Feasibility Study

For a

A Study of Small-Volume Poultry Processing and Sales in Virginia

For

VA FAIRS

Prepared by:

Matson Consulting, LLC
PO Box 661
Aiken SC 29802
Phone: 803-233-7134
Fax: 803-233-7938
www.matsonconsult.com

In Coordination with:

VAFAIRS
P.O. Box 27552
Richmond VA 23261
Phone: 804-290-1160
www.vafairs.org

September 2023

EXECUTIVE SUMMARY

The recent supply chain issues that were revealed in spring of 2020 with the nation's response to the COVID-19 outbreak have increased demand for local poultry meats. In many instances, a bottleneck for access to these products have been the ability for producers to access inspected local slaughter and poultry processing. In response to this need for processing services, farmers may seek cooperative efforts to implement small volume, poultry meat processing facilities in rural areas.

The information in this document comes from literature and database research as well as the knowledge of the consultants' work in agriculture in multiple states in the region on numerous meat and poultry marketing projects in the past. The general literature consulted is included as a resource throughout the document for further exploration. This manual delves into several topics relevant to the general operations of poultry sales, including changes in consumption and purchasing trends due to the COVID-19 pandemic and its aftermath.

This document is intended to provide guidance and information for those seeking to implement a poultry meat processing facility. The following is an overview of key highlights for each portion of the document, followed by a discussion of the challenges often faced by a slaughter and processing facility.

TABLE OF CONTENTS

NATIONAL POULTRY INDUSTRY

Chicken has replaced beef and pork as the world's most-consumed protein. The Rabobank Global Animal Protein Outlook for 2023 projects that, while consumption growth of other meats is on the decline, poultry is holding steady and, in some markets, will expand. The combined value of production from broilers, eggs, turkeys, and the value of sales from chickens in 2021 was $46.1 billion, up 31 percent from $35.1 billion in 2020. Of the combined total, 68 percent was from broilers, 19 percent from eggs, 13 percent from turkeys, and less than 1 percent from chickens. The value of broilers produced during 2021 was $31.5 billion, up 48 percent from 2020. The total number of broilers produced in 2021 was 9.13 billion, down 1 percent from 2020. The total amount of live weight broilers produced in 2021 was 59.2 billion pounds, down slightly from 2020. [1]

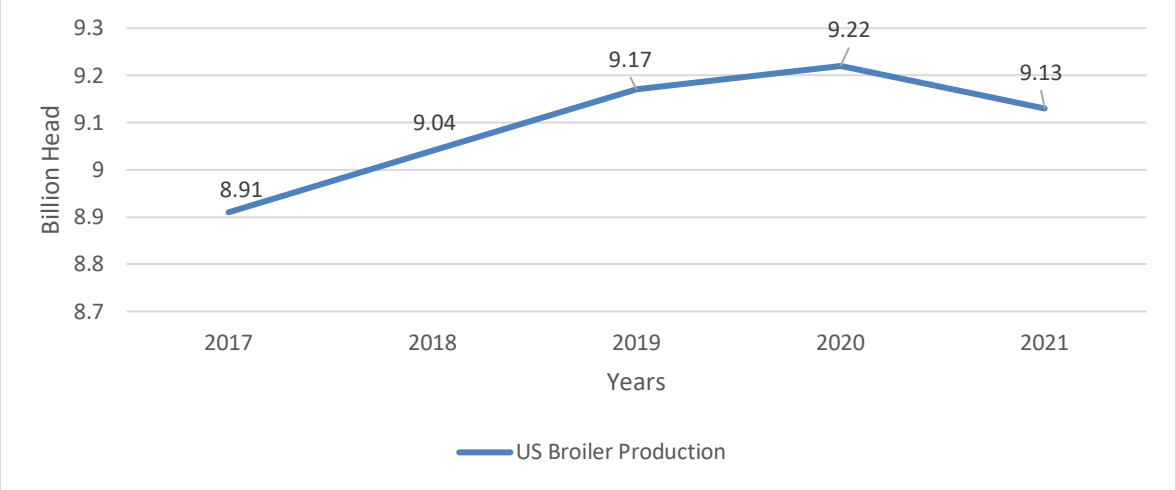
The states that top the list in broiler production include North Carolina, Georgia, Arkansas, Alabama, Texas, and Mississippi. Virginia ranks number 9 in the country in terms of pounds of broilers produced, reporting nearly 1.8 billion pounds and over 285 million head in 2021, an increase over 2020 numbers.

The number of farms with broilers in inventory has increased by over 10,000 farms during the ten years between 2007 and 2017 bringing the total amount of farms with broilers in inventory to 42,858 in 2017 according to the most recent Census of Agriculture data. Most of this growth occurred between 2007 and 2012 when farm numbers reached 42,226. Since then, the number has only increased slightly. While the number of farms producing broilers may have risen over the past few years, the number of broilers raised and sold has remained relatively stable. In 2017, over 8.89 billion broilers were sold compared to 8.91 billion in 2007.[2]

According to the USDA NASS's Poultry – Production and Value Summary, released each year, national broiler production has increased overall between 2017 and 2021. As shown in the figure below, the overall number of broilers raised in the U.S. in 2017 was about 8.91 billion. This increased annually to 2020, reaching 9.22 billion that year. This decreased by 2021 to about 9.13 billion as COVID-19 impacted not only poultry production but agricultural production as a whole.[3]

[1] USDA NASS. (April 2022). Poultry – Production and Value 2021 Summary. https://www.uspoultry.org/economic-data/docs/broiler-production-and-value-2021.pdf
[2] NASS (2017). "Table 30. Poultry- Inventory and Number Sold: 2017 and 2012." 2017 Census of Agriculture. "Table 32. Poultry-Inventory and Number Sold: 2012 and 2007." 2012 Census of Agriculture. USDA.
[3] USDA NASS (2022) Poultry – Production and Value Summaries https://www.nass.usda.gov/Publications/Todays_Reports/reports/plva0421.pdf

Figure 1: US Broiler Production 2017-2021

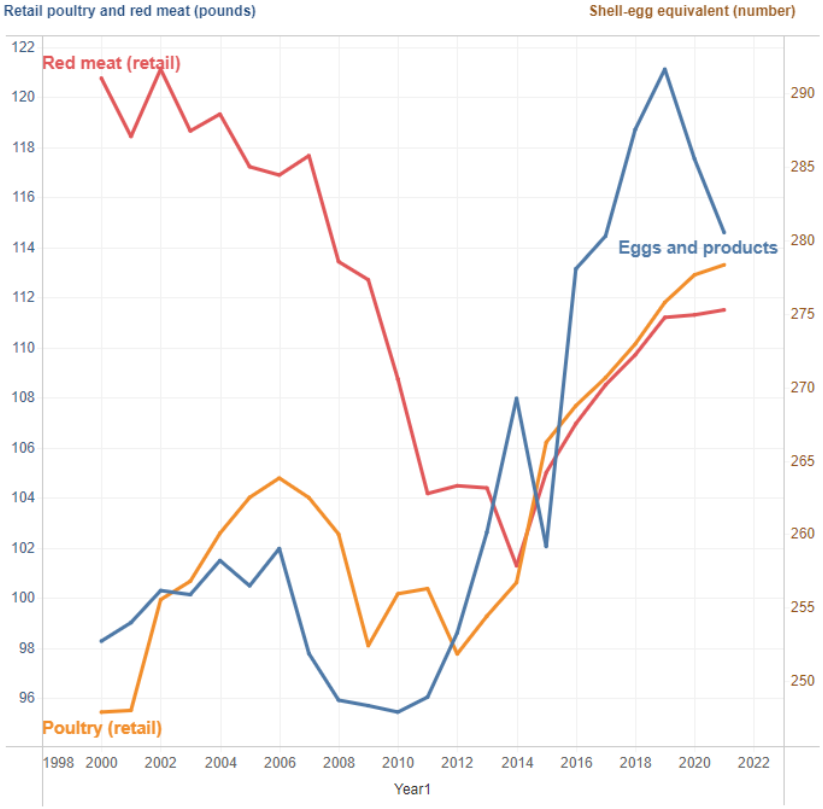


The USDA's Poultry Sector at a Glance provides a detailed overview of the past decade of poultry production in the country. Between 2012 and 2021, U.S. poultry production mostly expanded as producers sought to meet domestic and foreign consumer demand. Broiler production grew by 21 percent during that period.

U.S. poultry consumption has increased in recent years, displacing a substantial amount of red meat consumption in recent decades, in part because of favorable prices and health recommendations. The following figure from the USDA shows these changing consumption trends by comparing one measure of poultry meat consumption, estimated retail disappearance, with the same measure for red meat consumption. The chart also includes egg and egg products disappearance.[4]

[4] USDA (2022) Poultry Sector at a Glance. https://www.ers.usda.gov/topics/animal-products/poultry-eggs/sector-at-a-glance/#:~:text=Commercial%20poultry%20production%20starts%20with,meat%20or%20table%20egg %20production

Figure 2: Estimated U.S. Poultry and Red Meat Disappearance per Capita by Year 2000-2021



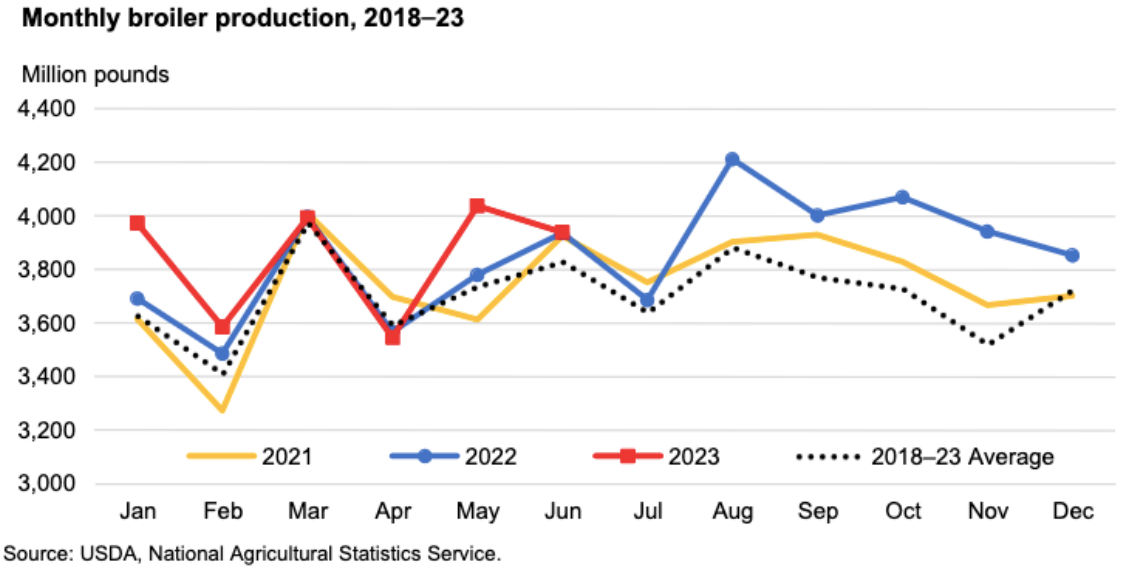
Source: USDA, World Agricultural Outlook Board, *World Agricultural Supply and Demand Estimates*, using statistics from U.S. Department of Commerce, Bureau of the Census; U.S. Department of Commerce, Bureau of Economic Analysis; USDA, National Agricultural Statistics Service; and USDA, Economic Research Service.

USDA, ERS-published disappearance statistics are a proxy for consumption, measuring supplies available for marketing in each period. Meat disappearance equals production minus net exports and net changes in cold storage. Retail disappearance also subtracts an estimate of meat components that are not typically sold with meat at retail, such as certain bone portions and skin.

