The University of Georgia

Center for Agribusiness and Economic Development

College of Agricultural and Environmental Sciences

The Feasibility of Operating a Cooperative Owned Egg Packaging Facility Around Alma, Georgia

Christopher Ferland, Kent Wolfe, Dan Cunningham and John McKissick

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Purpose

The egg markets of the last few years have provided little or no egg profits. Many producers were able to continue operating due to previously negotiated contract payments. However, due to the current market some of the larger egg packing integrators have began renegotiating or terminating contract with egg producers. A group of producers in the Alma area who were previously contracted their eggs contacted the Center for Agribusiness and Economic Development to perform an economic and market analysis on operating an egg packing facility.

This report examines the relevant economic issues surrounding packing eggs. The egg producers wished to investigate four different scenarios regarding an egg packing facility. Each of the four scenarios has two capacities, one capacity uses 1.3 million birds and the other uses 500,000 birds. The four scenarios are: (1) new packaging equipment and feed mill, (2) new packaging equipment and purchasing feed, (3) used packaging equipment and feed mill, and (4) used packaging equipment and purchasing feed.

The study explored the economics of running a cooperative owned egg-packing unit from the puller stage up until the packing stage. The cooperative will have control of the pullets, layers, and packing facility.

Market Opportunity

The Center for Agribusiness and Economic Development (CAED) contacted Hidden Villa Ranch to learn more about the company and its interest in purchasing Georgia eggs. Michael Sencer indicated that he had been in talks with John Tanner and a few egg producers in the Alma area.

According to Mr. Sencer, Hidden Villa Ranch was proposing an offer to buy and process the eggs locally. Hidden Villa Ranch would then market the eggs. Mr. Sencer indicated he discussed paying the Mid West Urner Barry price for the eggs.

However, Mr. Sencer revealed that a number of egg producers in the area have since contracted with other egg marketers and that the quantity of remaining available eggs was not sufficient to pursue the relationship further. Mr. Sencer suggested that American Products, which is operating a breaking plant in the area, is “desperate” for large eggs. Mr. Sencer suggested that old molted birds could be used to provide American Products with large check eggs (cracked eggs) for their breaking facility.

Financial Analysis

This section will explore the feasibility of operating an egg packing facility in Alma Georgia. Operating cost figures were obtained from the Department of Poultry Science in the College of Veterinary Agricultural and Environmental Sciences at the University of Georgia. Utilizing the information given and information acquired from one of the local producers on the capital cost side a simulation of running the facility was examined from 1993 to 2001. Egg and feed prices are representative of the corresponding years. Four different scenarios with two separate capacities (1.3 million birds and 500,000 birds) were examined for their economic feasibility. The four scenarios are: 1. new equipment and operating a feed mill, 2. new equipment purchasing feed, 3. used equipment and operating a feed mill, and 4. used equipment and purchasing feed.

Income

Utilizing the Urner Berry Southeast egg prices for the past nine years derived the income, see table 1, multiplied by the dozens of eggs produced less five percent. The total numbers of egg produced came from information provided by the Poultry Science Department at the University of Georgia. Since the different scenarios differ by capital cost and operating cost the income figures for each size operation were the same for that given year. The 1.3 million birds layed 29,900,000 eggs annually, yielding 28,405,000 sold due to the 5% shrinkage for breakage or spoilage. The 500,000 birds produced 11,500,000 eggs annually with 10,925,000 available for sale after the shrinkage. The shrinkage should cover any accidents in the packing facility or during transportation to the retail markets. Multiplying the available for sale yield by the price produced the income figure used in the analysis. The income for the different years can be seen in table 2.

Table 1. Southeast Urner Berry Prices.

Year	Jumbos	Xlarge	Large	Mediums	Small	PeeWee
1993	0.7942	0.7842	0.7642	0.6589	0.4585	0.3885
1994	0.7419	0.7319	0.7119	0.6272	0.4577	0.3877
1995	0.7998	0.7898	0.7698	0.668	0.4885	0.4185
1996	0.9527	0.9427	0.9227	0.8101	0.4967	0.4267
1997	0.8849	0.8749	0.8549	0.7163	0.5033	0.4333
1998	0.8353	0.8253	0.8053	0.6241	0.5168	0.4468
1999	0.7207	0.7107	0.6907	0.5471	0.5205	0.4505
2000	0.7896	0.7796	0.7596	0.6377	0.5729	0.5029
2001	0.7487	0.7387	0.7187	0.5761	0.5478	0.4778

Table 1 indicates the prices for the Southeast over the last 9 years are reported by Urner Berry.

Table 2. Income for the 1.3 Million Birds and 500,000 Birds from 1993 to 2001.

Year	1.3 Million Birds	500,000 Birds
1993	$21,780,429	$8,516,409
1994	$20,354,239	$8,427,731
1995	$21,958,034	$8,525,904
1996	$26,206,498	$8,785,155
1997	$24,280,912	$8,670,196
1998	$22,840,736	$8,566,096
1999	$19,707,042	$8,391,785
2000	$21,688,527	$8,508,609
2001	$19,707,042	$8,439,261
9 year avg	$22,058,162	$8,536,794

The income figures in table 2 are a simulation of those corresponding years.

Capital Cost

The capital cost figures include all equipment considered necessary to operate a packing system of 300 cases per hour. Local producers in the area provided these cost. Four different scenarios were examined, each with different capital cost.

