Live Chicken Production Trends

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Introduction

This study presents the results of a 2015 broiler industry survey designed to capture key live chicken production statistics. The survey was designed by FarmEcon LLC and conducted by the National Chicken Council (NCC). Conclusions drawn are those of FarmEcon LLC. Statistics collected from the 20 responding companies included:

1. Number of live chicken production farmers;
2. Current contract duration;
3. Farmer tenure;
4. Newly granted contract duration;
5. Farmer age;
6. Farmer family experience in live chicken production;
7. Number of persons on waiting lists for entering live chicken production;
8. Existing farmers wishing to expand current operations; and
9. 2014 farmer turnover by major reason for departure.

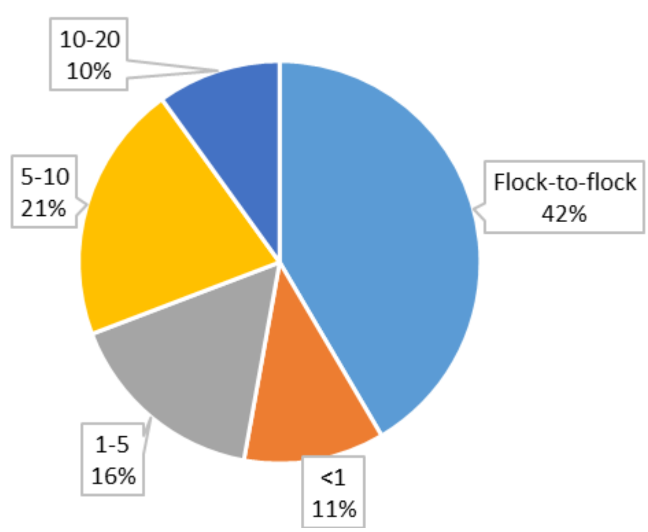
In addition, the study summarizes several key trends in broiler production efficiency and returns. Loan quality data for live chicken producers will be discussed.

Survey Results

The survey was collected during early September, 2015. Twenty companies representing 92% of 2014 top 34 U.S. chicken company production as reported by Watt Publishing responded[1].

1. Companies responding to the survey reported on 11,765 live chicken farmers. The reported farmers held 13,723 production contracts. The high 92% response rate implies that the survey is very representative of all 34 top chicken companies.

2. Companies responding reported current contract duration, in years, as shown below.



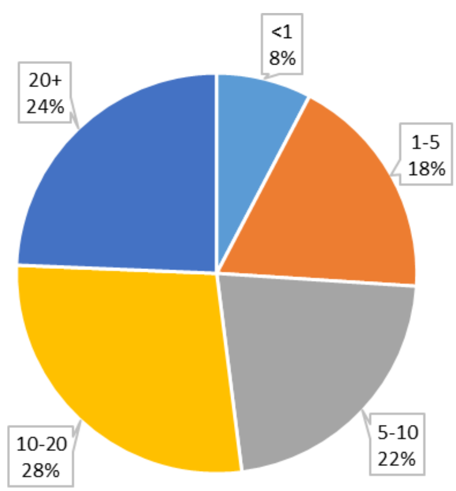
The 42% flock-to-flock percentage is essentially identical to the 41% reported in a 2010 NCC survey done for purposes of a report on proposed GIPSA contracting rules changes[2]. Other contract durations are also similar to those in the 2010 study.

Flock-to-flock contracts have no obligations for either party past the current flock being grown. These contracts have been criticized for not offering farmers long term assurance of live chicken production with their current company. However, long term contracts also can be canceled for poor performance and not meeting contract terms. In reality, a multi-year contract offers little additional assurance over a flock-to-flock contract. Regardless of stated contract duration, both parties need to agree that the arrangement is beneficial if the contract is to continue.

Flock-to-flock contracts also offer flexibility to both the farmer and the company. As will be shown later, over 95% of farmers who did not retire stayed with the same company in 2014. Over 250 farmers moved to different companies in 2014. That would have been more difficult for them under a multi-year contract. Both multi-year and flock-to-flock contracts appear to work for both farmers and their companies.

Companies reported that long term contracts are required, and granted, for new construction. In most cases these contracts run for 10 years or longer as required by lenders.

3. Respondents reported on the length of time that their current farmers have been with their company. Results are shown in the graph below.



