield basis of federally-subsidized crop insurance. Price coverage, like that offered for other livestock species through the Livestock Risk Protection (LRP) and Livestock Gross Margin (LGM) products, are dependent on the availability of futures markets, or, in the case of sheep/lambs, a price forecasting model based on readily available and relatively transparent data series. These products insure a component of risk (price) to which contract growers are not directly exposed. The focus of this report, as directed by the SOW, is on production insurance rather than price

insurance. However, even if the scope of the study were expanded to include poultry price insurance structured along the lines of LRP and/or LGM, there would be no basis for developing the product as futures markets and/or easily discovered and transparent price data are not available for poultry.

Withdrawal of integrators from a region, though disastrous to growers in the region, is an institutionalized "failure to find a market for the product," and along with competition has never been an insurable cause of loss for production insurance. Finally, recalls; quarantine; and regulations concerning bio-security, husbandry, and sanitation are all institutional or management perils rather than production perils.

To appropriately address insurance feasibility, it is also important to consider the impact of the sector structures on who has an insurable interest in the crop. As noted in the introduction, under the federal crop insurance program, an insurable interest is "the value of the producer's interest in the crop that is at risk from an insurable cause of loss during the insurance period." The nature of the insurable interest of poultry stakeholders varies by sector, within a sector, and by contract terms. In general, contract growers do not own the birds they are raising. The one poultry production contract the Contractor was able to study specifically states: "Compensation herein provided for Grower shall include labor and rent on Grower's houses, equipment, and land for the time necessary to grow chicks until marketed…" "Title of said birds, feed, medication, and supplies…shall at all times be vested in Integrator."[114] As the grower is required to follow the integrator's management decisions concerning stocking, feed, medication, sanitation, heat, ventilation, and Hazard Analysis Critical Control Points Program, virtually none of the management decisions associated with ownership are retained by the grower. That the rental and labor contract payments are tied to the integrator's production success is an unusual feature for the real estate and labor markets, but does not endow the grower with an insurable interest. This conclusion is supported by testimony from the listening sessions.

A different situation exists when the poultry producer also processes the production. In this case, the poultry producer clearly has an insurable interest. However, there is a challenge in establishing harvest yield and the value of the harvested product in order to not provide insurance past the harvest as is required by the Act. NASS reports value of production. While the NASS methodology is statistically sound (Appendix C), the price discovery process is challenged by the level of industry secrecy. Furthermore, the poultry meat sectors and, to a lesser extent, the layer sector have a wide variety of products that can be developed from their harvested production. The down-stream product balance impact processing costs and market factors impact the value of the product. Consequently, the processors are continuously monitoring sales, inventories, and wholesale prices, and adjusting through-put and product to maximize profits.

It is in this environment that NASS must work to deduce the value of harvested poultry and consequently the price. NASS works with AMS data for poultry products. These data are based on wholesale market prices in 12 markets, adjusted to reflect the "composite price" of a whole broiler or turkey or of the balance of breaking and shell eggs. NASS adjusts the AMS data using

[114] Anonymous poultry meat production contract for 2010 production.

a fixed processing charge by sector.[115] Since the adjustment is fixed, it may not adequately address regional and temporal differences in product outputs, processing costs, differences in value for contract and integrator owned production, or differences between integrators within and between markets. While the data provide an appropriate snapshot of changes in value over time, they are not prices actually received "at harvest."

A final challenge in considering the feasibility of poultry insurance is in the nature of the crop. The short production time for turkeys and particularly for broilers allows the growers and producers of these birds to pursue a unique form of serial multi-cropping. In the case of poultry for meat, the same crop is raised multiple times in a year on the same "land" (i.e., the poultry house). In fact, the financial leveraging of the meat poultry operations is based on the almost continuous use of the houses. If the real estate stands empty, there is no rent and consequently no income (nor cash flow) for the growers. While the growers expressed concern with annual income and cash flow, the production crop insurance construct is structured around a "planting" (stocking the house with chicks) and "harvest" (loading the birds on trucks). The number of crops per year and their size and harvest weight per bird, often responsive to market factors, cannot be insured under the traditional production (yield or yield-based revenue) approach. It may be possible to insure some of the risks to broilers and/or turkeys under either an inventory (per head) or dollar plan approach. Developing an adjusted gross revenue approach for the growers, producers, and/or integrators is also possible; although the nature of such a product acceptable to this group would be very differ from the existing AGR and AGR-Lite products. The revenue limits, available coverage levels, and diversity requirements would all need to be substantively modified. Furthermore, none of the stakeholders indicated either of these approaches would be desirable.

Eggs are likewise a unique crop. In this case, the hen is in some ways comparable to the "acreage" of most production insurance. Once a productive age is reached, the crop is harvested regularly and continuously for 10 to 30 months (depending on management practices). The most similar crop in terms of frequency of harvest is the mushroom. As with mushrooms, egg producers are not particularly concerned with variability of harvest from day to day or week to week. Most of that variability results from management practices. The house provides substantial environmental control. Weather is at worst a minor concern. Furthermore, most diseases are manageable. The concern is a catastrophic event (e.g., a house collapse or a highly pathogenic, uncontrollable infection) that shuts down production completely and perhaps indefinitely. Commercial insurance for mortality and loss of income is available. However, catastrophic disease is sometimes excluded from these policies to reduce premiums.

In addition to the issues raised previously, Section 2.4.1 of the SOW requires the Contractor to keep in mind the criteria of feasibility when recommending a possible insurance program. These are addressed sequentially below.

The proposed insurance coverage must conform to RMA's enabling legislation, regulations, and procedures that cannot be changed. The enabling legislation is Title 7, Chapter 36, Subchapter I of the U.S. Code, as amended.[116] Amendment of this code requires an Act of

[115] Bruce Boess, USDA, NASS, Head, Poultry and Specialty Commodities Section, Personal Communication June 3, 2010.
[116] See for example http://www.law.cornell.edu/uscode/7/usc_sup_01_7_10_36_20_I.html.

Congress. The Regulations and Procedures implementing this Act are the responsibility of the FCIC Board of Directors and USDA RMA. Production insurance and production-based revenue insurance requires appropriate documentation of production and production histories. The Act appears to preclude provision of insurance for rent and labor payments to growers under the industry structure involving grower/integrator contracts. Changes in the Act or the contracts would likely be required to assure growers have an insurable interest.

Producers or their agents must be willing to pay the appropriate price for the insurance. Since the study was initiated because of industry concerns, there is *a priori* evidence of some customer interest. As noted in the introduction, the willingness of producers or their agents to pay will be influenced by the coverage available and the costs associated with the insurance offer. It appears there is relatively little interest in broad, multi-peril insurance. Furthermore, named peril insurance products are already available for bird mortality and loss-of-income due to named perils.