Broiler production in June 2023 totaled 3.938 billion pounds, just 3 million pounds more than June of last year. This makes the second-quarter total 11.527 billion pounds. Total production in the first half of the year was 2.8 percent over the same period in 2022. For the second half of the year, production growth over 2022 is not expected to be as rapid. This is in part because broiler production at the end of last year was exceptionally strong, especially in August. In addition, broiler-type chickens hatched in May and June were down slightly year-over-year. These hatched birds mature in July and August. Preliminary weekly data suggest July slaughter was slightly lower compared to last year. Based on recent hatchery and preliminary slaughter data, the third-quarter production estimate was adjusted down by 150 million pounds to 12.0 billion pounds. With the fourth-quarter forecast unchanged at 11.9 billion pounds, production for the second half would total 23.9 billion pounds, an increase of 0.6 percent from the second half of 2022. In total, 2023 production is projected at 46.976 billion pounds, an increase of 1.7 percent from 2022.[5]

[5] https://www.ers.usda.gov/webdocs/outlooks/107202/ldp-m-350.pdf?v=407.1

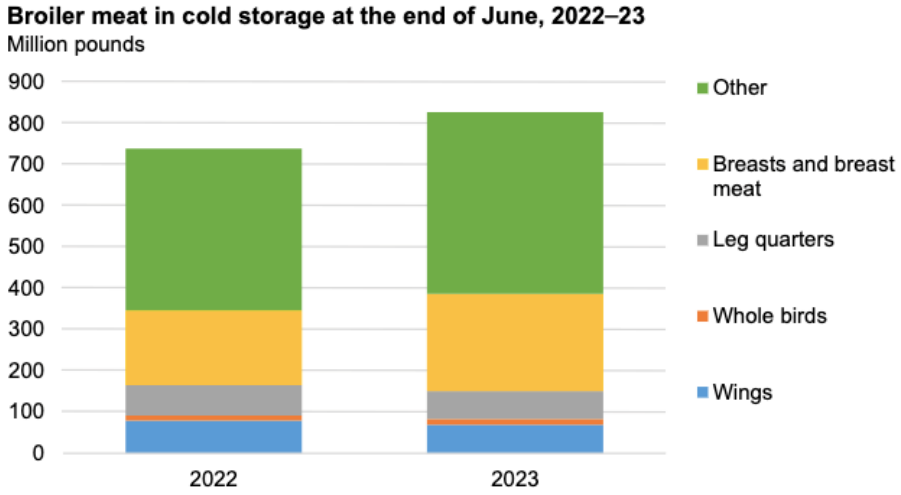
Figure 3: USDA Monthly Broiler Production, 2018-23



Source: USDA, National Agricultural Statistics Service.

Broiler meat in cold storage at the end of June totaled 826.8 million pounds, an increase of 12 percent from a year earlier. Of this total, 69.4 million pounds were chicken wings, 67.6 million pounds were leg quarters, and 14.0 million pounds were whole chickens. However, the majority of the year-over-year increase was in breast meat, which totaled 235.7 million pounds at the end of June, accounting for 28.5 percent of all broiler meat in cold storage. Based on recent data, projected 2023 ending stocks are adjusted up to 880 million pounds. The ending stocks projection for 2024 is unchanged at 900 million pounds.[6]

Figure 4: USDA Broiler meat in cold storage



[6] Livestock, Dairy, and Poultry Outlook: August 2023, LDP-M-350, U.S. Department of Agriculture, Economic Research Service, August 17, 2023

National Turkey Industry

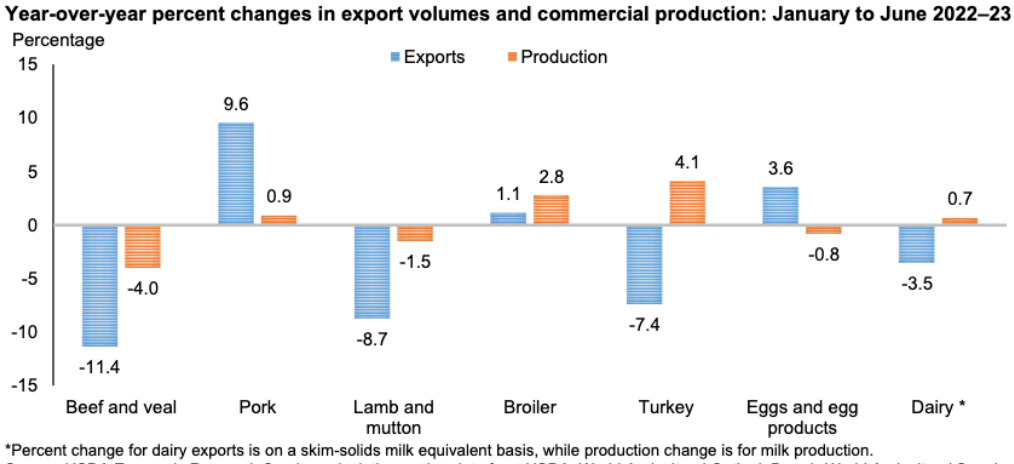
The North American Industry Classification System (NAICS) code for turkey production is 112330. The states that top the list in turkey production include Minnesota, Arkansas, North Carolina, Indiana, and Virginia. Over the past few years, turkey production has declined within the United States. While the turkey industry is in decline at the moment, the industry fluctuates and Virginia is still a leading producer.

The impact of Covid on the turkey industry may need to be studied further and may take a couple more years to see the effect as much of the consumption of turkey occurs at family gatherings and in restaurants as sandwiches.

The number of farms with turkeys in inventory has increased by nearly 6,000 farms during the ten-year period between 2007 and 2017 bringing the total amount of farms with turkeys in inventory to 23,173 in 2017 according to the most recent Census of Agriculture data. While the number of farms producing turkeys may have risen over the past few years, the number of turkeys raised and sold has been steadily decreasing. In 2017, over 104 million turkeys were sold compared to the 107 million in 2007, a decrease of nearly 3 million turkeys.[7]

According to the National Agricultural Statistics Service's Turkey Industry Overview, the number of turkeys raised in the United States has drastically decreased between 2010 and 2021. As shown in the figure below, the overall number of turkeys raised in the U.S. decreased by about 40 million turkeys, or over 15 percent, between 2011 and 2021, reaching around 214 million head produced in 2021.[8]

Figure 5: USDA Year-over year percent changes



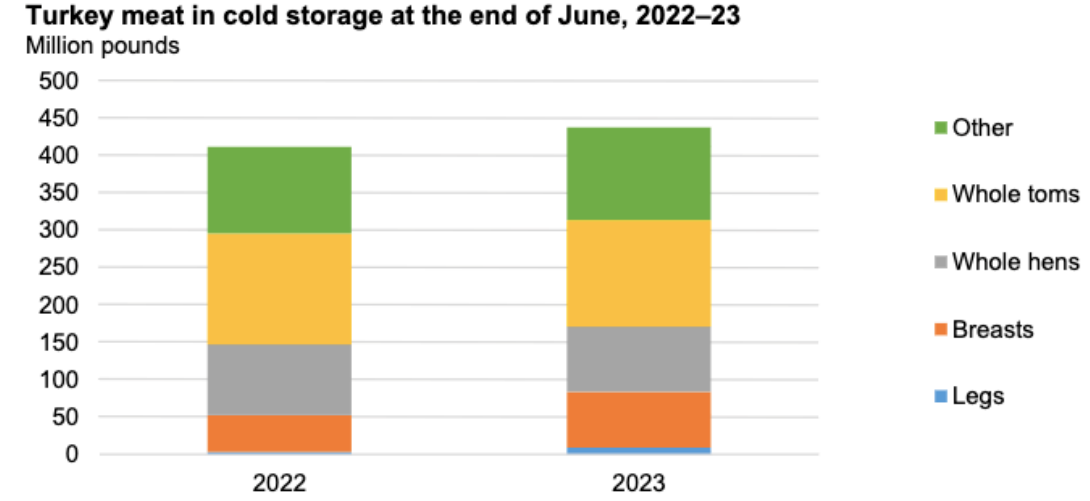
*Percent change for dairy exports is on a skim-solids milk equivalent basis, while production change is for milk production.
Source: USDA Economic Research Service calculations using data from USDA, World Agricultural Outlook Board, *World Agricultural Supply and Demand Estimates.*

Turkey in cold storage totaled 437.8 million pounds at the end of June, 6.3 percent higher than the same time last year. However, the breakdown by parts is different from last year. Whole hens made up 23 percent of turkey in cold storage at the end of June 2022 but were only 20

[7] NASS (2017). "Table 30. Poultry- Inventory and Number Sold: 2017 and 2012." 2017 Census of Agriculture. "Table 32. Poultry-Inventory and Number Sold: 2012 and 2007." 2012 Census of Agriculture. USDA.
[8] NASS (September 2021). "Turkeys Raised." https://downloads.usda.library.cornell.edu/usda-esmis/files/0g354f23n/b2774v486/jd473w04r/tuky0921.pdf

percent of turkey in cold storage at the same time in 2023. Whole toms also decreased from 36 percent to 33 percent of turkey in cold stocks at the end of June. Turkey legs increased from less than 1 percent of stocks to just over 2 percent. Turkey breasts increased from 12 percent of turkey in cold storage to 17 percent. All other turkey, including deboned meat and other parts and forms, accounted for a similar share of cold stocks in June 2022 and 2023, at 28 percent. These shifts indicate a slight change in emphasis from whole birds to turkey parts in cold storage. Projected year-ending stocks for 2023 are unchanged at 200 million pounds.

Figure 6: USDA Turkey meat in cold storage

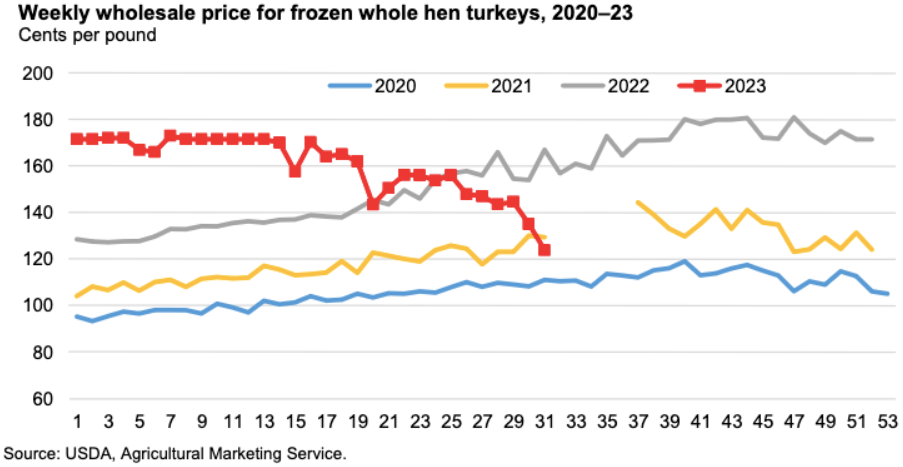


Note: Other includes deboned meat and other parts and forms.
Source: USDA, National Agricultural Statistics Service.

As turkey production and availability in cold storage have increased, wholesale prices have fallen. In the week ending August 4th, the average wholesale price for frozen whole-hen turkeys was 123.92 cents per pound, 43 cents below the same week last year and 5 cents lower than the same week in 2021. Based on both increased production expectations and the persistence of recent price decreases, projected quarterly prices are adjusted down to 135 cents per pound in the third quarter and 145 cents per pound in the fourth. This would make the annual average 152.4 cents per pound in 2023. For 2024, price projections were adjusted downward in all four quarters for an annual average price of 154 cents per pound, only about one cent higher than the 2023 average price.[9]

[9] Livestock, Dairy, and Poultry Outlook: August 2023, LDP-M-350, U.S. Department of Agriculture, Economic Research Service, August 17, 2023

Figure 7: USDA Weekly wholesale price or frozen hen turkeys

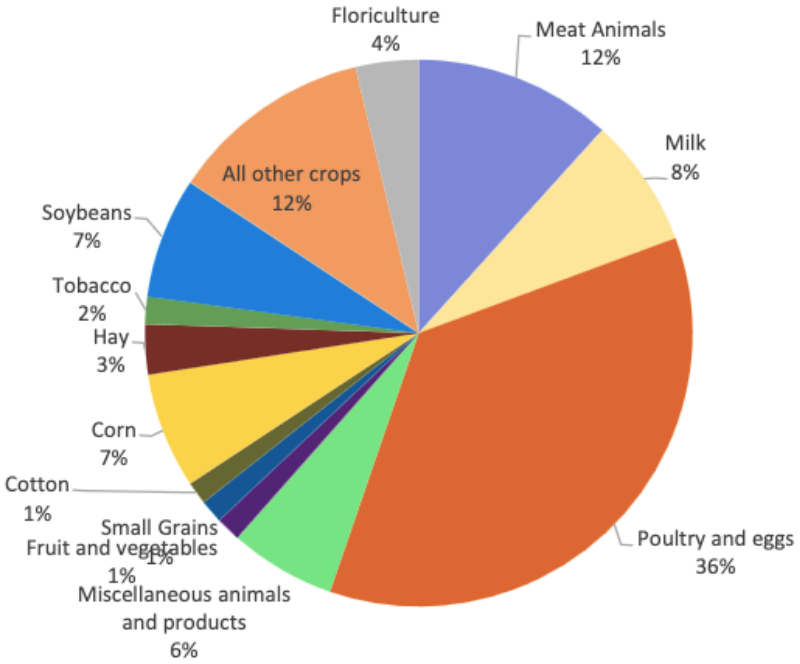


Source: USDA, Agricultural Marketing Service.

Virginia Poultry Industry

Poultry and eggs play a crucial role in Virginia's agricultural sector. The state is home to numerous poultry farms and hatcheries, producing a large quantity of chicken, turkey, and eggs. This thriving industry not only provides a stable food source for the local population but also contributes to the state's economy through exports. The poultry and egg industry in Virginia supports thousands of jobs, from farmers and processors to distributors and retailers. As shown in the figure below, it is a vital part of the state's agricultural landscape.