More than half the farmers have been with their current company for 10 years or more. Almost three-quarters have been with the same company for 5 years or more.

4. Companies reported on contract duration for newly granted contracts. Responses fell into two broad categories. For contracts granted on newly constructed houses, whether expansion of for a new farm, contracts are granted to satisfy any lender requirements. That was reported to be generally 10 to 15 years. At the other end of the spectrum,

many new contracts were granted on a flock-to-flock basis on existing farms with no lender requirements involved. Several companies also reported new multi-year contracts are granted even without a lender requirement involved.

5. Companies reported on the ages of their current farmers. The results show that the vast majority, 85%, of farmers are 40 years old or older. Only two farmers were reported to be under 20 years old. This age structure together with the length of time farmers have been with a company is seen as implying that live chicken production is dominated by experienced live chicken producer owner-operators.

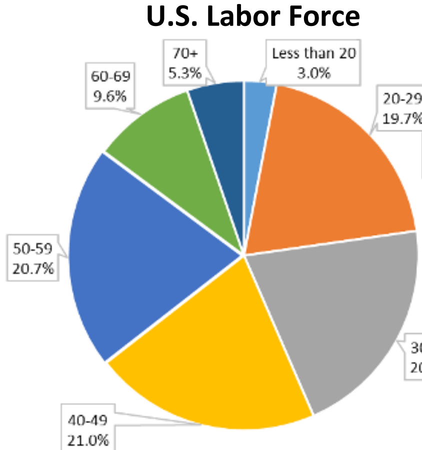
   The live producer age structure implies that these farmers are in the business for the long term. It also implies that current farmers are, for the most part, financially sustainable and stable. The relatively few farmers under the age of 30 implies that entry may be somewhat difficult for that age group.

   In contrast to the overall U.S. labor force[3], but in common with all farm operators, chicken farmers have relatively few participants in the under-30 age cohorts. Except for the oldest cohorts, chicken farmers and all farm operator[4] ages are much more comparable.

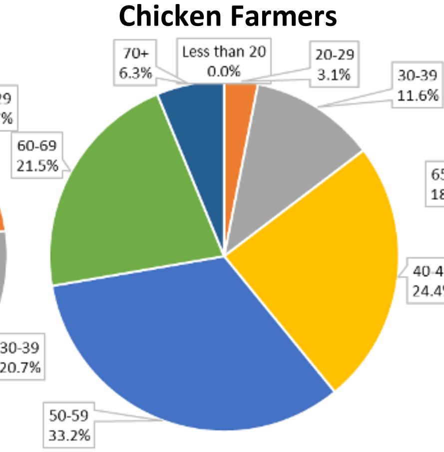
   Ages of chicken farmers indicate that they are generally typical of other farmers, but leave chicken farming at a somewhat earlier age. This can be attributed to factors such as earlier retirement, time demands of chicken raising, or that in general farm operators outside chicken farming may remain part-time farm producers longer into their later years. The relative lack of younger people in farming reflects the difficulty of financing a farm at an early age versus obtaining employment. It is often the case that entry into farming happens as a result of an aging farm operator within the family of the entering farmer.

   Age cohorts for the overall labor force, chicken farmers, and all farm operators are shown in the graphs below.

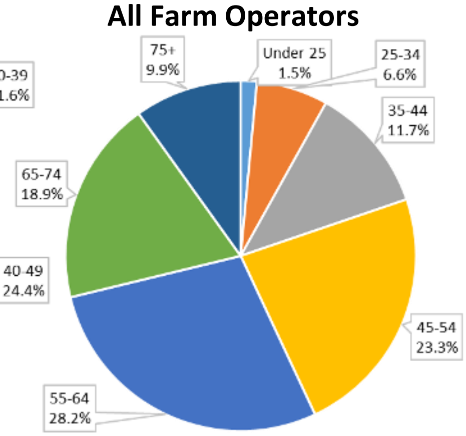
U.S. Labor Force



Chicken Farmers



All Farm Operators



6. Companies reported on current farmer family experience in contract chicken production. Of the current farmers 22% were reported have had a family background in this type of farming.

7. Companies reported that they have 1,858 applications from potential live chicken producers who would like to get into chicken production. Those applications are 16% of the current farmers reported. This statistic is an indication of the attractiveness of this type of farming for those not involved in it today.