The insurance product must be effective, meaningful and reflect the actual risks of the producers. Many perils of concern to growers are uninsurable. The growers perception of the utility of the insurance will be greatly influenced by exclusion of management and business practices (particularly those controlled by the integrators) that affect the grower's cash flow and revenue. Coverage of insurable perils will not protect the insured from financial failure from many of the perils of concern.

The perils affecting production must be identified and categorized as insurable and non-insurable. Measurement of the outcomes of the enterprise must be such that the uninsurable portions of reduction in productivity or production-based revenues can be identified and quantified. Some of the production variability is due to management actions (e.g., feed used, vaccination schedule, light regime, "planting date" (i.e., the date the house is populated)). There are no public data to allow rating or underwriting of this variability. The private data is considered to be highly confidential. Some of the variability in output is intentionally imposed to limit input costs when market prices are low. Management-related variability (whether imposed by an integrator or a grower or poultry producer) would need to be addressed either through a substantial deductible or burdensome and challenging underwriting. Growers and poultry producers have indicated a high deductible is not an insurance construct they would endorse.

Be ratable and operable in an actuarially sound manner. There are no public data to allow rating or underwriting of flock or farm-level yield variability. The private data documenting this pattern is considered to be highly confidential, and serves as the basis for operating decisions in the industry. Despite considerable efforts, the Contractor was unable to collect this supporting data from integrators or producers. The Contractor believes in the current environment there is little chance of collecting sufficient data. A single grower was willing to share settlement sheets from his operation. Some measure of productivity could be extracted from national data on inventories of flocks and eggs. The precision of this extrapolated productivity value would not be at a level normally used in rating crop insurance.

Contain underwriting, rating, pricing, loss measurement, and insurance contract terms and conditions. As noted earlier, operational decisions are made to limit input costs when market prices are low. "Best practices" becomes a relative term focused on the net revenues rather than on gross revenues or yield. While most diseases are controlled and their impact on production manageable, the conditions which substantially impact production from farm to farm or time to time are limited named perils (catastrophic disease and structural or mechanical failure) for which insurance is commercially available. It might be possible to structure a policy for these perils similar to the product available for cultivated clams. Market acceptance would be influenced by price. At least one stakeholder indicated that competition in this market from federal insurance might undermine the existing insurance safety net that addresses broader poultry industry risks (e.g., employee health insurance, equipment coverage, structure insurance, etc.)

There must be an appropriate geographic distribution of production to ensure a sound financial insurance program. The Contractor understands this requirement to apply to the FCIC portfolio, which is distributed throughout the United States. Furthermore, the poultry sectors have wide geographic distribution as demonstrated in the sector descriptions.

There must be enough interest for the risk to be spread over an acceptable pool of insureds. The Contractor understands this requirement also to apply to the FCIC portfolio, which involved more than 1.1 million policies and almost $90 billion of insured liability in 2009. There was no evidence of broad interest among the stakeholders in poultry production insurance.

Customers must not be able to select insurance only when conditions are adverse. The occurrence of potentially insurable perils of greatest concern cannot be predicted by the insured.

Moral hazards must be avoidable or controllable. Avoiding moral hazard would require substantial underwriting constraints. Data for development of this underwriting are limited. Although generic best practices can be identified, the industry has fine tuned the conversion of inputs (feed and energy) into output (meat and eggs). At the present time, the information asymmetries that exist are not likely to change, even as a result of a rigorous development effort.

There can be no chance of beneficial gain. Avoiding the potential for beneficial gain would also require the underwriting constraints described previously. Inasmuch as the information asymmetries that exist are not likely to change, it would be challenging to avoid the chance of beneficial gain.

There must be no unacceptable change in market behavior or unacceptable market distortions in terms of either a change in quantity supplied or shift in the supply curve. The industry is large. Market forces shape almost every operational decision. While this obviously includes the purchase of insurance, it is unlikely the introduction of production insurance would change market behavior noticeably. Other market forces will continue to dominate the behavior of the markets.

SECTION VII. SUMMARY OF FINDINGS

Over the course of seven listening sessions, the Contractor gathered feedback from 119 attending stakeholders. While there were some commonalities in the stakeholder feedback nationwide, most of the feedback was regionally disparate. In the South, much of the grower and poultry producer concern was tied to the potential for integrator default, and variable energy costs. In the North, concerns focused on catastrophic disease and the implementation of federal regulatory programs, increasing the cost of operations. While a substantial majority (approximately 70 percent) of attendees expressed concern related to diseases, there were views by many growers that this risk could be controlled by proper bio-security. A smaller majority (approximately 60 percent) of growers noted increased costs (primarily energy) and longer layout periods were the biggest risk concerns the typical grower faces. Notably, a substantial number of growers (approximately 40 percent) discussed the potential for severe weather (tornado and hurricanes) to destroy houses and facilities, but generally noted that private coverage was already available for these perils.

While AGR/AGR-Lite products may seem an attractive insurance option for poultry producers and growers, some expressed concerns that the requirements for insurance were burdensome. Although smaller layer operations are eligible for the adjusted gross revenue products in some states, many poultry operations are not eligible as a result of their limited crop diversification (for AGR), size, or location. For the smaller operations, limited diversification of production reduces the maximum amounts of insurance and coverage levels available to producers. By RMA standards, poultry growers and producers would be interested primarily in high coverage levels (higher than available under AGR and AGR-Lite) and low premiums. Finally, RMA has made internal determinations income from grow-out operations is not eligible under the adjusted gross revenue programs because of issues related to insurable interest. Many of the growers' concerns seem to emanate from uncertainty regarding their contractual partners, the effects of integrator actions on their annual income, and a general sense of vulnerability because of the nature of the contractual relationships. Marketing vulnerability is not an insurable cause of loss under any federal crop insurance program, and should not be.

From RMA's perspective, there are the fundamental questions regarding a grower's insurable interest, and the non-trivial questions regarding identification, measurement, and tracking of a livestock "crop." Moreover, the proprietary and closely guarded nature of production data makes the prospect for development of meaningful premium rates highly questionable. In light of the many issues identified in this study, including the failure of the poultry industry to meet many of the criteria of feasibility, the Contractor has determined it is not currently feasible to develop production insurance for the livestock industry. Inasmuch as there has been a substantial change (in 2009) in federal policy regarding poultry industry contract secrecy, it is possible sufficient farm-level data to develop such insurance will become available over time. Consequently, the Contractor suggests RMA consider revisiting this issue in 2015.