Figure 8: Virginia Agriculture

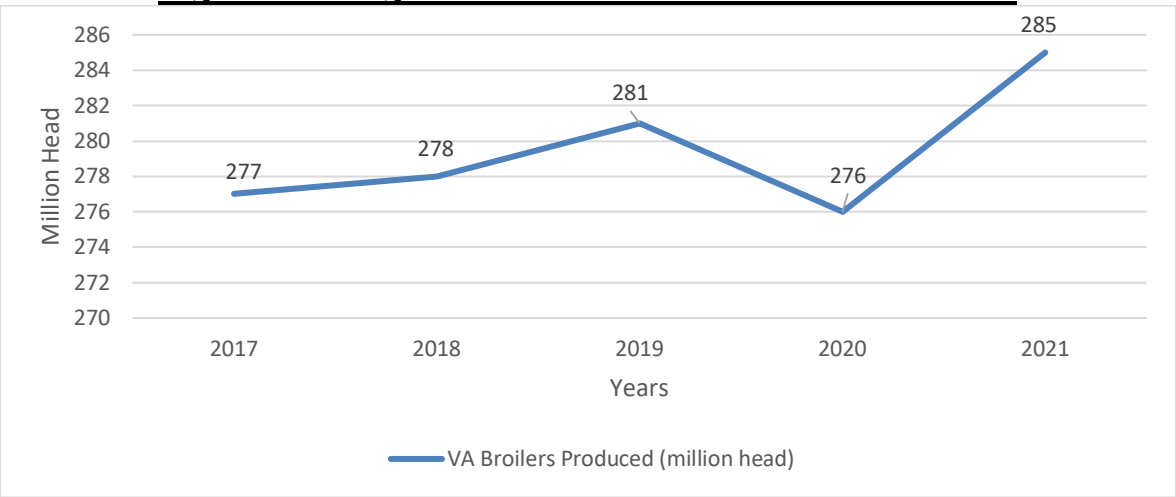


[10]

[10]https://www.nass.usda.gov/Statistics_by_State//Virginia/Publications/Annual_Statistical_Bulletin/2022%20VA%20Annual%20Bulletin.pdf

Virginia is currently number 9 in the country on the list of broiler-producing states, producing just over 3 percent of the nation's broilers. The 2021 State Agriculture Overview from the USDA NASS reports that Virginia produced 285 million head of broilers in 2021 valued at over $956 million. As shown in the following figure, the overall number of broilers produced in Virginia has continued to rise over the past five years. In 2017, around 277 million head were produced, rising to 281 million in 2019. The COVID pandemic saw these numbers decline, as was seen across the agricultural industry, dropping to 276 million for the year. This decline quickly rebounded as demand for meat rose during the pandemic, with production at 285 million head for 2021. continues a trend of declining turkey production since 2007 when it was at 18.4 million head.[11]

Figure 9: Virginia Broiler Production 2017-2021



Virginia is home to at least eight major poultry processing companies: Cargill Turkey Products, George's Foods, Pilgrim's Pride Corp., Perdue Farms, Tyson Foods, New Market Poultry, Shenandoah Valley Organic and Virginia Poultry Growers Cooperative Inc. These companies employ about 18,000 workers across the Commonwealth of Virginia and generate an additional 37,000 jobs in supplier ancillary industries. These include jobs in companies that supply goods and services to the state's poultry industry. [12]

[11] USDA NASS (2022) Poultry – Production and Value Summaries https://www.nass.usda.gov/Publications/Todays_Reports/reports/plva0421.pdf
[12] VA Poultry Industry Facts and Figures. https://www.vapoultry.com/resources/facts.cfm

Furthermore, local, state, and federal taxes paid by the poultry industry and employees total over $1 million and provide a direct economic impact of over $5 million to the state of Virginia. The broiler industry aids these numbers significantly and will continue to expand the industry as production continues to rise in coming years.

Virginia Entry Requirements for Poultry[13]

All poultry entering Virginia must bear official identification and the official identification number must be noted on the Certificate of Veterinary Inspection (CVI). Other movement documents approved by the State Veterinarian such as a VS 9-3 Form are acceptable if the shipper is a National Poultry Improvement Plan (NPIP) participant.

Hatching eggs and day-old poultry imported into Virginia must originate exclusively from flocks or hatcheries participating in the National Poultry Improvement Plan (NPIP) and be Avian Influenza Clean or the equivalent.

All other poultry must be tested negative for Pullorum-typhoid within 30 days prior to entry or be a participant of the National Poultry Improvement Plan (NPIP). Adult poultry must be tested negative for Avian Influenza within 14 days of movement to Virginia regardless of NPIP status.

If you have questions about Virginia's animal admission requirements, please contact the Office of Veterinary Services.

[13] VA Entry Requirements for Poultry. https://law.lis.virginia.gov/admincode/title2/agency5/chapter141/section60/

POULTRY BIOSECURITY

Biosecurity in poultry refers to a set of practices and measures implemented to prevent the introduction and spread of diseases among poultry flocks. It includes protocols such as controlling access to poultry farms, disinfecting equipment and vehicles, limiting contact with wild birds, practicing proper waste management, and implementing strict hygiene practices. These measures help protect the health and well-being of poultry, prevent disease outbreaks, and ensure the safety of poultry products.

There are several steps involved in implementing biosecurity measures in poultry:

1. Restricted Access: Limiting access to poultry farms to authorized personnel only helps prevent the entry of potential disease carriers.

2. Sanitation and Hygiene: Regularly cleaning and disinfecting equipment, vehicles, and facilities reduces the risk of disease transmission.

3. Control of Wild Birds and Animals: Minimizing contact between poultry and wild birds or animals helps prevent the spread of diseases they may carry.

4. Biocontainment: Separating different poultry groups, such as age or production stages, reduces the risk of disease transmission within the flock.

5. Disease Surveillance: Regular monitoring and testing of poultry for diseases can help identify any potential outbreaks early on.

6. Proper Waste Management: Ensuring proper disposal of poultry waste, such as manure, helps prevent the spread of pathogens.

7. Training and Education: Providing education and training to poultry farm workers about biosecurity practices helps ensure compliance and understanding.

8. Disease Prevention and Vaccination: Vaccinating poultry against common diseases and following recommended vaccination schedules can help prevent the occurrence and spread of diseases.

9. Monitoring and Reporting: Regularly monitoring the health of poultry and promptly reporting any signs of illness or unusual behavior to veterinary authorities is crucial for early detection and control of diseases.

10. Quarantine and Isolation: Isolating newly introduced birds and implementing a quarantine period helps prevent the introduction of diseases to the existing flock.

11. Biosecurity Audits: Conducting regular audits and assessments of biosecurity protocols helps identify areas for improvement and ensures that all measures are being properly implemented.

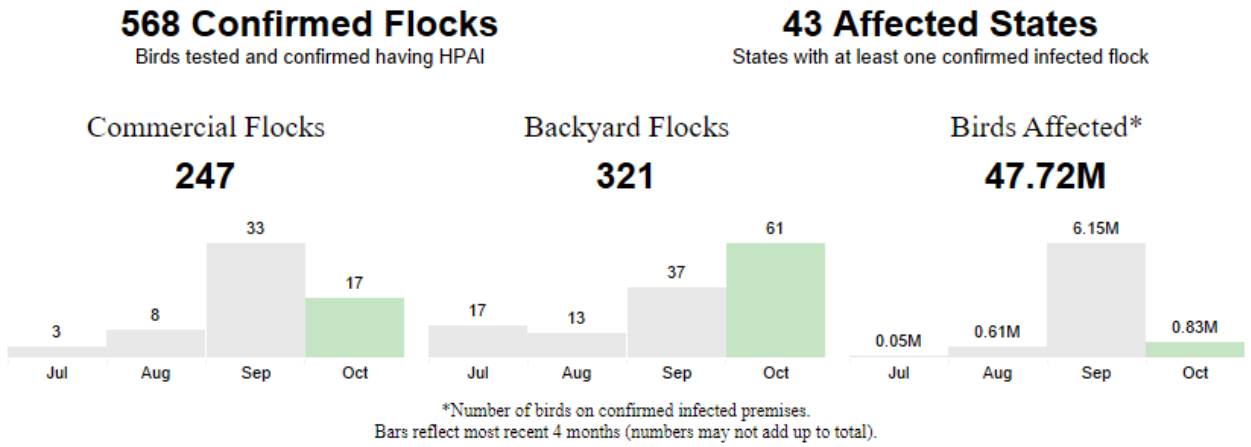
By following these steps, poultry producers can minimize the risk of disease outbreaks and safeguard the health of their flocks.

Highly Pathogenic Avian Influenza (HPAI)

Bird flu is one of many illnesses that can impact poultry populations, being spread among birds at commercial facilities and traveling rapidly across the country through migratory birds. In 2022, cases of highly pathogenic avian influenza (HPAI) began being reported in commercial poultry flocks across North America, as part of the latest global outbreak of the disease. The disease spread across Canada and the United States, affecting backyard flocks, wild animals, and commercial operations for all poultry species.

The latest HPAI outbreak has had significant impacts on the poultry industry. The following figure from the USDA APHIS shows the data over time on the current HPAI outbreak as of October 25, 2022.

Figure 10: HPAI Confirmed Detections[14]



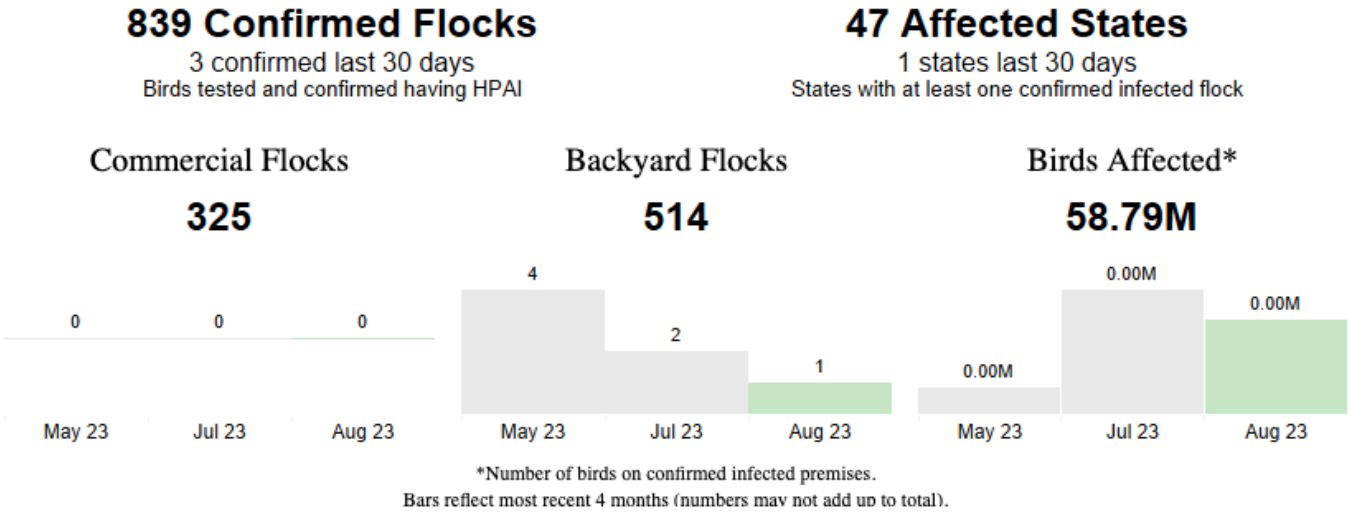
The peak of the outbreak was in March through May when the bulk of flocks and birds were infected. This then declined through July before beginning to spike again in September. As of October 25, 2022, there have been 568 confirmed flocks, including 247 commercial flocks, that have been confirmed to have HPAI, for a total of over 47.72 million birds. HPAI has been confirmed in commercial poultry in 24 states, including Michigan, Wisconsin, Oklahoma, Texas, Minnesota, North Dakota, South Dakota, Nebraska, Kansas, Iowa, Missouri, Kentucky, Indiana, Colorado, North Carolina, Pennsylvania, Delaware, Maryland, New York, Utah, Idaho, California, Arkansas, and Ohio. The disease has also been confirmed in backyard flocks in an additional 19 states.

At the beginning of 2023, with more than 40 million layers lost to HPAI the prior year, consumers started to notice the soaring cost of eggs and demanded an explanation. Now, with sporadic cases of H5N1 appearing in wild mammals in the U.S. and Europe and farmed mammals in Europe, there is even growing concern about bird flu sparking another global disease crisis. North America is currently evaluating wild bird relations to the Bird Flu. Integrators, growers, and technical staff are working to improve their biosecurity. Furthermore, larger operations are researching avian influenza vaccinations

[14] USDA APHIS. October 2022. www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian/avian-influenza/hpai-2022

with hopes of protecting the lives of the birds as well as humans.[15] The figure provided below shows the most recent chart of cases throughout 2023.