   Also reported were 610 open applications from existing farmers for expansion of their existing operations.

   Taken together, these responses indicate active expansion and investment interest on the part of potential and current farmers. Indirectly the interest level shows that a significant number of persons outside and inside live chicken production regard it as an attractive farming option and investment opportunity.

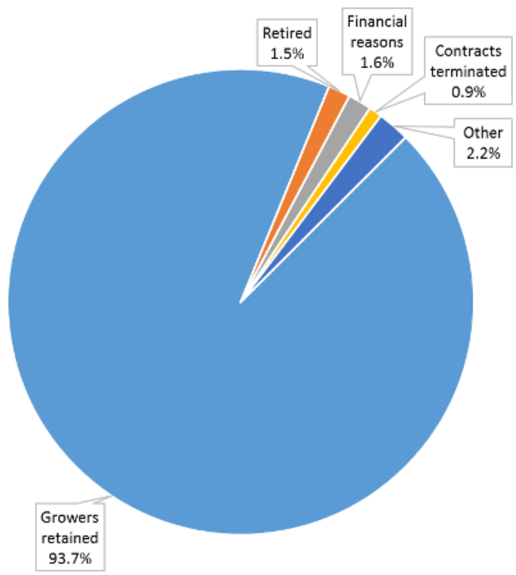
8. Finally, companies reported on reasons for 2014 farmer departures. There are many and varied reasons that farmers might leave a chicken company. These, include among others, retirement, financial distress in the farming operation, declining health, farm catastrophes, to take an offer from another company, and contract termination by a company.

   The last reason for a farmer leaving was contract termination on the part of their company. There are several reasons for a contract termination, but the major ones are poor bird performance and failure to adhere to contract terms.

   Unfortunately, as in any business arrangement, not every partnership works out to the satisfaction of both parties. In the chicken farming business, we see both sides of this fact. Producers can and do leave a company for what they regard as a better opportunity with another company. Companies have the right to terminate a farmer that is not meeting their performance expectations or is not living up to the terms of the contract.

   Put into a perspective of the total number of contract producers and reasons for their leaving a company, contract termination was the least numerous in 2014. Results of the survey are presented in the graph below.

Live Chicken Production Trends



In total, in 2014 6.4% of live chicken farmers left their company. This corresponds closely with the 8% of farmers that were earlier reported to have been with a company for a year or less. The difference is likely due mostly to new producer entry that is not included in the statistics in the data graphed above.

Among all of the 743 farmer departures, 254 were reported to have gone to another company. Some those could have included the relatively few 109 farmers who had contracts terminated. Excluding retirements, 45% of those leaving a company were reported to have gone to a different company. The reported net turnover of 489 farmers for the industry was 4.2% of the total number of farmers.

If the 254 farmers who moved to another company had been under long term contracts they would likely not have been in a position to quit their companies. This flexibility is an advantage to a flock-to-flock arrangement in areas where more than one company produces chicken.

In many cases these 489 facilities themselves remain in production after an individual farmer departed chicken raising. Only if a production facility is so obsolete that it is not financially attractive to keep it in production is it normally abandoned.

Though not directly comparable, employee turnover due to job separations in the overall economy averages 3-4% per month[5]. The 6.4% contract farmer figure is for an entire year, and includes retirements. The major difference between employee turnover and live chicken production is that the chicken farmer has a significant financial investment at risk in the business whereas most employees do not. That farm investment makes chicken farmers, and farmers in general, less mobile than employees.

Live Chicken Production Technical Performance

The table below shows selected average live chicken performance trends since 1925[6].