New Equipment and New Building Capital Cost

New Plant Equipment		New Building Cost	
Diamond Packer	$1,000,000	Building 40,000 sqft	$360,000
Tray Washer	$20,000	Cold Storage	$225,000
Pallet Jacks	$6,000		
Tape Machine	$20,000		
Fork Lift	$25,000		
Miscellaneous Equipment	$50,000		
Total	$1,21,000		
Sales Tax @ 7%	$78,470		
Equipment Grand Total	$1,199,470	Building Grand Total	$585,000

Adding working enough working capital into the scenario to cover two months expense will produce a range between the high feed year and low feed year for each capacity. The range for the 1.3 million birds is between $3.2 and $3.0 million, producing the total capital cost for the 1.3 million birds to be approximately $5 million and $4.8 million. The range for the 500,000 birds is between $2.6 million and $2.4 million. Producing the total capital cost needed to be between $4.4 and $4.2 million. See appendix page 88.

Used Equipment and Used Building Capital Cost

Used Plant Equipment		Used Building Cost	
Diamond Packer	$250,000	Building	$45,000
Tray Washer	$6,000	Cold Storage	$225,000
Pallet Jacks	$500		
Tape Machine	$3,000		
Fork Lift	$15,000		
Miscellaneous Equipment	$20,000		
Total	$294,500		
Sales Tax @ 7%	$20,615		
Equipment Grand Total	$315,115	Building Grand Total	$270,000

Working capital for the 1.3 million birds varies between $3.1 and $2.9 million dollars depending on feed cost of the corresponding year. Working capital for the 500,000 birds varies between $2.5 and $2.3 also depending on feed cost of the represented year. The total capital cost for the 1.3 million birds to $3.7 million and $3.4 million, and the 500,00 bird scenario ranges from $3.1 to $2.5 million. See appendix page 89.

Feed Mill Capital Cost

The capital cost for running a feed mill operation will be the same for the new equipment with feed mill scenario and used equipment with feed mill scenario. The feed mill capital cost is:

Feed mill Equipment Cost		Building Cost	
Hammer Mill	$50,000	Building	$1,000,000
Overhead & Mixing Tanks	$1,200,000	Storage	$225,000
Truck and Trailers (3)	$420,000		
Total	$1,670,000		
Sales Tax @ 7%	$116,900		
Feed mill Grand Total	$1,786,900	Building Grand Total	1,225,000

The working capital needed to run the feed mill operating for two months including raw feed cost and all other cost ranges between $2.3 to $2.6 million depending on the feed prices for that year. The total capital cost for a feed mill operation totals between $5.3 million and $5.7 million including tax. See appendix page 90.

Direct Cost

The direct cost used in each scenario is composed of the pullet cost, feed cost and medication. There is **no** payments made to the house owners, mortgage or utilizes in this

cost. These cost varied per year depending on the cost of feed. The pullet cost **does** cover all expenses of raising the chicks until ready for the laying house.

The cost of the pullets was calculated using a $.55 chick cost, and then adding the variable cost (feed, beak trimming, medications, labor, etc) and the fixed cost. The pullet fixed cost includes a mortgage payment and interest. The laying hen cost only has the chick cost, feed cost and interest on the pullets included in it. The layer cost does not have any returns to the producers for the use of their house or management ability. See appendix pages 97-98.

Both the pullet and layers vary slightly with the different years due to the yearly fluctuating feed cost. The feed cost used is the Midwestern corn and soybean meal cash price delivered to South Georgia. These prices were taken from the Market Watch report written by faculty in the Extension Department of Agricultural Economics.

Table 3. Midwestern Corn and Soybean meal prices per ton in South, Georgia.

	CORN ($/T)	***SOYBEAN MEAL ($/T)***
1993	$124.27	$210.59
1994	$128.93	$198.57
1995	$140.97	$186.11
1996	$191.17	$260.17
1997	$142.10	$283.00
1998	$122.47	$175.33
1999	$111.57	$156.92
2000	$107.67	$188.58
2001	$110.47	$187.33

The feed cost varies by year and scenario. The scenarios purchasing feed are paying $25 per ton over the raw feed cost per ton. The other scenarios utilizing the feed mill are paying the breakeven price per ton processed. See appendix page 16-87.

Fixed Costs

Fixed costs associated with the egg packing facility include the depreciation on the building, equipment, and interest on investment funds. The projected fixed cost for the new equipment scenario is $527,534 and the used equipment scenario fixed cost is $168,057. The depreciation is used to cover physical deterioration and function obsolescence. Built into this model is a return on investments of 10%. If needed the deprecation can be substituted to cover the principals of a debenture (see Appendix, page 16-87).

Direct Labor

Labor cost calculations include both salaried and hourly labor required to operate the egg packing facility. The labor figures are automatically adjusted with an increase in pounds. This cost came from the SPF Aquaculture Facility at the College of Veterinary Medicine. A salesperson/manager with the ability to communicate with the ethnic markets and create schedules staggering the fish production will be employed at $35,000 annually. Other labor includes bookkeeping and operating personnel. The total labor figure amounted to $93,294 (see Appendix, page 91).