Figure 11: HPAI Confirmed Detections 202316



VA Initial State Response and Containment Plan (ISRCP) and Prevention and Rapid Response for Low Pathogenic Avian Influenza (H5 and H7)

Virginia's poultry industry implemented its state response and prevention plans for low pathogenic avian influenza (LPAI) following a large 2002 LPAI outbreak in Virginia's Shenandoah Valley. This planning effort became the forerunner to USDA Animal and Plant Health Inspection Services (APHIS) planning requirements for states requesting federal indemnification for poultry owner and grower financial losses associated with LPAI and later high pathogenic avian influenza. Poultry companies and growers are expected to follow their state plans to maintain minimum eligibility for and facilitate timely federal indemnification.

The Virginia Poultry Disease Task Force serves as Virginia's Emergency Disease Management Committee for these plans. The Task Force is comprised of poultry industry stakeholders, including state and federal animal health officials, and administered by the Virginia Poultry Federation, Inc. https://www.vapoultry.com/programs/poultryHealth.cfm. The Task Force was established separate from government agencies to protect confidential business information from being made available to the public.

Salmonella

Salmonella is a type of bacteria that can be found in poultry. It can cause foodborne illness if consumed. Poultry can get infected with salmonella through contaminated feed, water, or environment. When poultry is not properly handled or cooked, the bacteria can spread to humans through cross-contamination or consuming undercooked poultry. It's important to handle and cook poultry thoroughly to reduce the risk of salmonella.

[15] https://www.wattagnet.com/search?searchQuery=falling+prices+in+2023
[16] https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian/avian-influenza/hpai-2022/2022-hpai-commercial-backyard-flocks

There are several ways to avoid salmonella contamination in poultry. Here are a few tips:

1. Proper handling: Wash your hands thoroughly with soap and water before and after handling poultry. Use separate cutting boards and utensils for raw poultry to prevent cross-contamination.

2. Safe storage: Keep raw poultry refrigerated at or below 40°F (4°C) to slow down bacterial growth. Make sure to store it separately from other foods to avoid any potential contamination.

3. Thorough cooking: Cook poultry to a safe internal temperature of 165°F (74°C) to kill any bacteria, including salmonella. Use a food thermometer to ensure proper cooking.

4. Avoid consuming raw or undercooked poultry: Raw or undercooked poultry can be a source of salmonella. Make sure poultry is fully cooked before consuming it.

By following these guidelines, you can greatly reduce the risk of salmonella contamination and enjoy safe and delicious poultry dishes.

E. Coli

E. coli is a type of bacteria that can be found in the intestines of animals, including poultry. It doesn't have a visible appearance in poultry, so you can't see it with the naked eye. While E. coli in poultry is not contagious to humans, it can cause foodborne illness if poultry is not handled or cooked properly. To reduce the risk of E. coli contamination, follow good food safety practices like thorough cooking, proper hand hygiene, and avoiding cross-contamination. While it's not possible to completely avoid E. coli, taking these precautions can greatly minimize the risk.

Newcastle Disease

Newcastle disease is a highly contagious viral infection that affects poultry, especially chickens. It can cause respiratory, nervous, and digestive system issues in infected birds. The disease spreads through direct contact with infected birds, their droppings, or contaminated equipment. It's important to practice biosecurity measures, such as limiting contact with other flocks, maintaining a clean environment, and vaccinating poultry to prevent the spread of Newcastle disease.

SLAUGHTER AND PROCESSING FACILITY CHALLENGES

Handling and selling food products, such as processed poultry, has significant legal liabilities and risks. Remaining compliant with regulations becomes even harder when operating a mobile slaughter unit, which will be limited based on the area and permits obtained. New and changing safety and regulatory requirements in response to COVID-19 create additional hurdles. New processing and slaughter facilities must already comply with multiple regulations regarding food safety when handling poultry products. In light of the COVID-19 pandemic, the CDC and FSIS have provided additional guidelines and regulations on worker and food safety that a facility will need to address. Local and state mandates may also affect the normal operations of a facility, regardless of the facility's operating size.

Additionally, unexpected changes in operations or lack of supply can cause sustainability issues for start-up operations. A new facility should always have a plan in place before starting operations, including a plan in case of drops in poultry meat production and inventory. Facility management should be prepared to address lack of cash flow during slow months as revenues will be lower, but expenses will still be incurred.

Starting and operating a slaughter and processing facility brings multiple challenges that are both common among starting any business, as well as unique to the specific industry. Any new venture must determine key feasibility points, either formally or informally, to decide on whether to proceed with a business idea. Such areas include whether the venture will be feasible considering economic, technical, financial, market, and management environments and conditions. These general categories entail numerous components that all must work together for a project to be feasible.

Multiple reports and feasibility studies discuss the challenges faced by slaughterhouses and processing facilities. Many of these challenges are the same across reports, as they are common across facilities typically without regard to size or specific model. These challenges have been synthesized here, but links to each study can be found in the Resources section of this document.

Access to capital and securing sufficient start-up capital

Depending on the level of construction needed to build and open a functional facility, any venture would require significant capital outlay. Having the necessary funds during the startup phase is crucial for any project or business. Owners for a new facility must determine all their startup costs and the sources of that funding before initiating the project. Sources of startup capital can include new business loans, funding from investors/ donors (if the facility is a nonprofit), owner equity, and federal or local grants.

Not only should owners identify the sources of funding, but also have then secured before investing in a building or equipment as many of these, such as grants or loans, depend on approval that could take months to receive. Often a figure of 50 percent equity along with 50 percent in loan funding is used as a good general rule of thumb for financing new ventures. Potential funding sources for working capital for a processing facility are provided in the appendix.

While startup funding is vital to the beginning stages of the facility, management will also need to determine how operations will be financial sustained in the future. Grant and loan funding can continue to assist in some capacity, but the facility should aim to self-sufficient to sustain operations long term.

The capital invested would have a long-term return since processing facilities generally operate on slim profit margins per pound of processed product and depend more on volume and throughput for operating capital. Particularly in start-up operations, the venture would be vulnerable to a lack of inputs and need for services, due to existing players and a lack of bird inputs.

Labor and Management

Finding skilled management that is committed to the project or business is vital for new businesses. The facility owners should strive to find the management team for the business during the start-up phase to ensure that the team is capable and competent for the business. Facility owners should fully detail the expectations and duties of the management team and conduct a robust hiring process to find the most qualified candidates.

Along with finding skilled managers, facility owners will also need to ensure that they are providing adequate compensation to the managers for the expected level of work. Labor represents a large expense for facilities but is a necessary cost to maintain a skilled workforce. Underpaying or understaffing the management team could lead to early turnover and an unstable business.

Along with skilled management as discussed above, finding a skilled and committed labor force is another potential challenge. Some areas may have a larger pool of skilled laborers than others, especially if the facility is in the general area of other processors. Additionally, if the facility is processing multiple species, it will become harder to find laborers skilled in all areas, and additional training may be needed, further adding to labor costs.

Even if the facility can find skilled labor or provide training to laborers, keeping employees at the facility and reducing turnover is another issue. The cost to retain skilled labor is another factor to consider when planning for a facility; if the facility cannot afford to keep skilled labor, then it will not be able to retain skilled labor. Additionally, if the facility only uses seasonal labor, it becomes more difficult to guarantee that those trained employees will return for the next season.

Facility Site

The site or facility that is ultimately chosen for any venture such as this should take into consideration the locations accessibility, both in terms of moving and holding product for slaughter, as well as the ease of moving finished product to end customers.

The community surrounding a potential slaughter facility can often be an obstacle as well, the “Not In My Back Yard” attitude can provide significant community friction, particularly when a venture is attempting to get zoning and other local permits and permissions.

The location chosen for the venture would also have to consider zoning restrictions that may interfere or affect the day to day operations of the facility. The fact that slaughter takes place individually, while delivery of a load of cattle for slaughter would take place in masse means that facilities would need to encompass at least some sort of short-term holding area for groups of cattle intended for slaughter, as well as facilities to handle the resulting waste.

Water and wastewater are major inputs and outputs of slaughter and processing. Almost every step in the slaughter of live animals will involve water. It is generally recommended that the facility have

access to city or public water instead of a well. Public utilities generally requires that the water be treated for removal of fats and monitored for other waste products.

Because of the large amounts of waste and effluent products that are produced by any slaughter operation, there are numerous and varied regulations regarding wastewater and sewer treatment and disposal. Those interested in establishing such a venture should work closely with city and county officials to determine the costs of such infrastructure in order to accurately assess the ability of a site to serve as the location of a slaughter and processing plant.

The facility itself will need to implement an infrastructure specific to the clean and safe handling of live animals near food products being produced. Proper drainage and segmentation of the entire slaughter and processing process should be planned with the help of engineers and consultants as well as close cooperation with local and state level officials in order to assure the best chance of success.

The facility will need to be of sufficient size to operate efficiently at the level of production that is chosen to minimize cost and maximize the chance for profitability. Slaughter costs can vary by breed, largely due to the differing amounts of labor required to harvest each breed as well as highly variable carcass yields.

The potential owners of the facility will need to work with design experts to create a site-specific design that contains elements such as delivery, holding, killing areas, cooler and freezer storage, dry storage, employee facilities such as locker and shower rooms, break rooms, loading docks, and administrative offices.

In most cases, it is the functional issues rather than the specific layout of the facility that determines most of the costs of construction of a processing facility. Other costs like site preparation and permitting can account for a surprisingly large part of the cost. The option of refurbishing an existing facility for slaughter and processing may serve to reduce the capital cost of a facility and reduce the time necessary to begin operations.

Marketing

Promoting awareness of a venture such as a slaughter and processing facility would need enough funding, especially during the first years of operation, in order to capture the available demand for processing services. Failure to sufficiently market to producers in the area could result in a lack of cash flow for the facility, and ultimately, cessation of business.

Whether or not the facility considers building their own brand, or simply focusing on custom processing services for local producers, the venture will need to work to establish relationships in the region to secure steady processing inputs.

In any business, relationship marketing will need to be the core of promotion for a potential processing facility. Maintaining positive relations with producers supplying poultry for processing as well as purchasers of the processed end-product can increase revenue for the venture.

The cost of sufficient marketing tools and the ability of management and personnel to implement those tools in a meaningful way will be key to driving awareness of the facility. By gaining a reputation for

consistency of product and reliability of operation, new customers can be encouraged to utilize the services offered by the facility.

Pricing

While it is generally assumed that locally produced and marketed products can capture a price premium when sold, these assumptions are subject to the variableness of consumer markets, and may change with little or no notice, thus jeopardizing a new venture with higher costs.

Challenges for Farmers Using a Facility

In addition to the challenges faced by the processing facility, farmers also face challenges in producing and providing their livestock to the facility. These challenges include:

Distance of the farmers from the processing facility. Many farmers are not able to drive long distances to bring their livestock to a processing facility, not only is there a cost associated with the transportation, but also a time commitment that takes the farmer away from the business toward driving round trip. To many, the ability to access a processing facility that is close by that has the capacity to process all their animals is a major barrier for farmers.

Wait times at the facility and overall capacity. When a farmer can access and transport their livestock to a facility, many times the processor does not have the capacity to process all the animals needed and the farmer must find an additional facility to process the livestock. Additionally, if a facility has high demand for their services, the wait times to process birds may increase, causing the farmer to be unable to process their animals in a timely manner for poultry meat orders.

High costs of processing. The high costs associated with processing animals is another barrier and challenge that farmers must weigh when deciding where to process their animals. To reach some of the niche markets, like certified organic, farmers may also have to pay higher processing fees at a certified facility.

Lack of control over product and packaging. Using a third-party processing facility removes some of the control farmers have over the end-product, including the type and quality of packaging used. Some facilities may not be able to provide further processing and cut-up services, which means the farmer must conduct that themselves if they want to provide specific cuts to the market. Additionally, facilities typically only provide basic packaging with minimal labeling. For direct-to-consumer markets, farmers may need to repackage or place different labeling on the product before it is sold.

Strategies to Overcome Challenges

The following are multiple potential strategies for overcoming challenges for slaughter and processing facilities and farmers supplying those facilities. These strategies are adapted from multiple studies. Links to all sources are provided in the Resource section.

Plan

Planning and research are the most important step before ever investing in a facility or beginning construction. This process may take time, but it will be worth it to the long-term success and sustainably of the project. Planning can include building a network of expertise within the industry and

engaging with experts early; developing a feasibility study to analyze different aspects of the project; and developing a more in-depth business plan that outlines specific operations and projections.