Appendix A

Grower Contract Transparency

Rules and Regulations

Federal Register
63271
Vol. 74, No. 231
Thursday, December 3, 2009

This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.

The Code of Federal Regulations is sold by the Superintendent of Documents. Prices of new books are listed in the first FEDERAL REGISTER issue of each week.

DEPARTMENT OF AGRICULTURE
Grain Inspection, Packers and Stockyards Administration
9 CFR Part 201
RIN 0580–AA98
Poultry Contracts; Initiation, Performance, and Termination
AGENCY: Grain Inspection, Packers and Stockyards Administration, USDA.
ACTION: Final rule.

SUMMARY: The Department of Agriculture's Grain Inspection, Packers and Stockyards Administration (GIPSA) is amending the regulations issued under the Packers and Stockyards P&S Act, 1921, as amended, (7 U.S.C. 181 et seq.) (P&S Act) regarding the records that live poultry dealers must furnish poultry growers, including requirements for the timing and contents of poultry growing arrangements.

The amendments to the regulations will require that live poultry dealers timely deliver a copy of an offered poultry growing arrangement to growers; include information about any Performance Improvement Plans (PIP) in poultry growing arrangements; include provisions for written termination notices in poultry growing arrangements; and notwithstanding a confidentiality provision, allow growers to discuss the terms of poultry growing arrangements with designated individuals.

DATES: *Effective Date*: January 4, 2010.

FOR FURTHER INFORMATION CONTACT: S. Brett Offutt, Director, Policy and Litigation Division, P&SP, GIPSA, 1400 Independence Ave., SW., Washington, DC 20250, (202) 720–7363, *s.brett.offutt@usda.gov*.

SUPPLEMENTARY INFORMATION: As the Grain Inspection, Packers and Stockyards Administration (GIPSA), one of our functions is the enforcement of the Packers and Stockyards Act of 1921, as amended. Under authority granted to us by the Secretary of Agriculture (Secretary), we are authorized (7 U.S.C. 228) to make those regulations necessary to carry out the provisions of the P&S Act. Section 201.100 of the regulations (9 CFR 201.100) specifies the

terms of the poultry growing arrangement that must be disclosed to poultry growers by poultry companies.

We believe that the failure to disclose certain terms in a poultry growing arrangement constitutes an unfair, discriminatory, or deceptive practice in violation of section 202 (7 U.S.C. 192) of the P&S Act.

It is common knowledge in the industry that because of vertical integration and high concentration, live poultry dealers normally present poultry growers with poultry growing arrangements on a ''take it or leave it'' basis. The poultry growers do not realistically have the option of negotiating more favorable poultry growing arrangement terms with another live poultry dealer because there may be no other live poultry dealers in the poultry grower's immediate geographic area or there may be significant differences in equipment requirements among live poultry dealers. There is considerable asymmetry of information and an imbalance in market power. Growers sometimes do not know or understand the full content of their own poultry growing arrangement with the poultry companies and are constrained by confidentiality clauses from discussing their poultry growing arrangement with business advisers. This final rule ensures that all poultry growers are fully informed and can make sound business decisions prior to entering into a poultry growing arrangement with a live poultry dealer. In addition, growers often have much of their net worth invested in poultry houses, which have limited value for purposes other than raising and caring for poultry. At the same time, live poultry dealers may have a staff of accountants, economists, attorneys and other business advisors whose job is to perform market research and advise the live poultry dealers' management on how poultry growing arrangements with poultry growers should be structured to protect the live poultry dealers' financial interests. Growers who have invested heavily in poultry houses may face the choice of signing a poultry growing arrangements in which disclosure of terms is incomplete and/ or not provided in a timely fashion or facing financial difficulties, including possibly exiting the poultry growing business or going bankrupt. In some cases, live poultry dealers already provide complete information in a timely fashion. This final rule, however, will level the playing field by requiring that all live poultry dealers adopt fair and transparent practices when dealing with poultry growers.

The failure of a live poultry dealer to deliver a written poultry growing arrangement in a timely manner is considered by GIPSA to be an unfair and deceptive practice because growers could not otherwise know what the poultry growing arrangement terms will be or whether the terms accurately reflect the agreement reached between the parties. This practice could also be considered discriminatory if some growers receive written poultry growing arrangements in a timely fashion and others do not. A live poultry dealer's failure to include written notice of termination procedures in the poultry growing arrangement and failure to provide a written notice of termination is also considered unfair, discriminatory and deceptive for the same reasons.

A live poultry dealer's failure to include information about Performance Improvement Plans (PIPs) is similarly unfair and discriminatory if some growers receive this information and others do not, and deceptive if growers are unaware that such a program exists until they fail to meet a minimum performance threshold that was not specified in their poultry growing arrangement.

GIPSA considers prohibiting growers from discussing poultry growing arrangement terms with business advisers unfair because growers are not typically attorneys or accountants. Depriving growers of professional advice before they commit to a poultry growing arrangement, particularly when the live poultry dealers have access to such advice in drafting their poultry growing arrangements

Current Poultry Contracting Practices

The market for poultry is vertically integrated and highly concentrated. For example, USDA–GIPSA reported in slaughterers represented 53 percent of the total market share based on volume of production.1 A majority of the nation's 20,637 poultry growers essentially receive poultry growing arrangements on a ''take it or leave it'' basis from a small number of live poultry dealers.2 While this concentration of live poultry dealers represents certain economies of scale, it also represents a potential for asymmetrical information and a lack of transparency that can lead to market inefficiencies.

Live poultry dealers accept much of the short term financial risk. Poultry growers take the longer term financial risk by investing in the poultry houses and equipment. Live poultry dealers often use a tournament or bonus compensation system in which poultry growers compete with each other over a given period of time. Growers, who in the opinion of the live poultry dealer consistently underperform, may be placed on a PIP, have their current poultry growing arrangement terminated, or not be offered a new poultry growing arrangement or have their existing poultry growing arrangement extended.