Variable Costs / Other Direct Costs

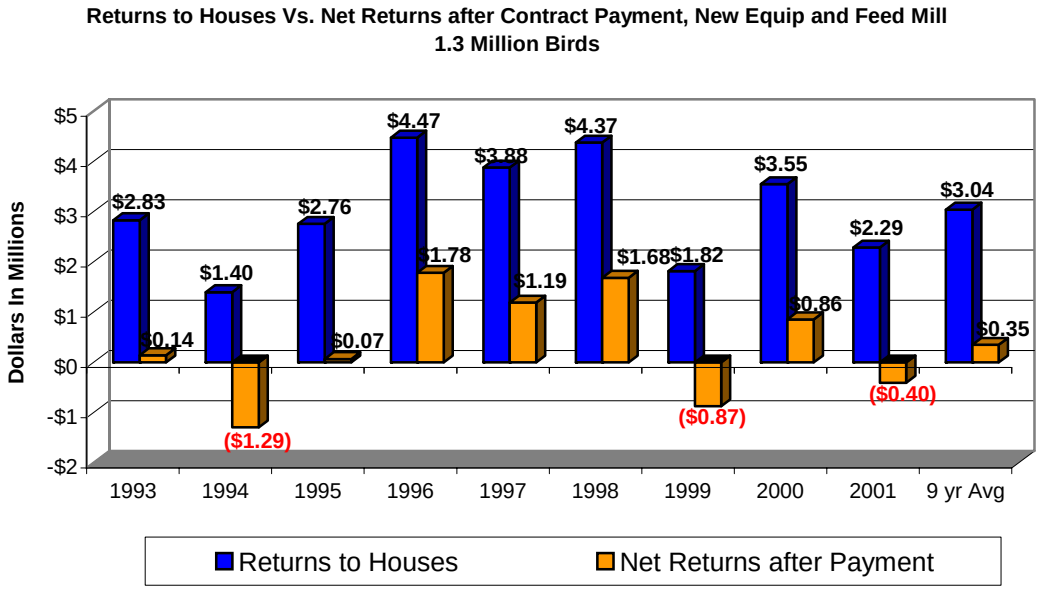
Variable costs associated with this project include labor, utilities, insurance, repairs, rental agreements, disposal, and operations. All of this will change depending on the dozens of eggs packed. Positive relationships exist among the pounds processed and the variable costs. The total for this category for the 1.3 million birds is approximately $6.9 million, varying slightly between years due to the interest on the working capital, which varies by feed price. The approximate total for the 500,000 birds is $3 million, also varying slightly due to the tie between working capital interest and feed cost. The largest components of this cost are the utilities to operate the facilities and operating materials. See appendix pages 16-87

Total Cost & Profit/Loss

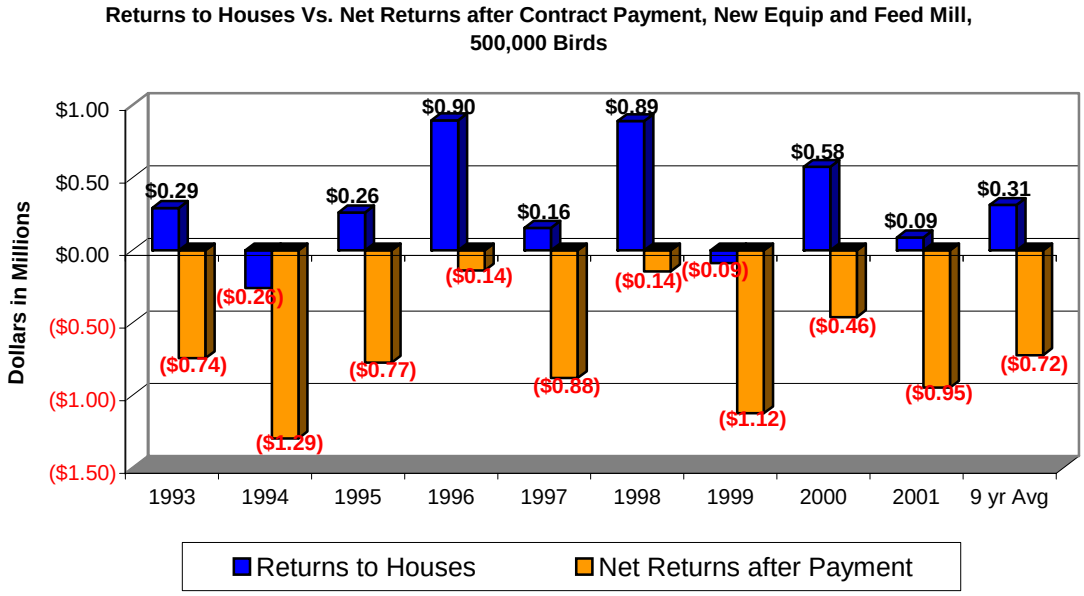
The total cost varied yearly due to feed cost. The range for the larger capacity of 1.3 million birds has a high year of $21 million in total cost and a low year of $17 million. The average is approximately $19 million. The total cost for the 500,000 birds ranged from $8.7 million to $7.2 million with and average of $7.5 million dollars in total cost.

Graphs 1-8 provided the returns to the houses and net returns after a contract payment of $.09 is made to each dozen of eggs produced. This contract payment is to cover the mortgage, utilities, labor and other cost associated to running a layer house. The Poultry Science Department at the University of Georgia provided the typical contract payment per dozen.

Graph 1. Returns to Houses Vs. Net Returns after Contract Payment, New Equip and Feed Mill, 1.3 Million Birds