One of the main reasons that a facility may fail or meet unexpected challenges including the ones listed above is due to insufficient planning from the beginning. Planning includes determining how the facility will operate during a startup phase and scale up to larger capacities as needed. Knowing the number of animals that will need to run through the facility, as well as costs, labor needs, and funding sources will help, but owners should also have a contingency plan if projections are not met.

While the initial planning is an important step, this planning process will need to continue as the business grows. By conducting the business planning and operations review process annually or at least regularly, then facility owners and management can determine if current operations and procedures are meeting client needs, as well as still profitable for the company.

Differentiate the Business

A slaughter and processing facility has different options for the overall business and service model, so finding a way to diversify the business and differentiate themselves in the market can help with long-term success. Strategies include:

- Obtain product certifications, such as organic, all natural, and animal welfare. Becoming a certified plant for one or all of these product categories can help expand the customer base for the facility, as well as increase the value of services and products.
- Develop and implement an on-site retail store. By offering an on-site retail store, the facility can either sell products under a facility-owned brand name, or under brands for other customers. This sales outlet could provide higher prices for products, as well as another market service for producers using the facility.
- Find creatives uses for non-prime cuts of meat. Finding a market or product use for less desirable cuts or offal can help reduce waste and provide additional income.
- Establish brand identity at the start of the venture. An established brand that moves into meat processing may have better success at finding market and customers for their products.
- Diversify customer outlets. This strategy will pertain more to facilities that are selling cuts versus facilities that are simply providing processing services and not maintaining ownership of the meat. Knowing the markets providing products that would satisfy multiple markets will help a facility maintain sales if one market fails.

Know and Track Business Financials

During the planning process as discussed above, potential facility owners should conduct a full financial feasibility assessment, as well as financial projections under a business plan. These financials will help with not only securing funding in the start-up phase, but also provide a guide for how the business is expected to perform financially over the next few years.

During actual operations, facility management will need to continue to monitor all financials and compare actual expenses and revenue to projections. This process is extremely useful to understanding how the company is performing, where improvements may be needed, and where to focus time and efforts in the future.

Third Party Companies

A toll processor in poultry refers to a third-party facility or company that provides processing services for poultry on behalf of others. They typically have the necessary equipment, expertise, and resources to handle various stages of poultry processing, such as slaughtering, evisceration, and packaging. Poultry farmers or companies may choose to utilize toll processors to streamline their operations or to meet specific processing requirements. It allows them to focus on other aspects of their business while entrusting the processing tasks to specialized facilities.

GENERAL OPERATING PROCEDURES

To remain a successful commercial enterprise, a poultry processing facility needs to evaluate and revise its operation procedures as it establishes production at the facility. Basic procedures for the type of venture being proposed are presented in the following section of the report, which are intended to provide a general level of information and points of comparison.

Location and Site Specifications

Poultry processing facilities vary greatly depending on the target production. Facility requirements are sensitive to the number of animals processed per hour and day, the level of automation utilized, and local zoning requirements and restrictions. The owners of any potential facility should familiarize themselves with the requirements and production estimates that will affect the layout and location of the processing facility.

The location of the processing facility should be adjacent or close to the sources of inputs in order to minimize the cost of transportation. Mortality is typically not a concern unless there are extreme temperatures present.

The site should maintain sufficient areas for parking, turning, waste disposal, and any secondary buildings required. Proximity to other meat processing factories will also be avoided.

The size and space of a facility are considered key for the long-term operational success of the venture. The estimate of necessary space should include room to allow for expansion over time, and the start-up of the venture will utilize space as necessary based on initial sales. The site should have space to handle the initial operations and room for growth should demand make this necessary. The owners of the venture will need to determine the amount of space needed based on intended operations.

The facility should consist of the appropriate buildings for storage and should include freezer and cooler storage areas as well as the equipment necessary for the level of processing and preservation that is intended to be performed.

The overall setup of the facility will change depending on the available space, services to be provided, and capital available at start-up. However, a basic facility would expect to have the following areas and rooms: pen area, kill/cut rooms, carcass chill room, processing floor, staging coolers, and related equipment as well as room for office space, employee changing and locker rooms, shower facilities, and bathrooms.

Depending on throughput capacity, the facility would likely need to have access to several acres to allow for the holding of animals yet to be slaughtered. Buildings often need to be above the ground water table for environmental reasons. Interior walls would consist of non-porous surfaces to comply with slaughter regulations.

Due to the needs of the slaughter and odor considerations, the building would need to include appropriate ventilation systems. These systems would maintain the processing part of the facility at 50 degrees to assist in meat preservation and quality.

Buildings are typically on reinforced concrete and may require additional site preparations depending on the specific soil compaction and drainage characteristics of the plant site. Also depending on these characteristics, a facility may need to construct areas for runoff retention, such as a pond.

Typically, energy-efficient, or "green" facility features are not considered in the location and site specifications. These features, such as solar panels, tend to represent higher costs and are not considered a necessity for the site, but are options for the owners to consider.

Animals will likely be delivered to the plant via truck, either by the facility or by farmer. Before the animals are slaughtered, they will need to be placed in holding pens. Animals from different producers will be segregated to maintain identity preservation of animals throughout the entire process. The facility will not provide feed for the animals in the holding pens. To meet inspection requirements, there would also need to be a separate pen for any suspect animals; all pens will be undercover, but open-sided for ventilation. Depending on the animals being held, the facility may need modified holding areas, which may include modified fencing and pens. For small scale backyard operations please visit https://www.pubs.ext.vt.edu/2902/2902-1092/2902-1092.html , where you can find housing examples and regulations.

Zoning

It is important that the business remains current with any zoning requirements related to the proposed venture and any expansion in the future. For the sake of the study, basic zoning information follows as a reminder of the steps that may need to be taken as the project moves ahead. Some of these issues can include:

- Visual impact - including the need for buffering, screening and landscaping of the facility
- The impact of noise from the plant (limited)
- Traffic study addressing the intersection design, turnaround areas, and car parking
- Management of additional wastewater
- Additional requirements for water and power to the site
- Soil suitability in regards to building foundation, erosion control and absorption

Some of the vegetative controls that may need to be implemented include the following: tree protection tape, permanent and/or temporary seeding, and erosion control blanket/matting on steep slopes and in swales. Structural controls that may be implemented include construction entrances, silt fencing, diversion dikes, temporary sediment traps, rock check dams, storm drain inlet & outlet protection, and surface roughening.

At times, zoning can drastically delay the expansion of a business, especially since zoning boards can deny approval for a business to force the owners to change their location or building plans. Since a processing facility typically is deemed an industrial business, it may be difficult for the owners to establish a location within a rural county, and these areas may require additional steps before approving the zoning regulations.

Table 1: Standard Requirements for Site Development.

1	Grade the site to a 2 to 4 percent slope
2	Slope the site toward a collection pond
3	Add minimal paving under the facility
4	Build beams around the perimeter to control run-off and run-on, if required
5	Plan areas for raw material storage, if applicable
6	Set up equipment in locations convenient to the process
7	Construct retainer walls and footings
8	Develop a screen/landscaping around the site
9	Install appropriate utilities depending on the method and process
10	Obtain proper permits (mandatory) —Local: zoning, building, and land use —State: water discharge, access, air, and health department

Zoning regulations become especially important when a business seeks to expand its current operations, through either the addition of production or a physical increase in the building and/or property designed to change the use of the land and existing facilities. The current operations legality does not guarantee the right of the owner to expand or modify in the future and is subject to current zoning restrictions and codes.

In terms of defining slaughter facilities by size for the purposes of enacting zoning legislation, there are varying methods of defining and categorizing slaughter plants. A 2012 USDA Economic Research Service Report titled "Slaughter and Processing Options and Issues for Locally Sourced Meat" divides facilities into small, medium, and large by the following characteristics:

- Small Establishment: Processing less than 10,000 head of livestock annually.
- Medium Establishment: Processing from 10,000-999,999 head of livestock annually.
- Large Establishment: Processing 1 million or more head of livestock annually.

The Food Safety Inspection Service (FSIS) designates plant size according to number of employees:

- Very Small: Less than 10 employees.
- Small: More than 10 but fewer than 500 employees.
- Large: More than 500 employees.

Zoning regulations should provide well-defined criteria in order to properly target a specified use and minimize any unintended effects. Another consideration is to clearly stipulate any exemptions that may be granted for individuals or custom-exempt type slaughter facilities.

Poultry Processing

Processing poultry involves a series of 9 steps to transform a live bird into the delicious poultry we enjoy. Each step plays a crucial role in ensuring the safety and quality of the poultry products we consume. You will find each step explained below:

1. **Receiving:** Once the crates of poultry arrive at the processing plant, they are transported to the shackling area via conveyors and then placed in holding cages or modular bins to prevent them from injuring other birds and for proper air circulation.
2. **Slaughtering:** In the US, electrical stunning and the use of carbon dioxide are the most common methods to make broilers unconscious or render birds insensible prior to this process. Often, slaughtering is done manually by severing the jugular vein at the ventrolateral base of the bird's head (sometimes referred to as the modified kosher method).
3. **Scalding:** Using hot water set to 53°C, the birds are scalded for 2 to 3 minutes. It's important to avoid over and under scalding so that the outer layer of skin and feathers are completely and smoothly removed.
4. **De-feathering:** Poultry pluckers (or pickers) remove the loose feathers from the scalding process. Also, the carcasses are passed by through flame to remove the filoplumes or hairlike feathers.
5. **Evisceration:** Throughout the process, meat inspectors conduct thorough visual inspections to spot bruising, fecal matter, and diseases. While the remaining viscera are discarded, the liver and gizzard are retained; and the latter is also cut, opened, and cleaned. The lungs, kidneys, trachea, esophagus, and crop are all removed manually, while the head is removed using a V-shaped knife or manually as well.
6. **Washing:** Poultry carcasses are spray-washed with cold water to remove blood, loose tissues, and other foreign substances from the surface. If these aren't removed, contamination may occur.
7. **Chilling:** Rapid cooling, done in less than 40 minutes, prevents microbial growth. Also, this process is key to enabling the maximum shelf life of the final product.
8. **Packaging:** Poultry carcasses are weighed on a pan balance. The birds are then packed and wrapped. After wrapping, inspections are done to verify that the final product is up to par with consumer expectations.
9. **Freezing and preservation:** These steps, along with safe food storage, are done to prevent spoilage and deterioration caused by microbes and fat oxidation.[17]

Avoiding Contamination

When it comes to poultry processing, avoiding contamination is key to ensuring safe and high-quality poultry products. Contamination can occur at various stages, from receiving the live birds to packaging the final products. By following proper hygiene practices, implementing effective sanitation measures, and maintaining a clean processing environment, we can minimize the risk of contamination and produce safe poultry products that we can enjoy with confidence. Let's explore some important tips on how to avoid contamination in poultry processing!

[17] https://safetyculture.com/topics/poultry-processing/

- **Ensure adequate training** – Team members should be provided with thorough training on all the required sanitation practices.
- **Keep the work area clean** – Make sure that all employees are either knowledgeable or actively participating in conducting cleaning practices as they work.
- **Implement strict personal hygiene** – Apart from observing industrial hygiene, it's also a must to remind your workers to practice good habits (such as proper handwashing) in maintaining personal hygiene.
- **Separate foods at different stages** – Raw, cooked, and packaged poultry meat must be stored separately at every stage of processing.
- **Observe strict monitoring procedures** – Make sure that supervisors and team leaders continuously monitor sanitation practices, employee safety protocols, and equipment maintenance.[18]

Processing Equipment

Killing Equipment

In poultry processing, different tools and equipment are used for various stages of the process. Here's a breakdown of the items you mentioned:

1. Cones: Cones are used for restraining and immobilizing birds during the slaughtering process. They provide a safe and controlled environment for handling the birds.

2. Killing line conveyors: Killing line conveyors are conveyor systems that transport birds to the slaughter area. They ensure a smooth and efficient flow of birds during the processing.

3. Stainless steel killing tunnels: Stainless steel killing tunnels are enclosed structures where birds are passed through for stunning and slaughtering. The tunnels are designed to provide a controlled and humane environment for these processes.

4. Stunning knives: Stunning knives are specialized knives used to stun the birds before slaughtering. They are designed to deliver a quick and effective stunning method, ensuring minimal stress and pain for the birds.

Each of these tools and equipment plays a specific role in the poultry processing workflow, contributing to the efficient, humane, and safe processing of poultry products.

Scalders

The majority of scalders are the same, only varying size. Through scalding, the birds are placed in boiling water around 130-170 degrees for 30 seconds to 2 minutes. This process breaks down the epidermal layer of the bird and allows the next step to run smoother.

Pluckers

A plucker machine, also known as a poultry plucker or feather plucker, is a mechanical device used in poultry processing to remove feathers from the birds. It typically consists of rotating rubber fingers or discs that gently and efficiently remove the feathers from the bird's body. The plucker machine saves

[18] https://safetyculture.com/topics/poultry-processing/

time and effort compared to manual feather removal, making the poultry processing process more efficient.