The current contracting process may involve verbal agreements that are made prior to delivery of a written poultry growing arrangement. The process by which new poultry growers are recruited can be informal word-ofmouth, although some poultry companies solicit new growers via their Web site. Prospective poultry growers must have a line of credit sufficient to finance the construction of poultry houses in order to be a successful applicant. A live poultry dealer typically inspects a prospective grower's property to verify that the grower has sufficient space and suitable soil conditions on which to place the houses, has right of way capable of supporting truck traffic, and has means to dispose of dead birds and bird waste. The discussion between a live poultry dealer and prospective poultry growers to verify these conditions often involves verbal commitments, and therefore growers may not have a comprehensive grasp of all their rights and obligations. Likewise, growers with existing poultry growing arrangements may make similar verbal commitments for poultry house improvements to the live poultry dealer. Currently, a poultry grower may receive specifications for the poultry houses from a live poultry dealer and use those specifications to obtain a construction loan from a lender prior to receiving a written poultry growing arrangement from the poultry company. While most new growers typically receive written poultry growing arrangements at about the same time they receive the specifications for the poultry houses, some live poultry dealers do not provide growers with written poultry growing arrangements until after construction of the poultry houses has already started.

The regulations issued under the P&S Act currently protect poultry growers by requiring that the poultry growing arrangement include, for example, the per unit charges for feed and other inputs

furnished by each party, the duration of the poultry growing arrangement and conditions for its termination, and the factors to be used when grouping or ranking poultry growers.

The requirements contained in this final rule are intended to help both poultry growers and live poultry dealers by providing the growers with more information about the poultry growing arrangement at an earlier stage. This final rule will ''level the playing field'' by requiring live poultry dealers to include these provisions in all poultry growing arrangements. Growers will have more information upon which to decide whether to accept the terms of the poultry growing arrangement. Growers will benefit from a freer flow of information and better pricing efficiencies because they are able to discuss the terms of their poultry growing arrangement with business and financial professionals before committing to building or upgrading poultry houses. With these requirements, poultry growers will be informed of the criteria used to place them on a PIP. Live poultry dealers will benefit from having growers who better understand the obligations of their poultry growing arrangement and benefit further by having more specific contract language to resolve performance issues and the termination of their poultry growing arrangements.

Notice of Proposed Rulemaking

GIPSA published a Notice of Proposed Rulemaking in the Federal Register on August 1, 2007, (72 FR 41952) seeking comments on amending the regulations issued under the P&S Act to require that poultry companies timely deliver a copy of an offered poultry growing arrangement to growers; to include information about any PIPs in poultry growing arrangements; to include provisions for written termination notices in poultry growing arrangements; and notwithstanding a confidentiality provision, allow growers to discuss the terms of poultry growing arrangements with designated individuals. The comment period ended on October 30, 2007, and we received 449 comments on the proposed rule. Based on these comments, GIPSA will modify three of the four amendments proposed.

Discussion of Comments

We received 237 postcards containing identical comments from poultry growers. While all of these commenters supported adoption of the four amendments in the proposed rule, six commenters added wording of their own in the margins of the postcards. Three of the six written comments referenced housing specification requirements and two commenters suggested that we extend the duration of poultry growing arrangements for longer periods than typically stated in existing poultry growing arrangements. Because these issues are not raised in the four amendments in our proposal, we are making no change to the final rule based on these five comments.

We received 92 letters containing identically worded comments from individuals identifying themselves as ''taxpayer(s).'' All comments were in support of the proposed rule, and made no suggestions for modifying the proposal.

We received 82 identical comments advocating:

- Expanding the phrase ''business advisor'' as used in the proposed rule, to include appraisers, realtors or other growers for the same company,

- Adding a provision prohibiting live poultry dealers from adding riders to poultry growing arrangements or otherwise changing the terms of poultry growing arrangements after the grower ''sees the first [poultry growing arrangement],''
- Prohibiting the placing of growers on PIPs for factors beyond their control,
- Requiring poultry growing arrangements to include information regarding the financial consequences of placement on PIPs, and
- Requiring that live poultry dealers give poultry growers at least 180 days written notice of termination. We received 38 additional comments from individuals and trade associations which varied in their response to our proposed amendments. These 120 additional comments are discussed below.

As stated above, commenters advocated expanding the phrase ''business advisor'' as used in proposed § 201.100(b) to include appraisers, realtors, or other growers for the same live poultry dealer. We are not in favor of adding appraisers and realtors to the list of those with whom growers may discuss their poultry growing arrangements. We believe that appraisers and realtors should not look to a current grower's poultry growing arrangement for guidance on property values.

We see no benefit for a live poultry dealer to forbid its growers from discussing the terms of their poultry growing arrangements with each other. To do so would impede the growers' ability to determine whether they have been treated unfairly or discriminated against in violation of the P&S Act. We will therefore include poultry growers who have entered into poultry growing arrangements with the same live poultry dealer in the final rule based on the comment received.

One commenter suggested that we add family members, banks and anyone on a need-to-know basis to the list of ''business advisors'' in proposed § 201.100(b). Another suggested that we allow growers to discuss their contracts with attorneys and farmer organizations. Section 10503 of the Farm Security and Investment Act of 2002 (7 U.S.C. 229b) clearly sets forth that a party to the poultry growing arrangement shall not be prohibited from discussing any terms or details of the poultry growing arrangement with: (1) A Federal or State agency; (2) a legal advisor to the party; (3) a lender to the party; (4) an accountant hired by the party; (5) an executive or manager of the party; (6) a landlord of the party; or (7) a member of the immediate family of the party. We believe that, with the exception of farmer organizations and poultry growers who have entered into poultry growing arrangements with the same live poultry dealer, the groups enumerated in the proposed regulation encompass those named by the commenters. While we are not including farmer organizations in the final rule, we are adding poultry growers who have entered into poultry growing arrangements with the same live poultry dealer. The remaining individuals and groups named in the regulation reflect those named in the statute. We consider ''Immediate family'' to means an individual's father, mother, stepfather, stepmother, brother, sister, stepbrother, stepsister, son, daughter, stepson, stepdaughter, grandparent, grandson, granddaughter, father-in-law, mother-in-law, brother-in-law, sister-in-law, son-in-law, daughter-in-law, the spouse of the foregoing, and the individual's spouse in accordance with the definition under the Federal crop insurance program, administered by USDA's Farm Service Agency.

Commenters suggested that we add a provision to proposed § 201.100(a) to prohibit live poultry dealers from adding riders to poultry growing arrangements or otherwise changing the terms of

poultry growing arrangements after the grower ''sees the first one.'' We believe that the switching of poultry growing arrangements after the grower ''sees the first one'' is not a common problem in the poultry industry. The final rule, however, will require that live poultry dealers give growers a ''true written copy'' of the offered poultry growing arrangement. Some poultry growing arrangements are flock-to-flock agreements. A true written copy of a poultry growing arrangement must cover the production of at least one flock. If a live poultry dealer makes changes to the original poultry growing arrangement, or substitutes a new poultry growing arrangement for the ''true written copy'' that was provided at the same time as the house specifications, but prior to picking up a new grower's first flock, there is a basis for questioning whether the original poultry growing arrangement is the ''true written copy'' of the parties' agreement. Based on the above analysis of these comments, we believe that no change to the final rule is necessary.