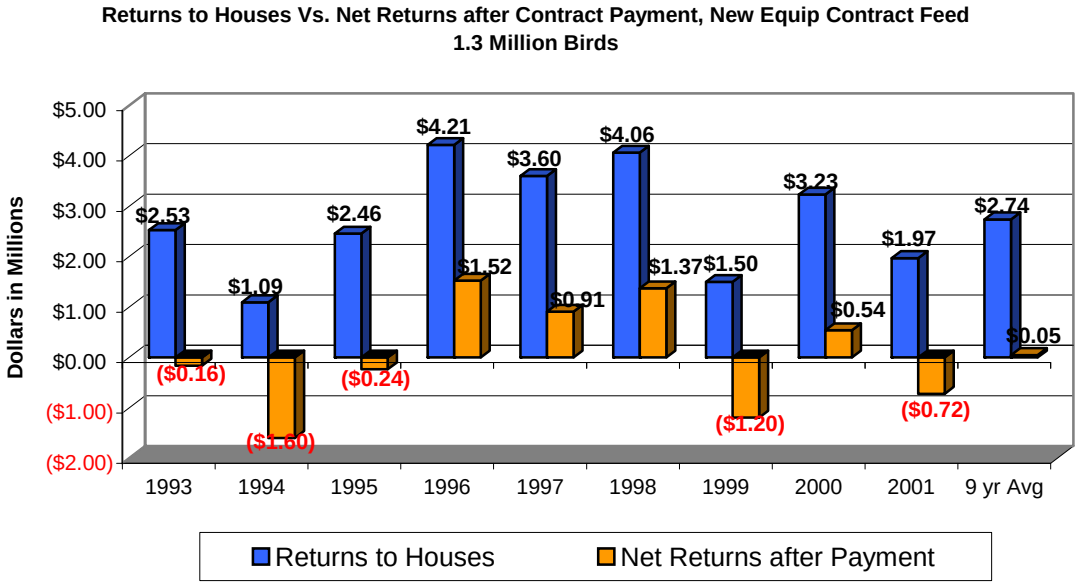


Graph 2. Returns to Houses Vs. Net Returns after Contract Payment, New Equip and Feed Mill, 500,000 Birds

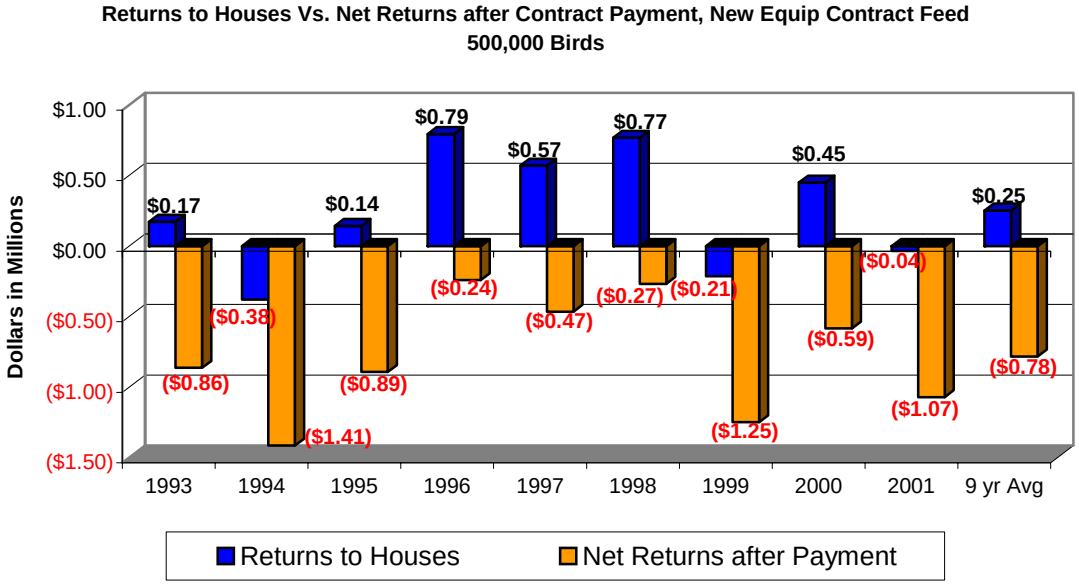


Comparing graph 1 and 2 demonstrates that an economy of scale exist within this egg packing operation using new equipment and operating a feed mill. The 1.3 million birds utilize the equipment at full capacity and take advantage of spreading the cost over more products. The 500,000 birds do not efficiently make use of the equipment. Both scenarios have positive returns, but these returns are not large enough to cover the contract payment of $.09 per dozen the producers need to receive to run their operation.

Graph 3. Returns to Houses Vs. Net Returns after Contract Payment, New Equip and Contract Feed, 1.3 Million Birds

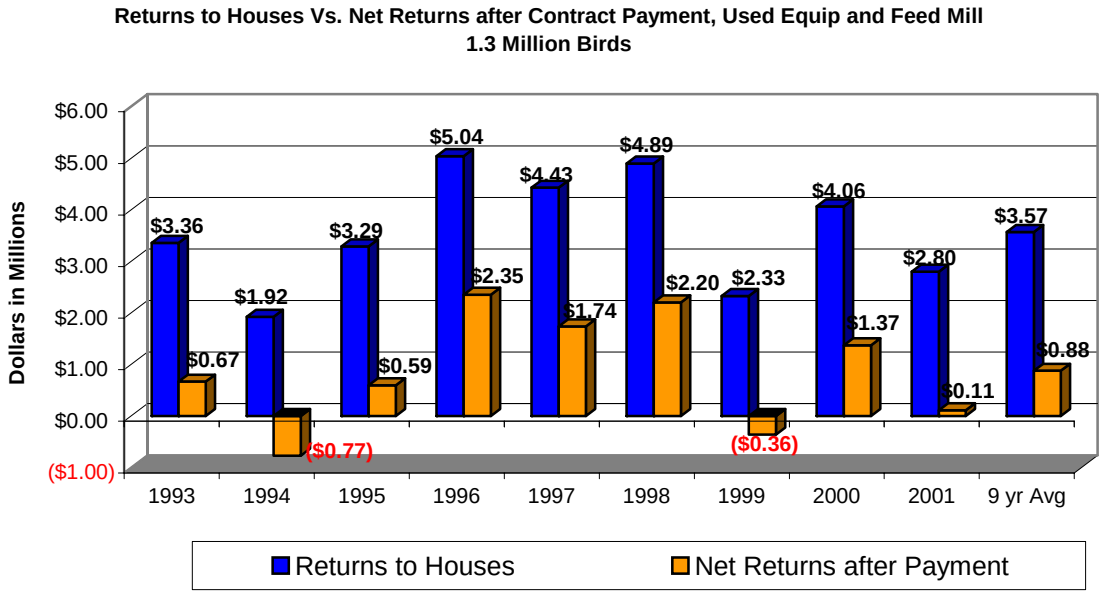


Graph 4. Returns to Houses Vs. Net Returns after Contract Payment, New Equip and Contract Feed, 500,000 Birds