Year	Average Days to Market	Market Weight, Pounds, Live	ADG, Grams	FCR	Feed/Bird, Pounds	Mortality, Percent
1925	112	2.50	10.12	4.70	11.75	18
1935	98	2.86	13.24	4.40	12.58	14
1940	85	2.89	15.42	4.00	11.56	12
1945	84	3.03	16.36	4.00	12.12	10
1950	70	3.08	19.96	3.00	9.24	8
1955	70	3.07	19.89	3.00	9.21	7
1960	63	3.35	24.12	2.50	8.38	6
1965	63	3.48	25.06	2.40	8.35	6
1970	56	3.62	29.32	2.25	8.15	5
1975	56	3.76	30.46	2.10	7.90	5
1980	53	3.93	33.63	2.05	8.06	5
1985	49	4.19	38.79	2.00	8.38	5
1990	48	4.37	41.30	2.00	8.74	5
1995	47	4.67	45.07	1.95	9.11	5
2000	47	5.03	48.54	1.95	9.81	5
2005	48	5.37	50.75	1.97	10.58	5
2010	47	5.70	55.01	1.95	11.12	4.0
2011	47	5.82	56.17	1.96	11.41	3.9
2012	47	5.95	57.42	1.91	11.36	3.7
2013	47	6.01	58.00	1.88	11.30	3.7
2014	47	6.12	59.06	1.89	11.57	4.3
2015	48	6.24	58.97	1.89	11.79	4.8
%1925-2015	**-57%**	**150%**	**482%**	**-60%**	**0%**	**-73%**

ADG = Average Daily Gain, FCR = Feed Conversion Ratio

Over the entire 1925-2015 span there has been a steady improvement in live chicken performance. In recent years the industry has held average days to market steady and allowed improved ADG performance to be expressed as higher average market weights. The result has been a bird that is 150% heavier than 1925 on about the same amount of feed and in 57% fewer days. This improvement is due to both investments by chicken companies and the financial incentives offered in the contracts between the companies and their farmer partners.

FCR improvement appears to have stalled out in about 1995. This is entirely due to raising birds to ever-heavier weights at a constant 47 average days of age. Note that while days to market stopped declining, average market weights accelerated. All else equal, as chicken weights increase FCR performance tends to decline. Maintaining FCR at increasing average weights over time is actually a significant performance improvement. As will be shown below, increasing average weights at 47 days has also been a significant benefit for chicken farmers.

Death loss declines were rapid until about 1960, but have plateaued at about 4% in recent times.

Live Chicken Production Trends

Farmers have benefited from this improved performance. The investments made in genetics and feeds by their companies have increased the throughput of their facilities, resulting in increased production per square foot of their chicken housing. The following table shows how that increased performance has expressed itself in increased constant dollar farmer payments per square foot of their owned chicken housing[7].

Year	Average Grower Payment, Cents/Lb., Current Dollars	Average Grower Payment, Cents/Lb., $2009	Live Young Chicken Production, Million Pounds	Total Grower Payments, $2009, Million	% Change	Live Pounds Per Sq. Foot	Average Grower Payments, Per Sq. Foot, $2009
1988	3.93	5.87	22,207,749	$1,302,828			
1989	4.01	5.77	23,881,613	$1,377,521	5.7%		
1990	4.08	6.10	25,549,696	$1,559,563	13.2%	33.12	$2.02
1991	4.11	5.95	27,170,780	$1,617,098	3.7%	33.44	$1.99
1992	4.14	5.86	28,997,878	$1,699,672	5.1%	33.77	$1.98
1993	4.22	5.84	30,474,243	$1,778,349	4.6%	34.09	$1.99
1994	4.23	5.73	32,765,941	$1,876,751	5.5%	34.77	$1.99
1995	4.32	5.73	34,352,980	$1,968,417	4.9%	34.93	$2.00
1996	4.30	5.60	36,034,815	$2,018,442	2.5%	34.75	$1.95
1997	4.46	5.71	37,207,401	$2,125,103	5.3%	34.87	$1.99
1998	4.53	5.74	38,054,849	$2,183,929	2.8%	35.26	$2.02
1999	4.68	5.85	40,444,167	$2,364,063	8.2%	36.09	$2.11
2000	4.78	5.84	41,293,525	$2,410,344	2.0%	36.23	$2.11
2001	4.87	5.81	42,335,507	$2,461,631	2.1%	36.03	$2.09
2002	4.81	5.66	43,715,247	$2,472,605	0.4%	34.64	$1.96
2003	4.90	5.65	44,317,531	$2,503,671	1.3%	37.22	$2.10
2004	5.04	5.66	46,109,201	$2,607,670	4.2%	38.56	$2.18
2005	5.24	5.70	47,578,696	$2,710,359	3.9%	39.15	$2.23
2006	5.39	5.68	48,332,516	$2,747,672	1.4%	38.97	$2.22
2007	5.43	5.58	49,089,999	$2,738,429	-0.3%	38.56	$2.15
2008	5.64	5.68	49,780,767	$2,829,764	3.3%	38.84	$2.21
2009	5.62	5.62	47,613,466	$2,675,877	-5.4%	38.19	$2.15
2010	5.67	5.60	49,314,757	$2,762,281	3.2%	38.48	$2.16
2011	5.78	5.59	49,559,126	$2,772,606	0.4%	39.40	$2.20
2012	5.85	5.56	49,350,169	$2,743,761	-1.0%	39.07	$2.17
2013	5.93	5.55	50,357,463	$2,792,535	1.8%	39.12	$2.17
2014	6.19	5.69	51,225,964	$2,917,261	4.5%	39.52	$2.25
2015	6.27	5.71	53,168,160	$3,036,603	4.1%	40.03	$2.29
% Increase	**53.7%**	**-6.4%**	**108.1%**	**94.7%**	**NA**	**20.9%**	**13.1%**