A comment received from a poultry grower organization requested that we require a live poultry dealer to disclose fully the existence (or the lack thereof) of the company's PIP program in its poultry growing arrangements. A comment filed by another suggested that all original poultry growing arrangements disclose fully a live poultry dealer's PIP information. The commenter stated that a live poultry dealer should not be able to add riders containing PIP clauses to existing poultry growing arrangements. We have reviewed our proposal and agree with the comments. We will therefore modify § 201.100(c) in the final rule to require that a live poultry dealer specifically disclose in all future poultry growing arrangements whether it has a PIP program in existence and the guidelines for the program.

Commenters advocated prohibiting live poultry dealers from placing growers on PIPs for factors beyond their control. We acknowledge that all growers run the risk of having a flock perform poorly for reasons they may not control. We have found that placement on a PIP, however, generally does not occur unless a grower performs poorly over an extended period of time. If a poultry grower believes a live poultry dealer systematically has manipulated inputs to the grower's disadvantage, GIPSA can investigate the grower's complaint. However, prohibiting live poultry dealers from placing growers on PIPs because of factors beyond the control of growers is vague and could result in both growers and live poultry dealers being uncertain of when PIPs are justified, and are so subjective that GIPSA might be asked to investigate every PIP placement made. Moreover, it is impractical for us to attempt to list every possible factor not under the control of growers that could negatively affect performance. We are therefore making no change to § 201.100(c) in the final rule based on these comments.

Comments received recommended that we require that live poultry dealers state in their poultry growing arrangements the financial impact poultry growers would face if placed on a PIP. We have found that live poultry dealers often place smaller flocks on the farms of poultry growers on PIPs. This may allow these growers to manage a flock more easily and efficiently. Poultry growers on PIPs may experience other adjustments to normal practices intended to help them prepare fully for raising and caring for poultry. These changes, while helping to improve performance, may reduce payouts to PIP growers. We believe that poultry growers need to know what changes to normal practices will occur when placed on a PIP so they may better judge how placement on a PIP will affect them.

One association commented that advanced notice of termination would be especially problematic and impractical to implement for growers on PIPs. In most cases, they said, the decision to terminate a grower could not be made until the last flock had been picked up, processed and the results analyzed. This rule would allow the live poultry dealer to follow through on the PIP, including picking up and processing the flock before making a decision regarding whether the grower met the conditions of the PIP. If the grower did not meet the conditions of the PIP, the live poultry dealer would then provide notice of termination. The notification that the grower did not meet the PIP and the termination notice would be sent at the same time. Allowing a live poultry dealer to provide written termination notices to a grower on a PIP after picking up the last flock would not allow the PIP grower sufficient time to establish business relationships with other live poultry dealers. GIPSA believes poultry growers on PIPs should receive advance written notice of termination in the same manner prescribed for poultry growers not on PIPs. Therefore, GIPSA will make no change to the final rule based on the above comment.

Commenters requested that we modify our proposal to require that poultry growers receive written notice of termination at least 180 days in advance of the date the termination would be effective. The majority of the comments submitted recommended that poultry growers receive a minimum of 180 days written termination notice. Another commenter wrote that he/she typically receives only 10 days notice of termination, but the commenter did not specifically suggest what the minimum number of days should be. The minimum number of days of advance written notice of termination recommended by other commenters ranged from 30 days to 2 years. Lastly, one commenter recommended that we prohibit the termination of poultry growing arrangements for growers with federally guaranteed loans.

Most poultry growing arrangements contain clauses that state that the live poultry dealer will provide written notice of termination to growers. We have found in most cases that these clauses provide a minimum number of days advance notice of termination that a grower will receive under the poultry growing arrangement. The minimum number of days varies from 3 to 30 days prior to picking up the final flock, or prior to the anticipated delivery date for the next flock.

The majority of comments to the notice of proposed rulemaking indicate 30 days advance notice of termination is insufficient to allow poultry grower's time to make other business arrangements. The majority of the commenters recommended that we change the time period for requiring advance written notice of termination from 30 days to 180 days. On review, we agree that 30 days is not sufficient enough time to provide an opportunity for a live poultry dealer or grower to make business adjustments. However, we believe that 180 days is too long and may be a burden on the party that intends to terminate the agreement. In reviewing the concerns raised by the comments that advocated the 180 day period, we believe that 90 days advance written notice of termination should be adequate in order to give the affected parties time to make adjustments in their business operations. This is especially important given the long-term financial risks that an affected party may face. This change will provide the grower with more time to work with the live poultry dealer to improve his/her performance, obtain legal and/or financial advice or guidance, obtain a new contract with a new live poultry dealer, and/or sell his/her poultry growing business. We are therefore changing § 201.100(h) in the final rule based on the comments discussed above to require that written termination notices be provided by one

party to the other at least 90 days prior to the effective date of termination of the poultry growing arrangement.

Many commenters suggested that we expand the requirements for written termination notices to include situations in which a live poultry dealer discontinues an existing poultry growing arrangement, or elects not to renew or replace an expiring poultry growing arrangement. The commenters said that the requirement for written termination notices should encompass all situations where one party ends the poultry growing relationship. In our reviews of agreements, we have found that poultry growing arrangements have a set duration, such as 1-year or flock-to-flock. We believe that our proposed amendment works well in situations where one party chooses to end the poultry growing arrangement before the termination date noted in the arrangement. A live poultry dealer could also end its relationship with a grower by simply allowing a poultry growing arrangement to expire without renewal or offer of replacement. A live poultry dealer may also discontinue the use of an established poultry growing arrangement and offer a different agreement in its place—one that the poultry grower may or may not accept. Requiring written notice of termination in all situations where one party elects to end the poultry growing relationship would ensure that a grower is informed when termination is imminent no matter what manner or reason is used for termination. Under these circumstances, we will modify § 201.100(h) in the final rule to require written notice of termination in instances of a poultry growing arrangement's termination, expiration, non-renewal and non-replacement.

Many commenters recommended that we remove language referencing ''pen and paper'' in proposed § 201.100(h). The commenters believe that the reference to ''pen and paper'' is confusing and that the term ''written'' is sufficient. We agree with the commenters that the phrase could be confusing and will modify the amendment in the final rule to delete the phrase ''pen and paper.''

Commenters also urged GIPSA to require that the delivery of written termination notices be made by certified mail, return receipt requested. The commenters argued that e-mail terminations were not acceptable because verifying that an e-mail was sent and received is difficult.