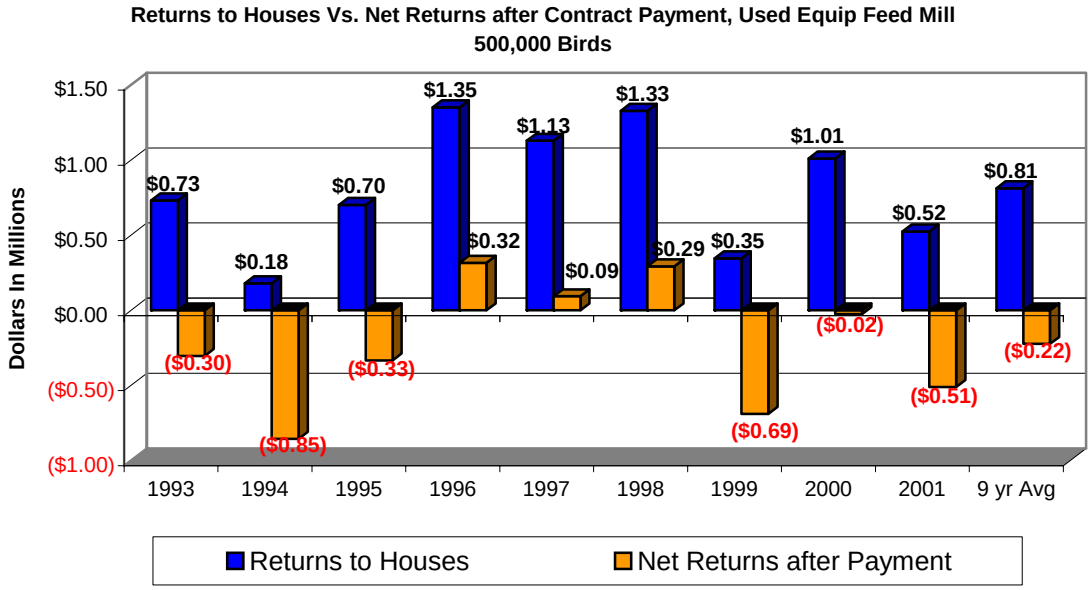


Graph 3 and 4 illustrate the same concept as graphs 1 and 2. However, when the feed is purchased on a contract basis instead of being created in the feed mill the returns are lower. Neither scenario provides returns high enough to cover the producers contract payments.

Graph 5. Returns to Houses Vs. Net Returns after Contract Payment, Used Equip and Feed Mill, 1.3 Million Birds

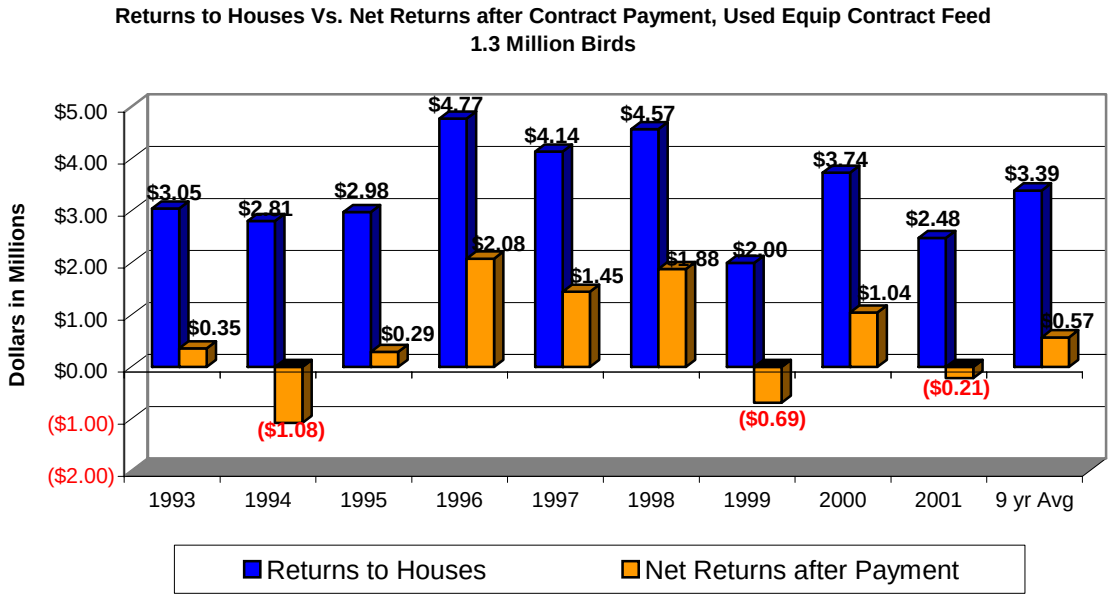


Graph 6. Returns to Houses Vs. Net Returns after Contract Payment, Used Equip and Feed Mill, 500,000 Birds

