



Broiler Production: Considerations for Potential Growers

Damona Doye

Regents Professor and Extension Economist

Brian Freking

Extension Educator-Ag, Leflore County

Joshua Payne

Area Animal Waste Management Specialist

In 2004, broiler production was the second largest agricultural revenue generator in Oklahoma, trailing only income from cattle and calves. Broiler receipts have grown dramatically in the past decade to \$624 million in 2004 compared to \$240 million in 1993.

Contract broiler production is concentrated in the eastern tier of Oklahoma counties. The success of contract broiler production in eastern Oklahoma is directly related to the success of poultry companies (integrators) located in Arkansas. Eastern Oklahoma has benefited from the integrators' expansion to capitalize on increased consumer demand for poultry products.

This fact sheet discusses factors which someone evaluating broiler production as an alternative and/or complementary farm enterprise should consider. Factors to consider range from the availability of an integrator to waste management and environmental considerations.

Availability of an Integrator

Commercial broiler production tends to be concentrated in a relatively small radius around an integrator's feed mill and other facilities. Because the costs of building a hatchery, feed mill, and processing facilities can run into several million dollars, integrators will not likely build facilities in new areas unless a dramatic growth in demand for their product is expected. If integrators choose to expand, the profitability of both the grower and the integrator favors established growing areas. The poultry company will, if possible, operate multiple shifts and maximize use of their existing plant capacity. Since the integrator's facilities tend to be centrally located, an expansion of the grower territory means higher transportation costs for the delivery of chicks and feed and for hauling broilers from the grower to the processing facilities.

Contract Production

Nearly all broilers grown in Oklahoma are produced under some type of contract between an integrator and the grower. The poultry company furnishes chicks and feed, supervises growth of the broilers through a field service representative, and may also provide a fuel allowance during winter months. The grower provides the land, broiler house, equipment, labor, and normal operating expenditures.

The producer is paid per pound of usable broilers produced. An additional payment incentive is usually included

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in the agreement between the integrator and the grower. The incentive payment may be based on feed conversion and/or cost of production.

Before agreeing to produce broilers under contract, the grower should thoroughly examine the contract and be familiar with its terms. Contracts are for the protection of both the producer and the integrator and should clearly spell out all important details. These details should include terms of grower payments, production practice requirements, incentive clauses, and production items to be furnished by each party and those to be jointly furnished. A potential grower should be aware of the details and responsibilities while considering such events as a tornado destroying a broiler house or an integrator deciding to reduce broiler production. Firm written answers to any question about the integrator's role or expectations should be obtained prior to signing. A well written contract that is understood by both parties is an essential beginning for successful long-term broiler production.

Advantages and disadvantages of contract production can be evaluated from several different perspectives: the producer (contract grower), the producer's lender, and the integrator (contractor). Among the advantages for the producer are that market price risk is reduced, management assistance is provided as part of the contract, and a predictable cash flow is expected. Possible disadvantages for the producer include the elimination of extra profit opportunities, sharing or giving up some control of management decisions, and no equity in the birds. When an integrator's profit margins are being eroded, a legitimate concern may be whether the company will continue to supply birds, or how many flocks the integrator will provide per year, especially until the broiler house is paid for. Other possible disadvantages for the producer include assuming sole responsibility for waste management and environmental practices that are subject to state and federal regulations.

The grower's lender may perceive as positive the decrease in market risk and management assistance. The negative aspects of contract broiler production from the lender's perspective include the lack of equity in livestock and the dependence on contract continuation for loan repayment.

From the integrator's viewpoint, contract production provides security with respect to production capacity, allows fast expansion of the company, requires less capital for growth (reduced land, building or equipment investments), and may make growers more productive since company representatives provide management assistance. It allows the company to maximize the use of plants and mills (thus

reducing overhead costs per unit of production) by keeping all phases of the operation running at full capacity. The disadvantages for the integrator may include taking all the short-term risk of low market prices and growers who may or may not be highly productive. Integrators are also being pressured to assume increasing responsibility for waste management, environmental, animal welfare and biosecurity issues.