While average current dollar farmer payments per pound of chicken have increased almost over 53% since 1990, corrected for overall inflation, those payments have declined slightly. However, a 20.9% increase in average pounds of chicken production per square foot of farmer-owned housing has more than compensated for the decline in inflation-corrected payments per pound. The result is that inflation-corrected annual farmer payments per housing square foot have increased over 13% since 1990.

The gains reflect both company investments in chicken performance and farmer improvements their housing required to take advantage of that increasing chicken performance capability.

While farmer payments per pound are highly visible to both farmers and their companies, payments per square foot are not. Arguably, payment per square foot is a much better farmer payment and return on investment metric than payment per pound of chicken raised.

Contract farmers and their companies have mutually benefited from the investments that have improved bird performance. Farmers who focus on payment per pound of chicken could be looking at a more meaningful metric that includes both a payment per pound measure and the productivity trend of their housing investment.

Live Chicken Producer Financial Performance

Statistics on live chicken producer returns are not routinely gathered by USDA or any known university farm records systems. In 2011 USDA did conduct a special financial survey that included live chicken farmers. Results of that survey are detailed in an August, 2014 article by USDA economist James MacDonald[8].

The survey showed that farmers who raise broilers under contract generally realize higher average incomes than other farm households and other U.S. households. However, the range of household incomes earned by broiler farmers is also wider than other groups.

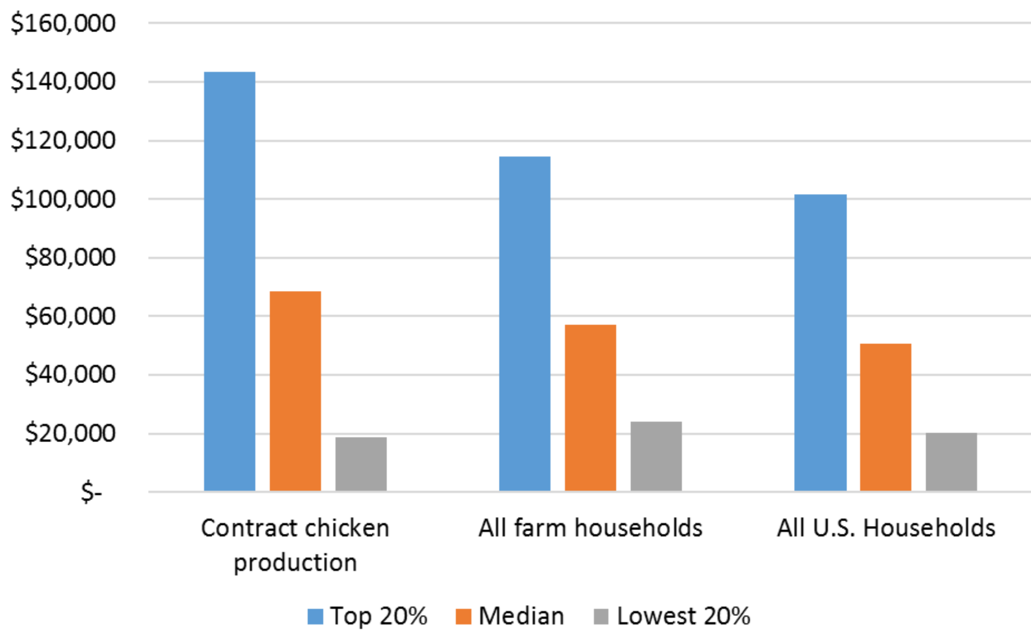
MacDonald compared average incomes using the median, at which half earn less and half earn more. In 2011, the median income among all U.S. households was $50,504, while the median income among farm households was $57,050. The $68,455 median for chicken farmers was significantly higher than both all farm households and all U.S. households. Sixty percent of chicken farmers earned household incomes that exceeded the U.S.-wide median.