Our proposal requires that live poultry dealers ''provide'' poultry growers with written termination and does not favor one mode of delivery over another. We believe that any mode of delivery, whether it is by regular mail, certified mail, registered mail, overnight mail, e-mail, facsimile, or personal service is acceptable as long as notice is ''provided.'' Proof that written notice was ''provided'' is the responsibility of the live poultry dealer. GIPSA's past poultry investigations reveal that most live poultry dealers send written termination notices by verified delivery means. We believe that live poultry dealers should not be restricted to a specific mode of delivery of a notice of termination. Therefore, we are making no change to the final rule based on the above comments.

One comment suggested that growers should receive less than 30 days written advance notice of termination. That commenter was concerned that once a live poultry dealer gave notice of the termination of a poultry growing arrangement for cause, the grower would neglect the flocks in its possession. Poultry growing arrangements contain clauses allowing live poultry dealers to enter upon the property of poultry growers in order to raise and care for flocks that the live

poultry dealer believes may not be receiving adequate care. Once written termination notice is provided to the poultry grower, if the live poultry dealer believes the poultry grower is not providing sufficient care, the live poultry dealer can exercise its right to raise and care for the flock. We will therefore not modify § 201.100(h) in the final rule to permit a shorter period for advance notice of termination as suggested.

According to one commenter, growers should have 14 days to accept or reject a new or the renewal of an existing poultry growing arrangement. We believe that a 14-day rejection period is unnecessary provided that the grower receives a true written copy of the offered poultry growing arrangement from the live poultry dealer at the time that the grower receives the poultry house specifications for the offered poultry growing arrangement. This should give the grower sufficient time to read the poultry growing arrangement, consult with advisors, and decide whether to sign the poultry growing arrangement before committing to loans. Therefore, we are making no change to the final rule based on the comment.

The commenter agreed with the proposed rule for timely delivery of poultry growing arrangements to growers presented in the August 1, 2007 notice. The commenter, however, suggested in this same section that we also require that subsequent changes to poultry growing arrangements, whether in oral or written form, be incorporated into a new true written complete copy and presented as a new offer of a poultry growing arrangement, not as a unilateral change to the existing poultry growing arrangement. Because this suggestion is outside the scope of our proposal for the timely delivery of poultry growing arrangements to growers, we are making no change to the final rule based on the comment.

One commenter recommended that we require that live poultry dealers provide growers with a letter of intent or written approval of a grower in addition to the poultry growing arrangement. Another commenter recommended that we also require delivery of letters of intent or written grower approvals at the same time the live poultry dealer provides the poultry house specifications. While a letter of intent is a written record of a live poultry dealer's intention to sign or enter into a poultry growing arrangement with a grower, we believe that the poultry growing arrangement would contain the substantive information that a grower would need in order to decide if he/she will grow poultry for a live poultry dealer. Also, linking the delivery of poultry growing arrangements with receiving a letter of intent would not necessarily guarantee that the prospective grower would receive his/her poultry growing arrangement before committing to a construction loan for poultry houses. We believe that the delivery of a poultry growing arrangement should instead be linked to the receipt of the poultry house specifications so that a grower is assured of his/her contractual relationship with the live poultry dealer prior to financing a construction loan. We are therefore making no changes to § 201.100(c) in the final rule based on these comments.

One comment argued that it is not necessary to require that live poultry dealers deliver poultry growing arrangements at the time written house specifications are delivered. The commenter said that provisions for delivery are normally addressed in poultry growing arrangements between live poultry dealers and growers. Since we have received numerous complaints regarding the slow delivery of poultry growing arrangements, we continue to believe that our proposed

amendment regarding the timing of the delivery of poultry growing arrangements is needed. We are therefore making no change to the final rule based on that comment.

One organization said that we should require that live poultry dealers give growers information about the feed and medications supplied to them. They also wanted growers on PIPs to have the right to reject flocks. One individual argued that live poultry dealers should be required to let growers see the hatchery and mortality records of other growers in their settlement groups so they could judge the fairness of the performance rankings. We are not requiring that live poultry dealers provide information on feed, medications, hatchery origins or mortality rates of poultry growers by other growers. If a poultry grower believes a live poultry dealer has systematically manipulated inputs to the grower's disadvantage, the grower may choose to report their complaint to GIPSA for investigation. Furthermore, these issues go beyond the scope of the subject matter of the proposed rule. We are therefore making no change to the final rule based on this comment.

Finally, the amendments in the proposed rule for ''Written Termination Notice; furnishing, contents'' listed three items that termination notices must contain. In addition, the phrase, ''In the case of termination * * *.'' was inadvertently included in the proposed regulatory text and will be removed from § 201.100(h) in the final rule. The authority citation in the proposed rule has also been revised in the final rule to reference the entire P&S Act (7 U.S.C. 181–229c) as the authorizing statute. The authority citation has been further revised in the final rule to delete references to 7 CFR 2.22 and 2.81, which refer to the delegation of authority of the Secretary of Agriculture to administer the P&S Act to the Under Secretary for Marketing and Regulatory Programs, and to further delegate that authority to the Administrator of GIPSA, respectively. For clarity and consistency with the statutory definition of a poultry growing arrangement, we are also replacing the term ''contract'' with the term ''poultry growing arrangement'' everywhere the word ''contract'' appears throughout the final rule. In addition, proposed new paragraph (h) has been revised in the final rule into (h), (h)(1), (h)(1)(i), (h)(1)(ii), (h)(1)(iii), and (h)(2) in order to make the regulatory text clearer.

Executive Order 12866 and Regulatory Flexibility Act

This final rule has been determined to be significant for the purposes of Executive Order 12866, and therefore, has been reviewed by the Office of Management and Budget.

We have prepared an economic analysis for this final rule. The economic analysis provides a cost benefit analysis, as required by Executive Order 12866. The provision in this final rule addresses the records that live poultry dealers must furnish poultry growers, including the requirements for the timing and contents of poultry growing arrangements. Vertical integration and high concentration in the poultry industry cause considerable asymmetry of information, lack of transparency, and an imbalance in market power. The asymmetry of information at the time of contract negotiation, and the initial fixed investments poultry growers must pay to enter into the poultry growing business, make the typical grower vulnerable to hold-up costs.3 Hold-up costs arise in poultry production because of the relatively high fixed costs incurred by poultry growers for poultry houses that have no value outside of poultry production.4 For example, without full and timely information, the poultry grower may not be able to negotiate compensation rates that effectively cover all costs, including annualized depreciation on its fixed investment. An

incentive exists for the live poultry dealer to compensate the grower at a rate that covers all but a portion of the grower's annualized depreciation cost.5 The poultry grower has no recourse after signing a contract with a live poultry dealer but is responsible for a large investment. The poultry grower cannot likely sell the investment and leave the business because a poultry house has no value outside the poultry business. If the poultry grower chooses to stay in business, however, the grower may learn too late that its earnings will not cover as much of the costs as originally expected.