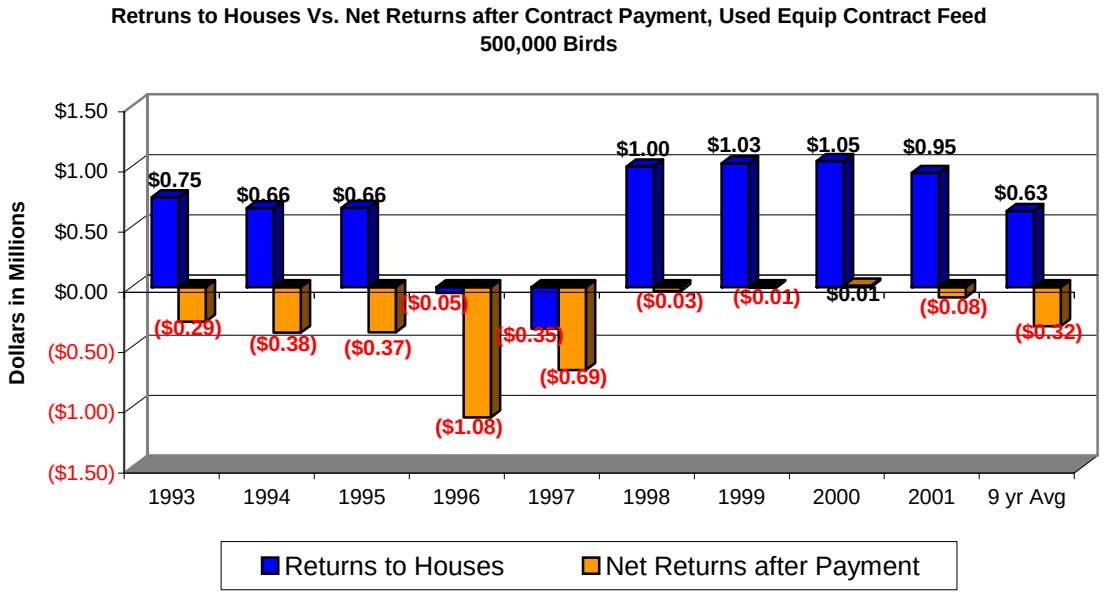


Graphs 5 and 6 provide the returns to an egg packing operation for used equipment and a feed mill operation. These returns are higher then those of an egg packing operation utilizing new equipment and in three of the nine years the contract payment can be made to the producers with a small amount still remaining to the cooperative.

Graph 7. Returns to Houses Vs. Net Returns after Contract Payment, Used Equip and Contract Feed, 1.3 Million Birds



Graph 8. Returns to Houses Vs. Net Returns after Contract Payment, Used Equip and Contract Feed, 500,000 Birds



Graphs 7 and 8 indicate lower returns versus the used equipment and feed mill operation but still higher returns than the new equipment operations. The cooperative appears to be able to retain more of the income when used equipment and a feed mill operation are present versus the other scenarios.

Financing, Operating, and Ownership Arrangements for an Egg Packaging Plant

Presently only one financing and ownership method is being considered for the plant in Sandersville, Georgia, a marketing cooperative. The main purpose of this plant is providing the local producers with a consistent and stable market for their eggs. The egg market in Georgia has left some producers with under utilized laying houses and the cooperative wishes to take advantage of this by packing and marketing their eggs directly.

Cooperative

A special type of producer cooperative called a "New Generation Cooperative (NGC)" or a "closed cooperative" combines solutions to both the financing and operations questions. Producers would raise an initial portion of the plant's cost through stock or options on stock sales. Each share of stock would provide the right and obligation to market a certain amount of eggs through the plant. The remaining capital could be raised through debt financing. Operation of the plant could remain with the producer/owner. Eggs could be priced to the producer through various arrangements including profit sharing of the final product.

The recommended organizational structure would be an egg-packing cooperative that paid the producers a contract payment for their eggs and is formed as a value-added processing, closed cooperative of defined or selected membership whereby members invest through the purchase of shares of stock. These shares serve as a dual contract. Each producer has both the obligation and the right to deliver to the cooperative. Likewise, the cooperative is obligated to accept delivery given quality standards are met. These delivery rights and obligations are transferable. Each member is still granted only one vote regardless of the number of shares owned.

The basic concept of this new type of cooperative is that producers capture profits that occur beyond the farm-gate by owning and controlling the local businesses that are positioned to earn those profits. The motivation of new generation cooperatives is more offensive than defensive–take control of your own destiny and be proactive rather than reactive. The main emphasis in cooperatives of this type has been on value-added processing, niche marketing, and producer/members viewing themselves as producing a finished food product rather than a raw commodity.

Producers tend to take greater interest in operations developed as a producer cooperative since they are also investors. The typical amount of member equity required is 50-60% of the initial equity needed for the project. This gives potential lenders the security of sufficient producer commitment. Banks for cooperatives have been the primary institutions that help in financing the remaining 40-50% needed by new cooperatives. Many commercial banks are also funding cooperatives. The USDA also has numerous financial programs that can assist cooperatives that meet certain criteria. Credit unions and the Farm Credit System have also actively lent funds to farmers to invest in new cooperatives. Other helpful support systems in the development of these

new cooperatives include communities, regional economic development commissions, individual rural electric cooperatives, and university extension services.

New Generation Cooperatives retain many principles of traditional cooperatives such as democratic control through a one member, one vote policy; excess earnings are distributed among members as patronage refunds or dividends; and the board of directors is elected from the membership by the membership. The financing of NGCs allows for all, or almost all, net earnings to be returned to members at year end since the members invest capital up-front. Future expansion is financed in the same way as original equity: members invest through the purchase of shares. In some instances, preferred shares may be offered to the community or general public. This allows communities to support the project while keeping control in the hands of the members. Some of the advantages of the New Generation Cooperatives include the ability of producers to react quickly to opportunities, the collective response of members to problems or opportunities, the creation of wealth within a community and local ownership keeps it there, stability for producers and efficiency for the plant through the restricted membership, consideration of the interests of the community through a diverse set of stakeholders, and commitment to the quality of the product by both the producers and processor.