In part the higher income spread was due to a wide scale of live chicken production among chicken operations. Larger producers may also be better at raising chickens, and receive higher payments per pound based on their higher-than-average performance. Similar to all businesses, those who are most successful at raising chickens will tend to earn more income than those who are less successful.

MacDonald also points out that the contracting system has substantially reduced some financial risks borne by contract farmers. Feed, medication and baby chick costs are the responsibility of the chicken company. As MacDonald points out, “These risks are not small; feed prices rose or fell by at least 5 percent in 11 of the 60 months between January of 2009 and December of 2013. Poultry companies also bear production risks that commonly affect farmers. For example, if weather or disease affects mortality among all farmers, base payment rates remain the same.”

Comparing the top 20% of live chicken farmer returns to the same statistic for other farm households and all U.S. households shows a significant advantage for top performing contract chicken producers. Median incomes are also higher for chicken farmers, while at the bottom end, the lowest 20% are lower than all farms, but comparable to the U.S. average. Chicken farmer incomes have a wider range than all farms and all households, but this is almost entirely due to the significantly higher level of the top 20% of chicken farmer incomes.

The graph below shows the results for these three income categories.



As this is only one year of data the results need to be viewed with some caution. Farm incomes, especially for farms not selling on contracts, can vary widely from year to year. Still, the results do tell a story about the relative returns of live chicken production. At the top end and on average, well-run chicken farms tend to earn significantly more than both the average U.S. farm and U.S. non-farm household.

Comparative Live Chicken Production Loan Performance

Available agricultural lender statistics also strongly support the USDA survey showing that live chicken production has favorable returns compared to other farming activities.

NCC obtained loan quality data from the Small Business Administration, a significant lender to live chicken producers. The data show significantly lower charge off and deficiency percentages for chicken producers compared to all agricultural loans.

The deficiency rate for live chicken farmers was about one-third the rate for all agricultural loans, and the charge-off rate was less than 30% of the all agricultural loans.

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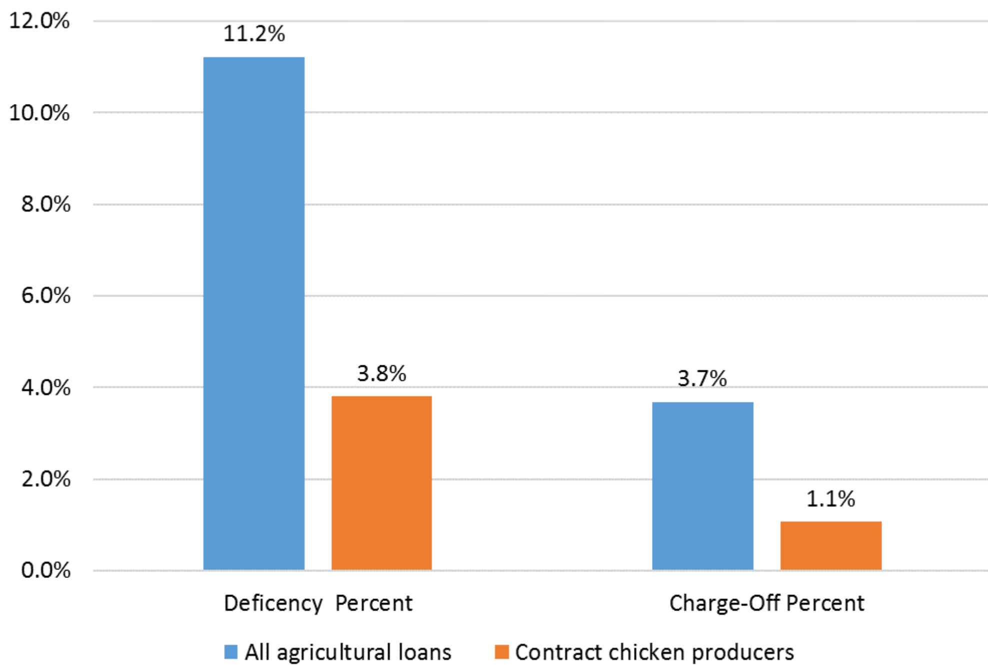
These loan results also support the financial advantages of contract chicken production compared to other types of farming operations. The following graph summarizes an overview of these data[9]. The vastly different chicken farmer loan results are largely due to the lower level of cost and income risks that are the result of the specific contracting arrangements between chicken farmers and their companies.