Financing for Broiler Buildings and Equipment

Lenders prefer to make broiler facility loans to a diversified farm operator who has been successful in other enterprises. Such an operator has other income to rely on in the event an integrator decides to reduce the number of batches per year or does not renew the grower's contract. A reliable source of farm or off-farm income may be necessary to assure a lender of the ability to repay the broiler facility loan, as the returns from broiler production may not be sufficient in the early years to cover both the family living expenses and debt retirement.

The cost of a broiler house will vary with size and specifications. An estimate for fully equipped houses currently being constructed is \$8 per square foot. This figure does not include the cost of the land and may vary with different building designs, equipment, and location with reference to water and roads. Unless integrators agree to help resell buildings and equipment, broiler facilities may have little value as collateral since their use is so specific.

Building and Equipment Requirements

Each integrator will have specific building design, equipment specifications, and location requirements. Buildings generally run east and west, are built on a level pad above ground level, have a smooth level area at the end of the building for a mechanical loader, and must be accessed by a well graveled roadway with turnaround for large tractors and trailers. Houses must be sufficiently insulated to prevent heat loss in winter and minimize heat build-up in summer. They must also have sufficient ventilation (natural and mechanical) for cooling the birds in summer.

Multiple house operations are preferred so that feed and chick delivery costs and broiler transportation costs can be minimized. Integrators attempt to fill all broiler houses with chicks of the same age so that the integrator can deliver one kind of feed, make a minimum number of deliveries or pick-up stops, and once again minimize transportation costs.

Approximately four-fifths of a square foot of floor space per chick is required. Most buildings currently being built are 40 or more feet in width with sufficient length to give the desired broiler capacity. A 20,000 square foot house will handle 26,400 broilers. It is not uncommon for an integrator to overfill a building with chicks to allow for normal mortality. Additionally, an integrator may place more birds per square foot in the winter months as compared to the summer months, due to bird heat production.

The integrator will provide information on how many feeders, water founts/nipples, brooders, misters, fans, and lights will be required per building. Specific recommendations may be made on equipment brands and types of brooders (natural gas, LP gas, electric).

Labor and Management Requirements

The success of a broiler grower will depend to a great extent upon how well an integrator's management program is carried out by the grower. Management of the broiler house is the responsibility of the producer with the assistance of the field service representative provided by the integrator. Some contracts include details on management related to feed, water, house temperature, vaccination, and disease control. The service person may assist the grower on decisions not specifically covered in the contract, such as ventilation, litter management, rodent and fly control, and dead bird disposal.

Broilers need daily attention, and new producers may need to work closely with their field service representative to develop an appropriate care schedule. It may be appropriate to have several family members familiar with the poultry operation so that they can substitute for the primary caretaker if necessary. Extra labor may be required at different points throughout the production period.

Daily chores for the broiler grower include checking mechanical equipment to insure correct operation, cleaning and disinfecting watering lines, adjusting ventilation, monitoring feed bins, removing dead birds and keeping records. Other routine chores include cleaning and repairing equipment, cleaning out houses, rodent control, ordering feed, preparing for chick arrival, and preparing for shipment to the processing plant.

Waste Management Regulations

Waste management is an important component of poultry production. Unlike many of the equipment and inventory management issues, waste management is the sole responsibility of the grower. Current state regulations require growers to manage all waste materials, including litter and dead birds, to assure beneficial use of the waste, and also to prevent adverse effects to the environment. Waste management costs are a part of the production expenses that may not be recognized in standard production budgets. In some cases, poultry waste may be a valuable by-product, but in other cases it is a net cost.