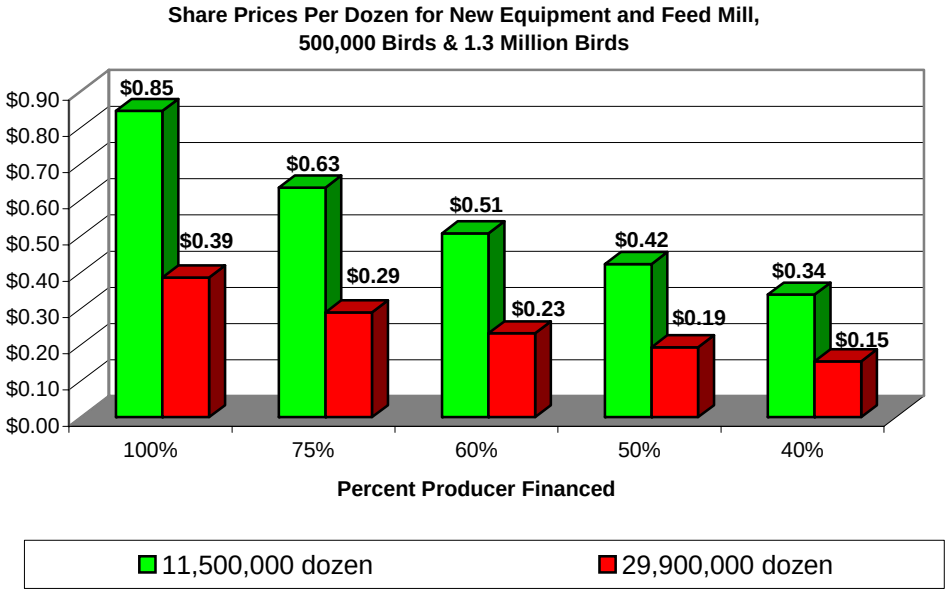
New Generation Cooperatives are very popular in the north central United States, especially in North Dakota and Minnesota. Examples of cooperatives arranged in this manner include ValAdCo, American Crystal Sugar, Southern Minnesota Sugar Beet Cooperative, the Minnesota Corn Processors Cooperative, Dakota Growers Pasta Company, and Northern American Bison Cooperative.

One of the keys to success of a New Generation Cooperative is producer commitment. The group of producers must be motivated, determined and committed. As Jack Piela, a business development specialist for the North Dakota Association of Rural Electric Cooperatives, stated, “Farmers have to take ownership of the concept and drive the project”(Campbell). Other keys to success include public policy that supports cooperative formation, financial institutions willing to finance the cooperative, and consultant or facilitators to help producer groups through the aspects of the process. These keys to success seem to be evident in Georgia.

The financing in terms of shares is calculated by taking the total cost divided by the total number of dozens produced by the various amounts of birds annually. This will yield a share price for 100% financing by the producers. If the producers wish to the lower their amount of equity the share prices will drop accordingly to the amount financed outside the operation.

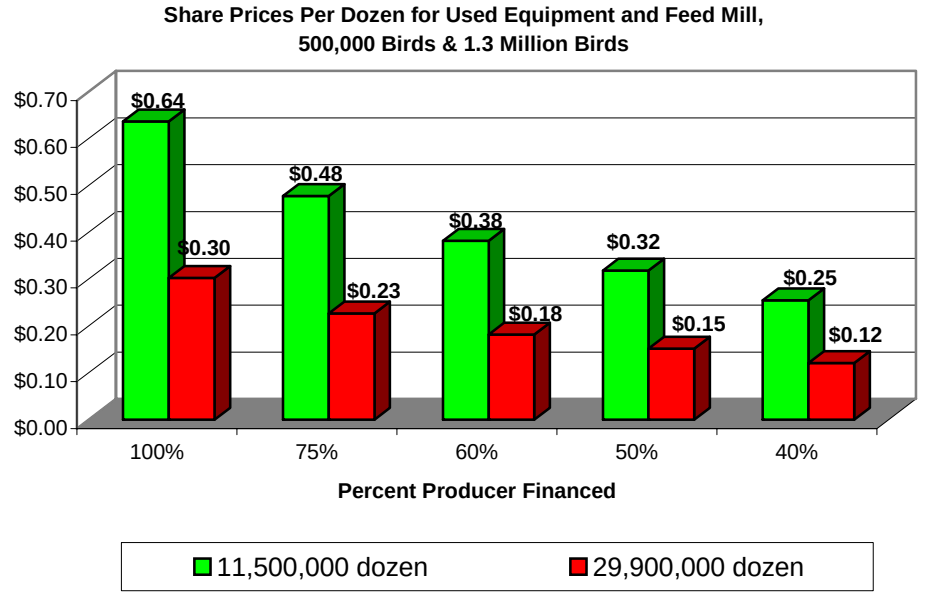
Only two scenarios were examined for share prices. The new equipment with feed mill and used equipment with feed mill. Theses share prices are per dozen and can be seen in graphs 9 and 10. Taking the total capital needed and dividing that by the annual production capacity calculated the share prices. The average total cost was used because the feed cost changed yearly.

Graph 9. Share Prices for the New Equipment and Feed Mill, 500,000 Birds and 1.3 Million Birds.



Graph 9 indicates how much per dozen the producers would need to pay to finance the egg packing operation at different levels.

Graph 10. Share Prices for the Used Equipment and Feed Mill, 500,000 Birds and 1.3 Million Birds



As seen in Graph 10 the share prices for the used equipment and feed mill scenario are lower then those in graph 9 for the new equipment.