Poultry growers have few options for negotiating more favorable contract terms among live poultry dealers because of geographic distance or equipment requirements. Growers often have much of their net worth invested in poultry houses, which have limited value for purposes other than raising and caring for poultry. And, without full and timely information, growers sometimes do not know or understand the full content of their own poultry growing arrangements with the live poultry dealers and are constrained by confidentiality clauses from discussing their terms with business advisers. These factors combined lead to market failures that cannot be resolved through private treaty negotiation to achieve an efficient market solution.6 GIPSA believes that § 201.100(b) of this final rule will free poultry growers from these constraints by allowing them to discuss the terms of their poultry growing arrangements with business and financial advisors. By fostering the flow of business and financial information to growers, this final rule will lead to greater pricing efficiencies in the poultry industry.

GIPSA has considered and collected input on potential alternative and believes that no viable alternatives to this final rule exist. This final rule imposes on live poultry dealers primarily office costs (e.g. revising poultry growing arrangements). GIPSA believes that these costs will be significantly less than the benefits that will be achieved from a reduction in general market inefficiencies.

Copies of the analysis are available by contacting the person listed under FOR FURTHER INFORMATION CONTACT or on the Regulations.gov Web site (see ADDRESSES above for instructions for accessing Regulations.gov).

The Small Business Administration (SBA) defines small businesses by its North American Industry Classification System Codes (NAICS).7 The affected entities and size threshold under this final rule are defined by the SBA under NAICS codes, 112320 and 112330, broiler and turkey producers, respectively, if sales are less than $750,000 per year. Live poultry dealers, NAICS code 31165, are considered small businesses if they have fewer than 500 employees.

GIPSA maintains data on live poultry dealers from the annual reports that these firms file with the agency. Currently, there are 140 live poultry dealers (all but 16 are also poultry slaughterers and would be considered poultry integrators) that will be subject to this final rule. According to U.S. Census data on County Business Patterns, there were 64 poultry slaughters firms that had more than 500 employees in 2006. The difference yields approximately 75 poultry slaughters/integrators with fewer than 500 employees and would be considered as small business that will be subject to this final rule.

Another factor, however, which is important in determining the economic effect of the regulations, is the number of poultry growing arrangements held by a live poultry dealer. Poultry growers enter into a poultry growing arrangement with one live poultry dealer, whereas a live poultry dealer may have a number of poultry growing arrangements with many growers. While growers may have sophisticated growing facilities, many are independent family owned businesses that are focused on growing poultry to the specifications outlined in their poultry growing arrangements. Most live poultry dealers, however, are much larger integrated commercial entities that breed, hatch, slaughter and process poultry for the retail market. Given the business size differential between a poultry grower and a live poultry dealer and the regional monopsony power a live poultry dealer may have, the live poultry dealer has much more information to consider when establishing the terms of and entering into a poultry growing arrangement. The live poultry dealer is much more likely to have a staff of financial and business advisors on which to rely. By contrast, the poultry grower operating under an existing poultry growing arrangement may not be allowed to share the terms of the poultry growing arrangement with its advisors.

GIPSA records for 2007 indicated that there were 20,637 poultry growing arrangements of which 13,216, or 64 percent, were held by the largest 6 live poultry dealers, and 95 percent (19,605) were held by the largest 21 live poultry dealers. These 21 live poultry dealers are all in SBA's large business category, whereas the 19,605 poultry growers holding the other side of the poultry growing arrangement are all small businesses by SBA's definitions. The situation in general for the nation's poultry growers operating under poultry growing arrangements is that the growers are almost all small businesses with a poultry growing arrangement held by one of the very large live poultry dealers. To illustrate the magnitude in size differences between the growers and the live poultry dealer, using grower gross sales revenue of $750,000 per year and the average gross sales revenue of three of these very large live poultry dealers, yields a ratio of roughly 1:23,000. We believe that providing poultry growers with the ability to discuss the terms of their poultry growing arrangements with business and financial advisors will enable the growers to make more informed decisions as they negotiate the terms of their poultry growing arrangements with the live poultry dealer. This final rule will help to level the playing field for poultry growers by providing them with access to financial and business information and advice that is accessible to live poultry dealers, and therefore will help to balance market asymmetric inequities. Although the costs and benefits are largely intangible, GIPSA believes that the costs to both poultry growers and live poultry dealers firms will be essentially negligible. This final rule does not impose significant additional requirements on the actions firms must enact; merely the timeliness of those actions. While this final rule requires that poultry growers and live poultry dealers commit in writing to terms and conditions that are already in effect, it does not mandate what those terms and conditions must be. Thus, the only additional cost is simply the cost of producing and transmitting the printed document. GIPSA did not receive any comments from live poultry dealers or others that suggested that there would be any significant costs of implementing the provisions in this final rule.

Collectively, the provisions in this final rule mitigate potential asymmetries of information between poultry growers and live poultry dealers, which lead to better decisions on the terms of compensation and reduce the potential for expressions of anti-competitive market power. The provisions in this final rule achieve this primarily through improved quality and timeliness of

information to poultry growers, and to some extent to live poultry dealers as well. Benefits will accrue to growers from an improved basis for making the decision about whether to enter into a poultry growing arrangement, and from additional time available to plan for any adjustments in instances when the grower is subject to termination of a poultry growing arrangement. GIPSA also believes that live poultry dealers will also benefit from this final rule because all live poultry dealers will be required to provide poultry growers the same information in a full and timely manner. Disclosure of this information between the live poultry dealer and the poultry grower will lead to greater transparency in the poultry industry and promote fairer competition among live poultry dealers. In addition, GIPSA believes that net social welfare will benefit from improved accuracy in the value (pricing) decisions involved in transactions between poultry growers and live poultry dealers as they negotiate poultry growing arrangements.

Based on the discussion in the analysis above, GIPSA therefore has determined that the effect on all small businesses will not have a significant economic impact on a substantial number of small business entities as defined in the Regulatory Flexibility Act
(5 U.S.C. 601 et seq.).

Executive Order 12988
This final rule has been reviewed under Executive Order 12988, Civil Justice Reform. These actions are not intended to have retroactive effect. This final rule will not pre-empt state or local laws, regulations, or policies, unless they present an irreconcilable conflict. There are no administrative procedures that must be exhausted prior to any judicial challenge to the provisions of this final rule.