In the spring of 1998, the Oklahoma legislature passed the Oklahoma Registered Poultry Feeding Operations Act. As a result of this act, poultry farmers producing more than 10 tons of poultry waste per year are required by law to register their operation with the State Board of Agriculture. In addition, they must develop an approved Animal Waste Management Plan (AWMP) and maintain records of poultry waste removed from the premises or land applied on the premises. Poultry producers and individuals spreading more than 10 tons of poultry waste or litter per year are required to receive educational credits: 9 hours of initial training, covering all aspects of waste management, and 3 hours of update training every year thereafter. The Oklahoma Department of Agriculture, Food and Forestry (ODAFF), Agricultural Environmental Management Services (AEMS) was given the responsibility of developing rules and enforcing the act. The Oklahoma Cooperative Extension Service (OCES) is responsible for producing training curricula and conducting the training. The Oklahoma Conservation Commission

(OCC) and the Office of the Secretary of Environment (OSE) are responsible for compiling data to determine whether the act is adequately protecting the environment.

Registration/Certification

While poultry producers must register their operations, both commercial and private poultry waste applicators must apply for an applicator's certificate issued by the State Board of Agriculture. Annual renewals are required for producer registration and commercial applicator certificates. Private waste applicators are required to renew their license every 5 years. Only certified private or certified commercial waste applicators can apply poultry waste to land. Certified applicators are required to submit an official applicator's annual report by December 31 of each year to the AEMS Division of ODAFF for poultry waste applied to land from July 1 of the previous year through June 30 of that year. For example, poultry waste applicators who apply any poultry litter between July 1, 2005 and June 30, 2006 are required to submit an annual report no later than December 31, 2006.

Education

The registered operator of a poultry feeding operation is required to obtain poultry education conducted by OCES. An initial training of 9 hours is required within one year of purchasing or constructing a poultry operation, and 3 hours of continuing education is required by December 31 of each calendar year thereafter. Certified poultry waste applicators (those who are not also registered poultry feeding operators) are required to obtain 9 hours of initial training within one year of obtaining their commercial poultry waste applicator's certificate, and they are required to obtain 3 hours of continuing education conducted by OCES by December 31 of each calendar year thereafter.

Environmental Considerations

The amount of poultry waste or litter that may be land applied on the premises of the poultry feeding operation is limited according to nutrient management guidelines established in the AWMP. These guidelines only allow litter use as a beneficial fertilizer to pasture or cropland, not as a disposal system. If poultry waste or litter cannot be used according to nutrient management guidelines on the premises, the producer must see that it is removed to a location where it can be used properly. In some cases, the producer may sell or give the by-product to other individuals for land application or to commercial composting, chemical production or energy production facilities.

A free website is available to promote the communication between poultry litter buyers, sellers, and service providers and can be found at: www.ok-littermarket.org. This website allows for those individuals or companies interested in purchasing, selling or hauling poultry litter to advertise their contact information and services without cost.

Prior to any land application of poultry waste or litter in the state of Oklahoma, a certified applicator must obtain recent soil tests for each land application site and recent poultry waste or litter tests. Land application rates must follow current USDA Natural Resources Conservation Service (NRCS) Waste Utilization Standards. For more information

on soil and litter testing, contact your local OCES County Extension Office.

The AWMP required under the Registered Poultry Feeding Operations Act also imposes restrictions on the disposal of poultry carcasses to prevent environmental and health problems. Under the law, acceptable disposal methods include approved composting, approved incineration, approved on-farm burial, approved sanitary landfill burial, and disposal in a rendering plant.

Guidelines for approved composting, incineration or burial can be obtained from the ODAFF or from your local OCES County Extension Office. Growers have expressed considerable interest in composting dead birds because this method, when managed properly, produces a product that, like litter, can be a valuable fertilizer and soil conditioner.