Impact Analysis

Impact analysis is a key component of any feasibility study. An impact analysis shows the effect of a new venture on the economy. Building and implementing an egg packing facility in Georgia will impact the economy on two levels. The new plant will generate output as it begins selling eggs. These sales will, in turn, generate additional sales as the plant purchases inputs. The suppliers to the plant will increase the purchase of their inputs, thus increasing demand for those items. These increased sales will ripple through the economy. An input-output model will capture and quantify these effects.

The input-output model, IMPLAN (Impact Analysis for PLANning, Minnesota IMPLAN Group) was utilized for this project. IMPLAN can predict the effects of a new venture on output (sales), employment and tax revenue. IMPLAN models can be constructed for a state, a region or a county. Input-output models work by separating the economy into its various sectors, such as agriculture, construction, manufacturing and so on. An IMPLAN model will show each sector and industry in the specific region's economy. The model can capture how a change in one industry (for example, egg packing) will change output and employment in other industries. The changes in the initial industry (egg packing) are labeled direct effects and the changes in the other industries are called indirect effects. The direct and indirect effects are summed to give the total economic impact.

For this egg packing study, two production levels were analyzed: 500,000 layers and 1.3 million layers. However, before examining the economic impact of the plant, the issue of production should be addressed. In many cases, the construction of a new plant provides an increased market for a product. This is true in the case of the egg packing operation. Thus, it would be remiss not to include the value of production in the analysis of the economic impact. Therefore, each facility size analysis will include a discussion of the associated production.

The first operation scenario considered is one with 500,000 layers producing eggs. The direct value of the 500,000 birds is $4,850,000. This leads to a total economic impact of $16,952,370. Production by this number of layers employs 28 people. Another 124 jobs are created as a result of spending by the industry. Thus, total employment attributable to egg production is 152. Egg production also increases tax revenues by $597,356 under this scenario, as shown in table 15.

The processing plant will have sales of $8.5 million. It will employ 16 people. Table 16 shows that sales from the plant will increase economic activity by $16.8 million bringing the true total state impact of the plant to $25 million. In addition to the 16 jobs at the plant, another 159 workers in Georgia will be employed due to the creation of the plant. Finally, the plant will increase state and local tax revenue by $800,000.

Table 3. Impacts of 500,000 Table Layer Production			
	Direct	Indirect	Total
Output	$4,850,000	$12,102,370	$16,952,370
Employment	28	124	152
Tax Revenue (State)	NA	NA	$597,356

Table 4. Impacts of Packing Facility Associated with 500,000 Layers			
	Direct	Indirect	Total
Output	$8,517,947	$16,787,075	$25,305,022
Employment	16	160	176
Tax Revenue (State)	NA	NA	$808,463

The second operation scenario is one with $1.3 million layers. The value of this level of production, as shown in table 17, is $12,610,000. Due to this production, another $31 million of sales exist in the Georgia economy. Thus, the total economic impact of the production of 1.3 million layers is $44 million. Directly, 72 people are employed to produce these eggs. This leads to a total of 395 people being employed in Georgia due to this egg production. This level of egg production contributes $1,556,040 to state and local government, non-education tax revenues in this scenario.

A packing operation with 1.3 million layers will have sales of $22 million. Its employment will be 32 people. Table 6 illustrates the impact of this operation size. In addition to its direct output, the plant will generate $43 million in additional sales. Thus, the total impact of the plant in Georgia will be $65 million. In terms of employment, a total of 444 new jobs will be created due to the plant, 32 actually at the plant and 412 in other various sectors. Tax revenues for the local and state government will rise by $4.4 million.

Table 5. Impacts of 1.3 Million Table Layer Production			
	Direct	Indirect	Total
Output	$12,610,000	$31,466,161	$44,076,161
Employment	72	363	395
Tax Revenue (State)	NA	NA	$1,556,040

Table 6. Impacts of Packing Facility Associated with 1.3 Million Layers			
	Direct	Indirect	Total
Output	$22,146,662	$43,188,688	$65,335,350
Employment	32	412	444
Tax Revenue (State)	NA	NA	$4,412,061

Conclusion

The Center for Agribusiness and Economic Development was contacted to perform a feasibility analysis of operating an egg packing facility in the Alma area. With the capital cost figures provided by the producers and operating cost figures developed by

the Poultry Science Department at the University of Georgia the analysis yielded 4 scenarios with 2 capacities per scenario.

The used equipment with feed mill scenario appears to be the most profitable enterprise with the used equipment and contract feed coming in next when paying the producers a $.09 per dozen fee for their eggs. The new equipment scenario only made profits during three years, while the used equipment scenario made a profit 7 of the 9 nine years. The used equipment scenarios, both feed mill and contract feed, averaged approximately $3 million in profit kept for the cooperative. The scenarios are representable to their corresponding years and therefore provide a good analysis for the purpose of this report. During the high profit years if the coop retained a portion of the earnings, instead of paying all of the profits as dividend payments, the operation would have the cash needed to run during the low egg price years.

An egg packing plant in the Alma area has a tremendous impact on the community and state in terms of tax revenue and employment.

The Center for Agribusiness & Economic Development

The Center for Agribusiness and Economic Development is a unit of the College of Agricultural and Environmental Sciences of the University of Georgia, combining the missions of research and extension. The Center has among its objectives:

> To provide feasibility and other short term studies for current or potential Georgia agribusiness firms and/or emerging food and fiber industries.
>
> To provide agricultural, natural resource, and demographic data for private and public decision makers.

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Or contact:

John McKissick, Director
Center for Agribusiness and Economic Development
Lumpkin House
The University of Georgia
Athens, Georgia 30602-7509
Phone (706)542-0760
caed@agecon.uga.edu

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