Hand tools

Once plucked, typically the birds are cut into smaller desirable portions. In order to do so, processers use scissors, boning knives, pinning knives, and a lung remover.

Post-Processing Procedures

Once the animals are slaughtered and processed, there are other procedures that a facility will need to consider regarding waste disposal and the proper storage of the meat.

Waste Disposal and Odor

Any product attributes that may provide additional value, such as organic, grass-fed, or other designations do not usually apply to offal and waste products, or by-products in general. Products that do not have a ready market will need to be disposed of, likely at a cost to the facility. Due to the slim margins of the meat industry in general, facilities often rely on offsetting these costs by reaping value from the slaughter and processing by-products when possible.

A facility will generate large amounts of waste material that will need to be held in a sanitary manner until it can be picked up by a rendering plant or animal waste material recycler. Storage tanks are typically utilized with regular pick-ups scheduled to remove the material in a timely manner. For small-scale backyard operations, it is important to be mindful of your neighbors.

In some cases, incineration is an allowable method of disposal of animal by-products and offal, but there are restrictions that govern the amount of product and method by which it may be incinerated.

As noted in an Iowa State University Extension document titled *Co-Location of Industries with Livestock Slaughter Facilities*:

> "The economics of the world's competitive meat industry is such that value often needs to be extracted from the marketing of animal co-products. In fact, to offset the added and increasing cost of disposal of some of these products (spinal cord, brains, skull, vertebrae, etc.), it is vital that as much value as possible is extracted from those that have a ready market. Over time, the value of animal by-product relative to the value of the live animal has declined due to the technological progress in producing competitive products from non-animal sources such as synthetic materials to replace leather, synthetic fibers to replace wool, vegetable oils to replace animal fat, and synthetic detergents to replace soap made from animal fat, etc."

Odor control has also become a significant issue for facilities in urban and suburban communities. Many are addressing the issue through proactive odor control systems. In many cases, the local acceptance of a facility may ride almost entirely on the odor issue. Volatile organic compound (VOC) control is achievable on a variety of gas streams. Control of xylene, toluene, styrene, and similar volatiles is possible. Typically, pilot testing is advised for specific VOC emissions to verify applicability and bio-filter sizing.

Chilling and Storage

Once the meat has completed the slaughter process and any further processing; the products are chilled and moved to cold storage. The size of these areas will depend on the types of animals processed, as well as the need for additional aging. The amount of space required for chilling versus freezing will depend on the demand for end products exhibited by customers. Some may prefer to pick-up their meat frozen, while others may intend to sell their processed meat as fresh.

Cooling facilities often include a quick chill area utilizing a water spray to prevent meat shrinkage. Cooler capacity should consider the need to store carcasses for aging as well as room for longer-term chilling. Coolers include monitoring equipment to record humidity and temperature. Facilities also frequently include chest unit blast freezers as well as walk-in freezers that provide storage capacity. A facility may also contain two rooms for dry storage to be used for packing and shipping goods.

Many facilities do not hold large amounts of inventory and choose instead to process inputs sufficient to meet immediate demand. However, through necessity, some inventory will be held over. This may be caused by producers who have contracted for processing but do not arrive to pick up their product when specified. Frozen storage capacity is not only expensive to purchase/own, it can also be expensive to operate.

A facility would need to maintain coolers with capacity sufficient to allow for hang time or long-term chilling or aging. At least a portion of one of the cooling areas should include a separate area for suspect meat. Coolers would need to include monitoring equipment to record humidity and temperature.

The facility may need to consider including a chest unit blast freezer or walk-in freezer that would have capacity for several days of processing. The facility may wish to offer onsite freezing as a service for producers.

Equipment Specifications

A typical poultry processing operation will require a wide array of equipment for the care, processing, packaging, and sale of their products. A variety of equipment manufacturers should be considered before deciding which best fits the business' needs. This selection may involve consulting experts on poultry production operations for guidance on the various options available.

The owners of a poultry processing operation may choose to purchase newer production equipment specifically designed for their intended scale of operations or they may source used or vintage equipment to stay cost-effective in the establishment of the facility. Similarly, the owners will also need to consider future levels of production as well, as smaller equipment may not be able to accommodate the business' growth.

There are numerous pieces of equipment and supplies that would be necessary for the operation of a poultry processing facility. The specific items required would be highly dependent on the facilities intended inputs, the desired level of processing for outputs, as well as facility infrastructure and access to waste handling facilities.

Production Considerations

Some important considerations should be made when considering the products. If they do not have adequate supply of inputs and/or enough product to meet demand, or if their products do not meet USDA processing standards and FDA food safety requirements, the venture can irrevocably damage their reputation in the area. The following critical factors should be considered:

- **Quality Assurance of Supply**

Inputs are one of the key determinants of the quality of the operation's products. The owners will need to ensure that the animals being slaughtered in their facility are healthy and of good quality, and the resulting meat is properly cared for. This will ensure that the resulting products are of high quality to guarantee consistent taste and quality. The volume of production necessary and/or extenuating circumstances will determine if the operation needs to increase its supply of inputs.

- **Seasonality**

Seasonality is an important issue for every venture. Product continuity is vital because customers expect a consistent supply of products and for orders to be filled as they are placed. The poultry used for this project have a growth cycle and need to be raised properly to be fit for processing. The operation will need to plan its operational year around the growers using the facility and the timing of their processing needs. This will have great impacts on the operation's cash flow throughout the rest of the year. For the business to grow and thrive, the owners must be prepared for seasonal variations in inputs as well as demand.

- **Food Safety**

In any operation in which the product is intended for human consumption, considerations need to be made regarding food safety. Poultry products are under strict guidelines on federal, state, and local levels, and the facility will need to ensure that its operations comply with all regulations. Food safety begins with an appreciation for cleanliness throughout the entire supply chain. Good agricultural practices, an understanding of microbiology, good manufacturing practices, safe procedures for cleaning and sanitizing, and a thorough understanding of the principles of Hazard Analysis and Critical Control Point (HACCP) development all matter to the project.

- **Water Sources**

An abundant clean water supply is necessary to maintain the cleanliness of the facility's operations. This water will mostly be used as a cleaning medium. All personnel will receive training and be responsible for the correct use of water.

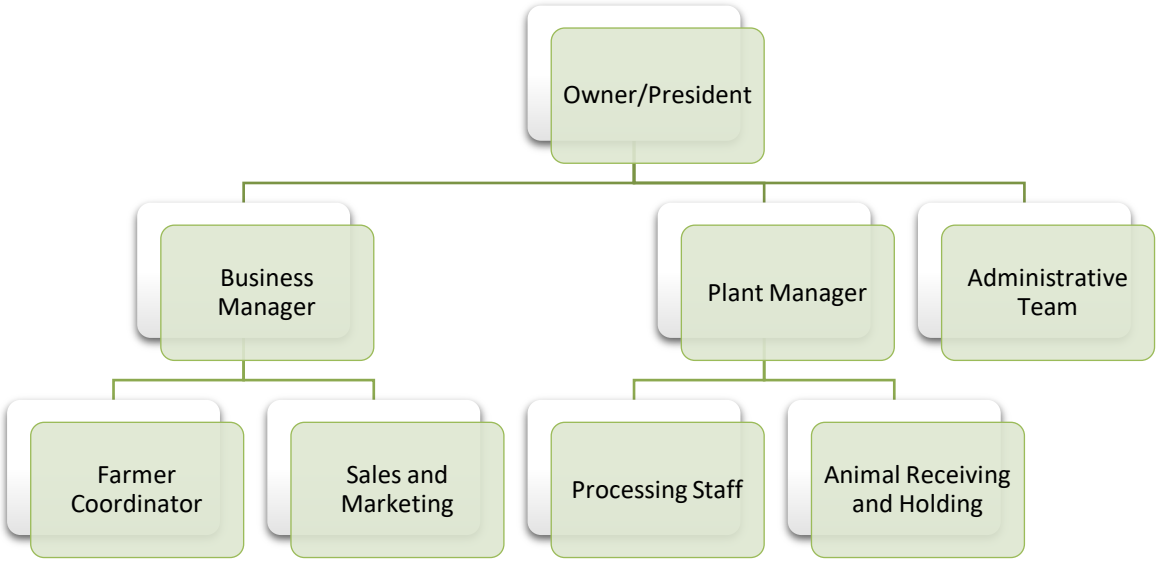
Should the facility choose to use an on-site water source, such as a spring or well, they will need to establish additional controls and treatment plans. This may include filtering, cleaning compounds, and other processes to ensure compliance with regulations regarding the use of the water source. In this context, waste disposal also must meet local and state regulations.

Human Resources

For small scale poultry operations, it is typically an owner and a few part time workers with numerous roles. However, with most businesses, the efficient operation of the venture requires numerous roles to be fulfilled. While the following information regarding human resource needs is presented using personnel titles, these titles are intended to represent a role within the venture that will need to be filled along with associated functions. Often, multiple roles can be fulfilled by one employee, and where possible, individuals may fulfill several roles based on availability; however, certain basic functions must be performed.

General roles and descriptions of these roles are listed below with brief descriptions of duties. These are intended as a guide rather than a definitive employee listing.

Figure 12: Sample Human Resource Organizational Chart



Owner/President

Depending on the ownership and management structure of the business, the owners may fill the role of the facility President, overseeing all operations. If this position is hired, it should be someone with experience in managing a meat processing facility. This is a key position for the "big picture" decisions and he or she will oversee other management including the business manager and facility manager. The General Manager will be responsible for planning, directing, and coordinating all operations. They will be responsible for developing policies to manage the daily operations of the business, planning for the most efficient use of inputs and human resources, and assuring the accuracy of financial reporting.

Plant Manager

The Plant/Facility Manager will be responsible for the day-to-day operation of the processing plant, including direct oversight of the various components of the facility such as scheduling and production and daily human resource management. They will need to oversee all aspects of poultry processing from slaughter to packaging and processing. This position will need to lead food safety, provide direction, and effectively communicate between all departments relevant to facility operations. One of

his most important duties will be to provide reports on operations to the facility president and other important leadership.

Processing Staff
These workers will need to participate in the various parts of the processing chain from handling to placing them on pallets. Other general labor activities may be required. Requirements for this position include the ability to lift 50 pounds, work at line speed, and work in a variable temperature environment. Under a single species facility, most of the cutting floor labor will be skilled to process and handle that species, whether it is cattle, poultry, etc. However, under a multi-species facility, labor will either need to be cross-trained and skilled at processing all the products, such as cattle and hogs, or the facility will need to employ multiple people who are skilled in either one.

Animal Receiving and Holding
This position will conduct various aspects of the facility's receiving and bird-holding operations. This employee will receive the birds as they are brought to the facility, ensuring that they are accurately marked and tracked throughout the facility.

Administrative Team
These employees will be important for management and organization of records and financial activities. Record-keeping duties will consist of updating, processing, destroying, and storing files and information as needed. Booking responsibilities will include activities such as developing systems to record financial transactions and creating financial reports. These employees will also need to maintain and balance subsidiary accounts and general ledgers and report the financial records to upper management and other important operation management.

Business Manager
The business and sales manager will oversee successful sales operations. This can include the sale of cut products, or the sale of services to clients. Their overarching objective will be to establish, achieve, and grow sales-plan goals. They will also oversee not just maintaining existing accounts but also finding and developing new business relationships.

Farmer Coordinator
This employee's purpose is to promote and organize operations between the poultry processing facility and chicken farmers. This will include marketing, maintaining, and strengthening business operations between current and new customers. The proper facilitation of this position is essential to the future success of this project. Due to the nature of this job, the farmer coordinator must coordinate operations and meetings with facility management and farmers.

Sales and Marketing
This position will strengthen the company's marketing ability by helping coordinate marketing aspects to achieve the most efficient use of resources. To achieve this goal, the marketing coordinator will analyze and enter the sales, expenses, and business data of product line. From this data, the coordinator will create sales forecasts, marketing and advertising strategies, and promotional presentations. They will also have to organize meetings to convey marketing information and plans to relevant members of the facility's management.

GENERAL ORGANIZATIONAL STRUCTURES

As with other businesses, an agritourism venture can be organized under a variety of operational, legal, and tax structures. Organizations must choose the options that work best with their mission, their logistical capabilities, the type of activities they intend to perform, and the needs of any involved stakeholders. This section details a number of different choices that will need to be made by the ownership when organizing the business. This section is meant only to be a guide for decision-makers. Always consult with legal counsel before making decisions regarding your business's organization.

- **Divisional Entity**: This is the most common way for an existing business to add on a new activity such as an agritourism park. This structure would allow for the agritourism park to operate as a part of Titan Farms, without its own ownership structure. This method would allow the operation to take advantage of the already existing management and personnel of Titan Farms. It would also benefit from the established brand name that the existing operation has developed over time, creating an added sense of integrity and value for the new operation that it would have to build up over time as an independent entity.