Paperwork Reduction Act
This final rule does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq*.). It does not involve collection of new or additional information by the federal government.

Government Paperwork Elimination Act Compliance
We are committed to compliance with the Government Paperwork Elimination Act, which requires Government agencies provide the public with the option of submitting information or transacting business electronically to the maximum extent possible.

List of Subjects in 9 CFR Part 201
Contracts, Poultry and poultry products, Trade practices.
For the reasons set forth in the preamble, we amend 9 CFR part 201 to read as follows:
PART 201—REGULATIONS UNDER THE PACKERS AND STOCKYARDS ACT
1. The authority citation for part 201 continues to read as follows:
Authority: 7 U.S.C. 181–229c.

2. Amend § 201.100 to redesignate paragraphs (a), (b), (c), (d), and (e) as (c), (d), (e), (f) and (g); add new paragraphs (a), (b), (c)(3), and (h); remove ‘‘and’’ at the end of newly designated paragraph (c)(1), remove ‘‘.’’ at the end of newly designated paragraph (c)(2)(v), add ‘‘; and’’ at the end of newly designated paragraph (c)(2)(v), and revise the introductory text of newly designated paragraph (c) to read as follows:

§ 201.100 Records to be furnished poultry growers and sellers.

(a) Poultry growing arrangement; timing of disclosure. As a live poultry dealer who offers a poultry growing arrangement to a poultry grower, you must provide the poultry grower with a true written copy of the offered poultry growing arrangement on the date you provide the poultry grower with poultry house specifications.

(b) Right to discuss the terms of poultry growing arrangement offer. As a live poultry dealer, notwithstanding any confidentiality provision in the poultry growing arrangement, you must allow poultry growers to discuss the terms of a poultry growing arrangement offer with:

(1) A Federal or State agency;
(2) The grower's financial advisor or lender;
(3) The grower's legal advisor;
(4) An accounting services representative hired by the grower;
(5) Other growers for the same live poultry dealer; or
(6) A member of the grower's immediate family or a business associate. A business associate is a person not employed by the grower, but with whom the grower has a valid business reason for consulting with when entering into or operating under a poultry growing arrangement.

(c) Contracts; contents. Each live poultry dealer that enters into a poultry growing arrangement with a poultry grower shall furnish the grower with a true written copy of the poultry growing arrangement, which shall clearly specify:

* * * * *

(3) Whether a performance improvement plan exists for that grower, and if so specify any performance improvement plan guidelines, including the following:
(i) The factors considered when placing a poultry grower on a performance improvement plan;
(ii) The guidance and support provided to a poultry grower while on a performance improvement plan; and
(iii)The factors considered to determine if and when a poultry grower is removed from the performance improvement plan and placed back in good standing, or when the poultry growing arrangement will be terminated.

* * * * *

(h) Written termination notice; furnishing, contents.

(1) A live poultry dealer that ends a poultry growing arrangement with a poultry grower due to a termination, non-renewal, or expiration and subsequent non-replacement of a poultry growing arrangement shall provide the poultry grower with a written termination notice at least 90 days prior to the termination of the poultry growing arrangement. Written notice issued to a poultry grower by a live poultry dealer regarding termination shall contain the following:
(i) The reason(s) for termination;
(ii) When the termination is effective; and
(iii)Appeal rights, if any, that a poultry grower may have with the live poultry dealer.

(2) A live poultry dealer's poultry growing arrangement with a poultry grower shall also provide the poultry grower with the opportunity to terminate its poultry growing arrangement in writing at least 90 days prior to the termination of the poultry growing arrangement.

J. Dudley Butler,
Administrator, Grain Inspection, Packers and Stockyards Administration.
[FR Doc. E9–28947 Filed 12–2–09; 8:45 am]

Appendix B

Listening Session Agenda

Agenda
Feasibility Research Report for Insuring Commercial Poultry Production

- Introduction and Purpose
- Research Overview
  - Understanding Insurance
  - USDA and RMA's Role in Crop Insurance
  - Available Federal Insurance Programs
- Sector Insurance Feasibility and Risk Profile
  - Production Perils
  - Market Perils
  - Revenue Variability/Risk Tolerance
  - Producer Contracts
- Questions and Open Discussion

Appendix C

NASS Poultry Methodology

Reliability of Poultry Production and Value Estimates[117]

Survey Procedures: These estimates were based on inventory, disposition, production, and price estimates as published in various NASS poultry and agricultural prices reports, as well as information on imports, exports, and slaughter obtained from other sources. Individual NASS field offices maintain a list of all known poultry operations and use known sources to update their lists. Data are collected from all known broiler hatcheries and turkey grow-out operations. Also, data are collected from layer and egg contractors and independent producers who have at least 30,000 table egg layers, flocks of hatchery supply layers, or pullet only operations with at least 500 pullets. In every situation, operations are contacted as close to the reference date as possible and given adequate time to respond via mail, fax, or electronic data reporting (EDR). Those that do not respond are contacted by phone. Care is exercised to ensure that all operations of interest are accounted for in the estimates.

Estimation Procedures: Sound statistical methodology is employed to derive the estimates from reported data. All data are analyzed for unusual values. Data from each operation are compared to their own past operating profile and to trends from similar operations. Data for missing operations are estimated based on similar operations or historical data. NASS field offices prepare these estimates by using a combination of survey indications and historic trends. Individual State estimates are reviewed by the Agricultural Statistics Board for reasonableness.

Revision Policy: Revisions to previous estimates are made to improve estimates and are generally the result of late or corrected data. For all species, previous year estimates are subject to revision when the current year estimates are made. Five years of estimates are also reviewed after the Census of Agriculture data are available. Estimates are considered final after Census review and no revisions are made after the final estimates are published.

Reliability: Estimates in this report have no sampling error since they are based on a census of all known contractors and independent producers who have at least 30,000 table egg layers, flocks of hatchery supply layers, pullet only operations with at least 500 pullets, all known broiler hatcheries, and all known turkey grow-out operations. However, estimates are subject to errors such as omission, duplication, and mistakes in reporting, recording, and processing the data. While these errors cannot be measured directly, they are minimized through strict quality controls in the data collection process and a careful review of all reported data for consistency and reasonableness.

[117] USDA, NASS, 2009, Poultry - Production and Value 2008 Summary, http://usda.mannlib.cornell.edu/usda/nass/PoulProdVa//2000s/2009/PoulProdVa-05-29-2009.pdf, accessed May, 2010.