According to the Registered Poultry Feeding Operations Act, poultry producers must also maintain poultry waste or litter application records showing rates and dates of application. Records must also be kept of any poultry waste or litter that is sold or given to other individuals, including the date of removal, the name of the recipient and the amount removed from the operation. Education certificates, as well as any soil and poultry waste or litter analysis reports, must also be maintained by the registered poultry operator.

The ODAFF inspects poultry operations routinely to determine whether there are any violations. They may also visit when investigating pollution complaints alleging that a waste disposal problem may exist. If a poultry operation is found to be disposing of wastes in such a manner that surface or ground water contamination is occurring, that operation will be required to implement waste management practices to correct the problem. Failure to comply could result in a fine to the grower.

If your poultry operation is classified as a Concentrated Animal Feeding Operation (CAFO) based on size categories, then you are not subject to the rules of the Oklahoma Registered Poultry Feeding Operations Act; however, you are subject to the rules of the Oklahoma Concentrated Animal Feeding Operations Act. This act requires producers to obtain an Oklahoma CAFO license and develop and implement a Pollution Prevention Plan.

If you have questions determining whether your operation is classified as a CAFO or questions pertaining to either the Oklahoma Concentrated Animal Feeding Operations Act or the Oklahoma Registered Poultry Feeding Operations Act, please contact the AEMS Division of ODAFF. The Environmental Protection Agency (EPA) also provides useful information concerning CAFOs on their website <http://www.epa.gov/>.

Profitability and Cash Flow

A simplified broiler budget is presented in Table 1. The budget represents production from a 26,400 bird capacity house, a building size that is currently being constructed by new growers. While the numbers presented are believed to be reasonable, contracts will vary among integrators and over time. Growers must carefully study information provided by the integrators and modify the budget as needed to determine potential returns.

The budget presented is to be considered a tool for potential growers to use in analyzing expected receipts and

costs. The budget (given stated assumptions and relatively high utility costs) suggests that during the loan repayment period, cash flow may be a problem. The returns to labor, overhead, risk and management are also low. No charge for land was made in the budgets. Costs in a given area and for a given producer will vary from the estimated values listed in the budgets.

The cash flow associated with the broiler enterprise is likely to differ from the economic returns because some of the associated costs, such as depreciation, do not require an annual outlay of cash. In Table 1, a column labeled "Your Values" is included to enable you to calculate either net returns or cash flows using the appropriate amounts based on your research.

Income

Broiler producers are paid based on the pounds of usable broilers. Estimates of receipts are frequently based on a contract amount that assumes middle cost production. The amount actually paid to the grower depends upon whether the grower's production efficiency is above or below middle cost of production. Most grower contracts have a stated floor price that the grower is guaranteed regardless of production efficiency. The contract price is only paid on usable broilers; thus, a high death loss or high percentage of condemnation can substantially affect a grower's income. The middle grower contract price used here is \$0.0525 per pound.

Five and one-half to six batches of broilers can be grown per year on average. If 5.5 batches per year are produced, broilers weigh 6.5 pounds, the contract price per pound is \$0.0525 per pound, and 94.5 percent of the broilers are usable, gross receipts from broiler sales will average \$46,824 from a 26,400 bird building.

Costs

Costs in the budget are grouped into operating costs and fixed costs. Operating (or variable) costs change with the level of output (number of birds produced) and do not occur unless the producer attempts to grow broilers. Variable costs include the money outlays for purchased inputs that are used in a production period, e.g. bedding, electricity, gas, fuel, labor. Fixed costs, on the other hand, do not change with the level of production. In fact, fixed costs remain the same whether or not any birds are produced. Fixed costs include depreciation on buildings and equipment, taxes, insurance, and principal and interest payments on building and equipment loans.

Labor is valued at \$7.50 per hour in the budget. If the operator hires all labor for tending the birds and maintaining the building and equipment, expected cash outlays will be approximately \$6,930 more. Utilities are the largest expected cash outlay if the operator provides labor for the operation. Growers outside established areas may have higher L.P. gas costs. Some integrators purchase gas in bulk for their growers in order to benefit from discounts from bulk purchases.