  Divisions differ from subsidiaries in that they are not separate legal entities as a subsidiary would be. Divisional entities are typically "arms" or "branches" of the same company that performs or fulfills a unique function within the same company. Subsidiaries would be separate legal entities from the parent company, as described further below.

- **Independent Entity**: This structure would consist of the agritourism operation forming as an independent business. This type of structure would allow maximum flexibility for the proposed venture and would also allow them to freely operate to suit their needs. The operation could also be established under a different type of structure such as a nonprofit, should this structure better fit their mission. This would allow it to access different types of funding and participate in other nonprofit activities while the remainder of the business remains in its current structure.

  As an independent entity, the operation would need to decide how to brand itself as well as require a new organizational structure and the associated business administrative needs of a new separate legal entity.

Tax Structure

Tax structures are how the business is organized in the eyes of the Internal Revenue Service. They fall into two main categories: For Profit and Non-Profit. Each structure has its benefits to groups based on their ability to access capital, their priorities, and their mission.

For-Profit

For-Profit organizations generally determine the success of their organization based on their ability to generate profits. Profits earned by this type of organization can be used to pay operational costs and be distributed to the owners. For-profit organizations are not exempt from paying federal or state taxes. Any donations to the company are not tax deductible for the donor. Assets of a for-profit organization belong to the owners of the business. If the entity dissolves, the assets are distributed to the owners of the business, based on their level of ownership.

This type of organization has many viable fundraising options including offering an ownership percentage to investors. These investors can provide property, services, and money in exchange for shares of the operation's stock. For-profits may still have the option to obtain funding from grants and solicited donations depending on the requirements of the donation source.

Non-Profit

Non-Profit organizations are generally mission-driven community development or capacity building mission-focused. Profits earned by non-profits are not intended for paying owners but instead are used only for operational expenses such as employee wages, rent, utilities, etc. Non-profit organizations often raise funds through donations from other businesses and individuals. These organizations may sometimes find it easier to attract government and private grants. Donations made to a qualified nonprofit organization are also tax deductible for the donor.

Non-profits are also required to file a longer application process to verify their status and if the group dissolves, assets are given to other non-profits instead of owners. During the application period, the entity is often allowed to operate as a nonprofit pending a final determination of its application. Nonprofit organizations may also qualify for state and federal tax exemptions, as determined by the Internal Revenue Service.

Legal Structure

The legal structure is how the operation is organized and registered with the state. Legal structures determine how many owners the entity can have, as well as determine the need for a board of directors or other such governing entity. Below are the three most popular legal structures for similar entities. Other options such as sole proprietorship or partnership are available as well but are generally less suited to these types of operations, especially if structured as a subsidiary of a parent company.

- Corporation
  - C-Corporation
  - S-Corporation
  - B-Corporation
- Limited Liability Company
- Cooperative

Corporation

A corporation is an organization that is authorized by the state to act as a single legal entity. Ownership is determined by stockholding status, meaning that corporations exist perpetually and offer limited liability protection to the investor. While a stockholder's investment in the corporation is exposed to the risks of the corporation's business and activities, typically those risks do not reach beyond the stockholder's investment. Thus, creditors and claimants are generally limited to recovery from the corporation's assets; they typically cannot reach the stockholder's personal assets. Additional capital can be raised by the sale of stock in the company allowing for quicker cash injections than other structures. Corporations are also registered with and regulated by the state and require a board of directors to oversee operations.

Pros and Cons

C-Corp
- Control depends on stock ownership
- Stockholders are at risk only for money they have invested
- Allows capital to be raised more easily through stocks or bonds
- Can continue to function even without key individuals
- Double taxation occurs because the business exists as a separate entity

S-Corp
- Restrictions on the number and type of ownership
- S-corporations have the same basic advantages of the general corporation
- Avoids double taxation

B-Corp
- Not all states recognize b-corps
- B-corporations are designed for groups who work to positively impact society
- Allows an entity to focus on goals other than profit making.

The day-to-day management of a corporation is carried out by its officers who are elected by, and accountable to, the board of directors. Board action is required for decisions that have not been delegated to officers and for certain material decisions which are assigned to the board by statute. Unless otherwise provided by the corporation's Articles of Incorporation, bylaws or stockholders agreement, stockholders have a limited number of decisions on which their vote is required. Their most effective power is in their ability to elect, and remove, directors. Stockholders vote according to the number of shares they own.

❖ **C-Corporation**

Corporations are the most common form of organization for large businesses in the United States. They are classified as separate entities from their owners, meaning they face double taxation. Upon incorporation, a corporation is a separate taxpayer and, as such, it pays corporate tax on the profits of the corporation's business. When those profits are distributed to stockholders in the form of dividends, the stockholders pay income tax on those dividends.

❖ **S-Corporations**

S-Corps, another form of corporation, avoid double taxation which impacts C-Corps. As a "pass-through" entity, the stockholders are taxed directly similar to an LLC or partnership. This

classification, however, requires a special designation by the IRS for already existing entities. S-Corps also face restrictions such as US residency requirements, limited share class, passive income limitations, and others.

Entrepreneurs and small business owners often take advantage of the S-corporation structure because it combines many advantages of a sole proprietorship, partnership, and corporate forms of business.

❖ **B-Corporations**

B-Corps, or benefit corporations, are a type of for-profit corporate entity that differs from traditional C-corporations in that their goals include creating a positive impact beyond their shareholders. Their mission includes generating positive impacts for society and the environment, in addition to making a profit for shareholders. B-corps are required to meet standards of social and environmental performance, accountability, and transparency, which are reported regularly to ensure compliance.

Limited Liability Company (LLC)

An LLC's purpose is to combine the limited liability for its members usually found in the corporate structure (and too limited partners in limited partnerships) with the pass-through tax advantages of the general partnership and s-corp. Any profits or losses pass through the business to the investor and their individual tax return. Other characteristics may be similar to or different from corporate characteristics, depending upon how the LLC members wish to structure the entity and comply with IRS regulations to receive favorable tax treatment. For LLCs that have only one member, the LLC is "disregarded" for tax purposes, meaning the sole owner is responsible for all taxes on the LLC's profits. Losses likewise pass through the LLC to its owner(s).

LLC formation and liability characteristics are similar to that of a corporation. To form a corporation or LLC, the necessary documents must be filed with the designated state agency. Unlike a general partnership, shareholders are not personally liable. Therefore, an LLC has some, but not all, of the characteristics of each entity. Just one person may form an LLC, but it commonly requires two or more persons.

Pros and Cons

LLC

- Provides its members limited liability
- Allows members to escape double taxation
- Any "person," either natural (an individual) or legal (another legal entity, such as a partnership), can be a member
- Members may actively manage the LLC without incurring personal liability
- Uncertain tax status
- Drafting the agreement can be complex

If the LLC has more than one member, the LLC members are well-advised to execute an operating agreement (essentially, an owners' agreement), which should address, among other things:

- How the LLC will be governed, i.e., by all the members or by one or more managers? Will managers have unlimited authority, or will members have a vote on material decisions? How will successor managers be appointed?

- How the profits will be divided, i.e., if one member is contributing cash and the other services, will profits first be used to pay back the member contributing the cash or to pay some kind of priority return on that investment?

- How/when a member may exit the LLC, i.e., what happens upon the death of a member, an active member ceasing to be involved with the business, or when a member wants to sell out? Absent an operating agreement, LLC members are free to transfer their ownership in the LLC at any time to any person, an event that would give the remaining owner(s) a new business partner, like it or not.

MARKETING FEASIBILITY

When marketing a poultry processing operation to consumers, it's crucial to focus on a few key aspects. Firstly, highlight the high quality of your poultry products, emphasizing their freshness and taste. Share the story behind your operation, showcasing sustainable and humane practices that resonate with conscious consumers. Consider offering organic or free-range options to cater to different preferences. Engage with the local community by participating in farmers markets or food festivals, where you can connect directly with potential customers and build relationships. Utilize social media platforms to showcase mouthwatering recipes, cooking tips, and behind-the-scenes glimpses of your operation. By creating a strong brand image and establishing trust, you'll attract loyal customers who appreciate your commitment to quality and ethical practices.

Current and Potential Market Information

Consumers turned toward more retail operations for access to poultry during the Covid-19 pandemic, according to the Power of Meat report from the Food Industry Association and the Foundation for Meat and Poultry Education and Research.[19]

Poultry consumption has skyrocketed in the last 50 years, going from 34 pounds per capita in 1970 to almost 81 pounds per person in 2020. Most of the increase in poultry is chicken, as turkey consumption has been between 12 and 14 pounds per person for at least two decades.

Local Foods Consumers

Consumers are motivated to purchase locally grown food because: they believe that it is fresher and of greater quality, in addition to helping local farmers buying locally produced food is also thought to be environmentally friendly.[20] The decision to buy local foods is influenced by psychological aspects as well, which are typically linked to altruistic behavior, confidence in local farmers, and an interest in the food production process.

In terms of demographics, the typical local food consumer is younger, female, Caucasian or White, has higher educational attainment, and has a household income that is higher than average. The average household size is larger, and the number of people residing there affects the number of married individuals, the number of children, and the amount of money spent on food.[21] However, several studies have shown that local food consumers are older, less educated, and have lower household incomes. The distinction between local food tourists and local food buyers may help to explain these disparities. The findings of research demonstrating demographic discrepancies between people who consume local foods and those interviewed at farmers' markets suggest that those who frequent a local farmers' market are not necessarily all consumers of locally grown products, which explains the contradictory results.

In addition to consumer demographics, past research indicates that consumer lifestyle factors are positively related to purchasing local foods. One of these lifestyle factors is an interest in food production: the person grew up on a farm, lives in a rural area, works in agriculture, or grows their

[19] https://www.fmi.org/forms/uploadFiles/6D176000000126.toc.Power_of_Meat_2022_Top_10_FINAL.pdf

[20] Bavorova, M., Unay-Unay-Gailhard, I., & Lehberger, M. (2016). Who buys from farmers' markets and farm shops: The case of Germany. *International Journal of Consumer Studies*, *40*(1). https://doi.org/10.1111/ijcs.12220

[21] Cicatiello, C. (2020). Alternative food shoppers and the "quantity dilemma": a study on the determinants of their purchases at alternative markets. *Agricultural and Food Economics*, *8*(1). https://doi.org/10.1186/s40100-020-00160-6

food.[22] These consumers also like cooking and food preparation. The location of the customer is also significant. Additionally, it was discovered that city dwellers were more eager to support nearby farmers than rural residents.

Some parallels can be drawn between what happened with local food purchases during the COVID-19 pandemic and purchases of local meats. According to a research study, consumers were driven to purchase more local, sustainable foods.[23] Additional research reported an increase in local produce purchases during COVID-19 lockdowns, and those survey respondents expected to continue buying local produce in the future.

The local meat consumer is a subset of both meat consumers and local food consumers. Research studies show that local meat consumers have similar traits to those of a local food consumer: younger, female, higher educational attainment, higher household income, and identify as Caucasian/White.[24] The results for household size were mixed, showing both buying discrepancies between smaller and bigger households. Similar to local foods, consumers are less inclined to purchase local foods, especially meat, as a percentage of their family budget rises.

Resources

A Guide to Selling Meat and Poultry Products in Virginia, VDACS Office of Meat and Poultry Services

Meat and Poultry Handers Permit Guide, VDACS Office of Meat and Poultry Services

Food Establishment Operators Information, Virginia Department of Health

Retail Butchering, Niche Meat Processor Assistance Network

Guide for Poultry Slaughter Exemption, USDA Food and Safety Inspection Service

Retail Meat Sales Regulations

Retailing meat within the United States is heavily regulated, not only on the slaughter and processing side but also through sales operations. The following information pertains to processing and selling meat products within Virginia; however, some state-specific regulations may differ across the United States. Be sure to check with your local regulators to determine the correct process and licensing to sell meat in your area.