Summary and Conclusions

Data from the NCC survey and evidence from third party sources all show that live chicken production is broadly and generally being run by a group of effective and experienced farmers. Chicken farmers generally have higher incomes compared to all farms and all U.S. households, and have an age structure that is similar to all farm operators. Compared to the entire U.S. labor force both chicken farmers and all farm operators tend to be older than non-farm employees. This is seen as a result of the substantial financial investment often required to enter farming.

The 2014 turnover rate of chicken farmers was 6.4%, the majority of which was voluntary or due to external factors beyond the control of companies and farmers. Net of retirement, a significant 45% of the 2014 farmer turnover left a company to work for a different company. This mobility would have been more difficult if long term contracts were more prevalent.

Responding companies also reported significant waiting lists for those who would like to enter live chicken production or expand existing operations.

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An analysis of farmer payment data obtained from Agri Stats showed that inflation-corrected farmer payment rates per square foot of farmer owned housing have increased over time. The entire increase is due to improved bird daily weight gain performance that has increased throughput with no significant effect on feed used per bird. Chicken companies who furnish the feeds have benefited from the feed efficiency gains. Farmers who furnish live chicken housing have captured the benefits of increased growth rates.

The current contracting system has helped promote the steady improvements in live chicken performance that have benefited chicken farmers, the companies they produce for, and ultimately consumers. Both farmers and their companies benefit from those performance gains.

A 2011 USDA farm financial survey shows that broiler producers generally have significantly higher incomes than all other farming enterprises and the average U.S. household. The lowest 20% of contract farmer incomes are only slightly less than the similar statistic for all U.S. households, but lower than bottom 20% of all farm operators.

SBA farm loan data show much lower loan deficiency and charge-off rates for live chicken production than all agricultural loans. These data support the findings of the USDA survey.

Agri Stats data show that inflation-corrected farmer income per square foot of chicken housing has benefited financially from increases in chicken growth rate performance. Higher growth rates are primarily the result of breeding investments made by chicken companies and farmer investments in their own operations that help chickens realize their improving genetic potential.

Viewed in totality, live chicken production is a viable, mutually beneficial and attractive farming enterprise for the vast majority of farm families who raise chickens in partnership with the companies they work with.

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[1] Watt Publishing. *Poultry USA*. "2015 Top Poultry Companies." March, 2015. Pp 8-61.

[2] Elam, T.E. *Proposed GIPSA Rules Relating to the Chicken Industry: Economic Impact, Updated*. 4/26/2016.

[3] U.S. Bureau of Labor Statistics. Employment database found at http://www.bls.gov/cps/cpsaat03.htm. Accessed 10-10-2015.

[4] USDA. 2012 Agricultural Census report found at http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_US/st99_1_055_055.pdf. Accessed 10/10/2015.

[5] U.S. Bureau of Labor Statistics. Job Openings and Labor Turnover Survey. Found at http://data.bls.gov/cgi-bin/surveymost. Accessed 10/10/2015.

[6] Source: NCC: http://www.nationalchickencouncil.org/about-the-industry/statistics/u-s-broiler-performance. Accessed 4/21/2016

[7] Sources: Agri Stats bird performance data, obtained October, 2015. GDP deflator, 2009=100, obtained from the U.S. Bureau of Economic Analysis at http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1&acrdn=2#reqid=9&step=3&isuri=1&903=4. Accessed 10/9/2015.

[8] MacDonald, James. "Financial Risks and Incomes in Contract Broiler Production." *Amber Waves*. 8/4/2014.

[9] Source: NCC. Data obtained from Government Loan Solutions, Inc. 9/11/2015