The broiler house is assumed to have a life of 20 years, and equipment (feeders, waterers, brooders, etc.) is assumed to last 10 years. A grower can expect to replace

one-quarter to one-third of the equipment after 10 years. If housing repairs, modifications, or improvements are needed or required, additional expenses will be incurred over time. If current roadways on the farm are not well graveled, additional expenses may be incurred to upgrade and maintain these improvements.

Insurance against many potential losses can be purchased. Ice damage insurance, however, is expensive and not included in all policies.

Profitability Factors

The factors most likely to affect a broiler producer's profitability are:

1. The grower's management skills, which impact the broiler growth rate and death losses. From a management standpoint, an operator can increase profits by watching for feed waste and making the necessary adjustments to reduce it, observing for overflow of waterers, keeping the litter dry and clean, staying alert to fan breakdowns, and paying attention to signs of stress and disease.
2. If offered, the bonus that the grower receives if the production efficiency is better than middle cost of production. Note that the bonus may not reflect a producer's management ability versus that of an average grower, but of the other growers who sell birds the same week as he or she sells. If a grower is unfortunate enough to market birds at the same time as several above average producers, he or she may receive no bonus and may in fact be penalized for below middle cost efficiency.
3. The shrink in the birds from the farm to the processor.

Other Considerations

Other factors that a potential broiler grower must consider are rural zoning, air pollution laws, and "nuisance" laws if neighbors are close to planned building sites. Two sources of water are preferred where possible to ensure a supply of water for broiler houses.

Summary and Conclusions

Individuals who are seriously considering the broiler business should learn as much as they can about broiler production by talking with growers and integrators in their area. The potential broiler grower should determine whether an integrator services the area and if the integrator is taking on new growers. No one should buy land or move into an area expecting to grow broilers without a contract from an integrator. Contracts should be studied to determine their acceptability. A lender should be contacted to determine the availability and terms of financing for a broiler enterprise.

Individuals considering broiler production should discuss and evaluate with their families how the broiler enterprise fits into short- and long-term family and business goals. The family should discuss their willingness to commit time and energy to a seven-day per week operation with breaks limited to periods between flocks of birds. Because the broiler house is a specialized facility, the commitment to production must be long term in order to ensure that investment costs are recouped.

Table 1. Sample Broiler Budget

100% Financed—26,400 Bird Broiler Building (43 ft x 510 ft)

	Expected Average Enterprise Profitability	Cash Flow Year 1	Your Values
Receipts			
Production			
(\$0.0525/lb x 6.5 lbs/bird x 26,400 birds/batch x 5.5 batches/year) ¹			
x 94.5 percent live, usable birds	\$46,824	\$46,824	_____
Litter/manure (125 tons x \$10/ton) ²	\$1,250	\$1,250	_____
Gas allowance (\$0.024/bird x 26,400 birds x 2 batches)	\$1,267	\$1,267	_____
Total Receipts	\$49,341	\$49,341	_____
Costs			
Operating Costs			
Fuel	\$2,000	\$2,000	_____
Labor (\$7.50/hr x 3 hr/day x 308 days/yr.) ³	\$6,930	\$0	_____
Litter or shavings	\$750	\$750	_____
Litter clean-out (\$6/ton x 175 tons)	\$1,050	\$1,050	_____
Repairs	\$1,000	\$1,000	_____
Supplies	\$500	\$500	_____
Utilities/w rural water ⁴	\$11,500	\$11,500	_____
Interest on operating expenses (6.5%) ⁵	\$771	\$546	_____
Total Operating Cost	\$24,501	\$17,346	_____
Fixed Costs			
Depreciation			
Equip. (\$80,000, 10 yr straight line, 50% salvage value) ⁶	\$4,000		_____
Bldg. (\$175,000, 20 yr straight line, 50% salvage value) ⁶	\$4,375		_____
Insurance	\$1,000	\$1,000	_____
Interest on bldg. & equip. loan (10 yr @ 7.5%) ⁷	\$19,125	\$19,125	_____
Principal on bldg. & equip. loan (10 yr @ 7.5%) ⁸		\$18,025	_____
Taxes (property)	\$600	\$600	_____
Total Fixed Costs	\$29,100	\$38,750	_____
Total Costs (Operating + Fixed)	\$53,601	\$56,096	_____
Returns			
Return to land, overhead, risk and management	[\$4,260]		_____
Return to land, labor, overhead, risk and management	\$2,670	[\$6,755]	_____

¹ Assumes middle pay and average weight and 56 day grow-out.

² Assumes litter is sold or results in savings in fertilizer costs in other enterprises. Fertilizer value may be higher if use of litter is managed well.

³ Labor is not a cash expense if supplied by the owner/operator. However, to be sustainable, an enterprise should provide a return to the operator's labor and management.

⁴ Utilities include electricity, gas and water.

⁵ Interest on operating expenses = (total operating cost before interest ÷ 2) x interest rate.

⁶ Economic depreciation, not tax depreciation. Salvage values vary substantially from operation to operation. A lower salvage value would increase the annual depreciation costs. For instance, if the salvage value of the equipment and buildings is zero at the end of the useful life, depreciation costs would double.

⁷ Interest decreases each year as principal is repaid.

⁸ For even-payment loan amortizations, the principal amount increases each year and the interest decreases.

Other resources regarding broiler production

OSU Publications. Using Poultry Litter as Fertilizer F-2246

<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-2640/f-2246web.pdf>

OSU Publications. Poultry for the Small Producer F-8202

<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-2116/F-8202web.pdf>

OSU Publications. Predators: Thieves in the Night F-8204

<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-2111/F-8204web.pdf>

OSU Publications. Hot Weather Management in the Poultry House F-8205

<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-2102/F-8205web.pdf>

OSU Publications. Fly Control in the Poultry House F-8206

<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-2115/F-8206web.pdf>

OSU Publications. Rodent Control in the Poultry House F-8207

<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-2107/F-8207web.pdf>

OSU Publications. Factors Involved in Site Selection for New and Modified Poultry Facilities F-8213

<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-52/F-8213pod.pdf>

OSU Publications. Catastrophic Poultry Mortality Loss: Handling and Disposing Alternatives F-8216

<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-25/F-8216pod.pdf>

Contract Poultry Growers' Rights under the Packers and Stockyards Act, Farmer's Legal Action Group, Incorporated

www.flaginc.org

Oklahoma Department of Agriculture. "Oklahoma Registered Poultry Feeding Operations Act."

<http://www.oda.state.ok.us/forms/water/orpfoa.pdf>

Oklahoma Farm and Ranch *A* Syst. Assessing the Ground Water Contamination from Poultry Waste Management, Worksheet 8.

<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-2175/fasws8.pdf>

USDA Natural Resources Conservation Service. "Waste Utilization Standards."

<http://efotg.nrcs.usda.gov/references/public/IL/633.pdf>

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- It provides practical, problem-oriented education for people of all ages. It is designated to take the knowledge of the university to those persons who do not or cannot participate in the formal classroom instruction of the university.
- It utilizes research from university, government, and other sources to help people make their own decisions.
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- It dispenses no funds to the public.
- It is not a regulatory agency, but it does inform people of regulations and of their options in meeting them.
- Local programs are developed and carried out in full recognition of national problems and goals.
- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year to year as citizen groups and Extension workers close to the problems advise changes.

Based on an earlier publication by Damona G. Doye, Extension Economist; Joe G. Berry, Extension Poultry Specialist; Parman R. Green, Area Extension Agricultural Economics Specialist; and Patricia E. Norris, Extension Natural Resource Economist.

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