Selling Poultry Meat Products in Virginia

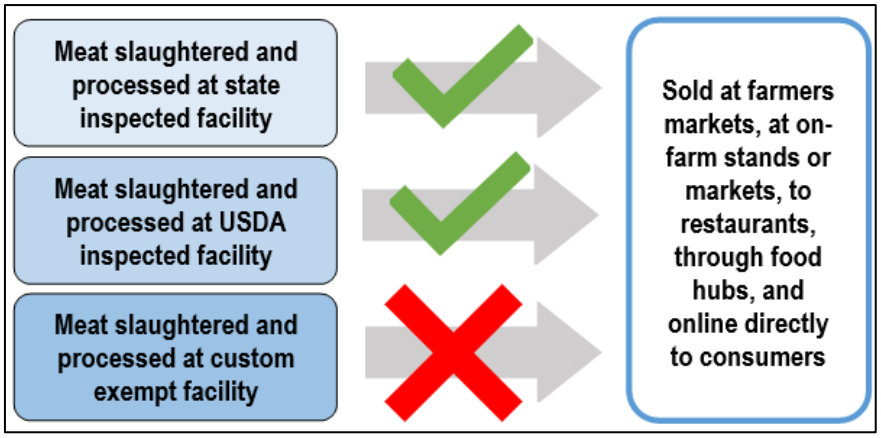
The Virginia Department of Agriculture and Consumer Services (VDACS) oversees all inspections and licensing for meat processing and sales in the state. According to this agency, the following species must be inspected if they are to be slaughtered and offered for sale: cattle, swine, sheep, goats, and poultry including ostrich, emu, and rheas. Some exemptions may apply if the animals are slaughtered and processed for personal use and will not be resold. Livestock or poultry not included under this list are not required to be inspected by the state or USDA, however, regulatory oversight will still be required.

---

[22] Kemp, K., Insch, A., Holdsworth, D. K., & Knight, J. G. (2010). Food miles: Do UK consumers actually care? *Food Policy*, *35*(6). https://doi.org/10.1016/j.foodpol.2010.05.011

[23] Borsellino, V., Kaliji, S. A., & Schimmenti, E. (2020). COVID-19 drives consumer behaviour and agro-food markets towards healthier and more sustainable patterns. In *Sustainability (Switzerland)* (Vol. 12, Issue 20). https://doi.org/10.3390/su12208366

[24] Makweya, F. L., & Oluwatayo, I. B. (2019). Consumers preference and willingness to pay for graded beef in polokwane municipality, south africa. *Italian Journal of Food Safety*, *8*(1), 46–54. https://doi.org/10.4081/ijfs.2019.7654

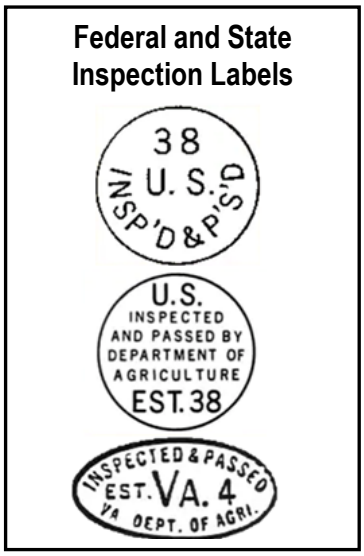


Meat products that have been processed at a USDA/FSIS facility or VDACS inspected Talmadge-Aiken facility can be sold at farmers' markets/ farm stands, to restaurants, through food hubs, at retail stores, and through online stores. Meat that has been slaughtered and processed at a state-inspected facility under a Virginia permit may only be sold within the state in which it was processed. Meat that has been slaughtered and processed at a federally inspected facility can be sold across state lines. Meat is also sold by the pound, not by the piece or cut unless it weighs 0.5 ounces or less, then it may be sold by the piece. Standard packages of meat that are under four pounds must also include the ounces, e.g., "40ozs. (2.5 pounds)." livestock that has been slaughtered at a custom-exempt facility cannot be resold and must only be used for personal consumption, and similarly, poultry slaughtered under the Private Use Exemption is for personal consumption only. Additionally, farmers may be able to slaughter poultry on their farm up to 1,000 birds without the need for mandatory inspection, but those products may only be sold within the state. Other exemptions to the inspection of poultry exist and can be found under **Resources** in this section.

Labeling for Poultry Meat Products

All inspected meat products must be appropriately labeled to indicate that they are legally inspected products. The label for processed meat products must include the following:

- Name of the product
- Ingredients if the product is processed from two or more ingredients (sausages and further processed meats may require an ingredient list)
- Name and place of business of the distributor or seller
- Statement of the net quantity of the product (net weight)
- Official inspection legend
- Safe handling instructions



If you receive cut and packaged meat products from the processor, you cannot open or repackage the products and the original label must remain and be visible. If you are a registered and inspected butcher, you must provide the appropriate labeling for all products processed and sold through the shop.

Meat and Poultry Handlers Permit

To sell meat and poultry as a business, farmer, or individual in Virginia, you must have a Meat and Poultry Handlers Permit. This permit is provided by the VDACS Office of Meat and Poultry Services and registration with this agency is free. The permit is issued for three years, after which it must be renewed. This permit is required for any meat sales, including on-site at a farm store or stand, at farmers' markets, and online. Food hubs that aggregate, store, and sell meat must also obtain a handlers permit.

The permit holder must remain in compliance with the permit requirements, which are provided below:

- Facilities must always maintain sanitary conditions to ensure that products do not become contaminated or adulterated.
- Products must be properly handled and stored to meet all sanitary requirements.
- Facility management must utilize preventative rodent and pest control measures.
- Vehicles used for item transport, as well as refrigerators and chest freezers, must be maintained to prevent unsanitary conditions or product adulteration.
- All products must be labeled properly, and the label must be present on the outside of the container. The product must have the label from the original processor and additional labeling may not be added after the product has left the inspected facility.
- Marketing materials may not include claims that are not included on the product label.
- Bulk products may not be broken unless all inside packages contain individual labels.
- Products may not be opened, repackaged, or relabeled.

The permit holder is also required to keep clear documentation, including the bills of sale, invoices, bills of lading, and receiving and shipping papers for all meat products handled. The records must include the name and description of the product, net weight, name and address of the buyer or receiver, and method and date of shipment along with the name and address of the carrier. A flow chart of the permits and regulatory requirements through VDACS for meat and poultry is provided in the appendix.

General Business Regulations

The permits and regulations discussed above pertain specifically to selling processed meats in Virginia. However, the state had additional regulations and requirements for any person or business selling products in the state.

Business Registration: Sales of retail meat products may be conducted under the farm business, or the farmer may decide to form a separate business for the sales side. Any new businesses will need to be registered with the Virginia State Corporation Commission. You may also elect to use a different name for branding purposes under an existing business. In this case, you can register the name as a DBA (Doing Business As).

Business License: The Commonwealth of Virginia does not have a general business license that is required to conduct business in the state, however, individual cities and counties may require a business license depending on their specific regulations (most locations have license requirements). If you are selling at multiple locations, such as your farm, located in

Resources

Starting a new business, Virginia State Corporation Commission

Virginia sales tax forms and process, Virginia Dept. of Taxation

Virginia sales tax rate by localities, Virginia Dept. of Taxation

Commercial Insurance Consumer's Guide, Virginia State Corporation Commission

one county, and a market, located in a different county, you will need separate business licenses for each location.

Sales Tax Certificate: Anyone who sells, leases, or distributes tangible goods and property in Virginia must register to collect sales tax with the Virginia Department of Taxation. Individuals or businesses that sell at one or more physical locations in Virginia must register as an in-state dealer. Registration is completely free and can be completed online. The current state sales tax rate in Virginia is 5.3%, but some localities may have an additional regional or local tax that must also be collected. A list of locations and their specific sales tax rate can be found on the Virginia Tax website. Across the entire state, food for home consumption is taxed at a reduced rate of 2.5%.

- **Farmers' market/ Roadside Stand Exemption:** Farmers selling their products through a farmers' market or roadside stand may be exempt from collecting sales tax if those annual sales do not exceed $1,000. Farmers are still required to register to collect tax but do not need to do so until reaching the $1,000 threshold, after which the farmer must remit tax on all sales including the first $1,000.

- **Sales tax for marketplace sellers:** A marketplace seller may not be required to collect sales tax on sales conducted through a marketplace platform. A marketplace seller is anyone who contracts with a marketplace facilitator to sell their products through the facilitator's platform. This platform may be a physical or electronic marketplace operated by the facilitator. The facilitator is required to collect sales tax if the facilitator conducts over $100,000 or 200 transactions to Virginia customers within a year.

Zoning Permits: Counties and cities may also have specific zoning regulations for business operations, check with local zoning ordinances before establishing a retail location, even if it is on the same property as an existing business such as your farm.

Business Insurance: Business insurance, typically liability insurance is typically required to conduct businesses in cities and counties across Virginia. For example, some farmers' markets may require that the vendor hold general liability insurance and provide proof when applying to the market. Many insurance providers offer small business insurance, and the Virginia State Corporation Commission provides a guide for commercial business insurance (provided in the resources list above).

POULTRY RETAILER SALES OUTLETS

Meat cuts and products can be sold through a variety of outlets and channels, from wholesale through distributors to directly to the customer at a small farm stand. While selling meat products through wholesale channels is a viable option, this document specifically focuses on retail operations and direct-to-consumer sales.

Remember!

- Meat processed at a State inspected facility can only be sold within that state.
- Meat processed at a federally inspected facility may be sold across state lines.
- Meat processed at custom exempt facilities cannot be resold.

Farm Stands/ Farmers' Markets

Farm stands and farmer markets are direct-to-consumers sales outlets with farm stands located directly at the farm location, while farmers' markets typically consist of vendor booths at a central location where multiple farmers sell their products. Meat can be sold by farmers at either of these locations. For these outlets, the farmer typically uses a third-party processor who is responsible for animal slaughter, processing, and packaging. The farmer is responsible for taking the animals to the processor and picking up the final packaged products. After this point, the farmer can sell the packaged meat cuts to customers through their market, if the meat was processed at a state or federally inspected facility.

Resources

How to Develop a Farm Stand, University of Vermont Cooperative Extension

So You Want to Run a Farm Stand, Rodale Institute

Selecting a Point-of-Sale System for Your Farm, Community Involved in Sustaining Agriculture

CoolBot Provides Inexpensive and Effective Cooling, UC Davis

Blueprints- Farm Market, Smoke House, Roadside Market, Colorado State University

Farm stands or other on-farm markets provide a convenient sales outlet for the farmers, who do not need to worry about refrigerated transportation to the customer or other sales outlets. Farm stands can also provide additional agri-tourism incentives for consumers who are interested in visiting the farm and purchasing their products straight from the source.

Farm Stand and Farmers' market Facilities and Equipment

Farm stands/ markets can be a simple setup of just a covered stand or can be a separate fully furnished building that includes dedicated storage for products, restrooms, and a market area. The farm stand is typically built and owned by the farm owner, who is responsible for all on-site utilities, maintenance, and upkeep. Farmers' markets are typically coordinated and managed by a market manager. The infrastructure provided at each market may vary, but typically includes a dedicated space for tents, coolers, etc. Some markets may provide access to electricity, or in some rare cases, access to cold storage.

Colorado State University provides a collection of blueprints for building various buildings and facilities such as a moveable roadside state, a roadside market, and a farm market with a walk-in refrigerator. A full list with links to each blueprint can be found on their website, and a selection of blueprints has been provided in the appendix of this document.

A major need for any type of farm stand or market is convenient access to cold storage that can maintain a frozen product's temperature at no higher than 20° or 40° for refrigerated products. Examples of cold storage can include ice-packed coolers, small chest freezers, refrigerated rooms/trailers with CoolBot technology, and commercial freezer/refrigerated units. Some farmers' markets may have access to electricity or outlets that can be used when bringing your chest freezer, otherwise, be sure to securely pack the meat in coolers that allow it to remain at the appropriate temperature throughout the market day.

Whether selling at a Farmers' market or a farm stand, you will also need a convenient way to conduct transactions and collect payments. Using an electronic or cloud-based point of sales system can help you easily keep track of all transactions and allow customers to use credit and debit cards. Some point-of-sale systems offer mobile options, such as a handheld card reader or a reader that attaches to a mobile phone. Additionally, small bills are always good to keep on hand for those cash customers who may need change.

For Consideration
Consider a cooperative approach through collaboration with neighboring farmers to reduce costs and increase product offerings at your market

Farm Stand and Farmers' market Locations

Farm stands and markets are typically located at or near the farm site. The location at the farm may depend on aspects such as visibility from the road, access to cold storage, zoning laws, ease of access, etc. Depending on the location of the farm, farm stands may not be the most convenient location to reach major markets, as some consumers may not be willing or able to travel to the farm, especially if it is in a rural or hard-to-reach area.

Farmers' markets may be a more convenient option for consumers, as these are typically located in a more centralized, or easy to access area of the community. Farmers' markets also include multiple farmers and products, drawing a larger potential customer base. Customers who are seeking fresh produce may also shop for fresh meat all in one location. Many farmers' markets typically do not have on-site cold storage, so the farmer would need to ensure they have a safe way to store and transport the meat for the market.

For Consideration
Farm markets and farmers markets may provide a higher price but watch out for additional expenses such as labor and infrastructure.

Labor Needs at Farm Stands and Farmers' markets

Both farm stands and farmers' markets require additional man-hours or hired labor to staff or attend the market. Time spent at the market reduces the amount of time spent in the field or tending to the farm and additional hired labor increases labor costs. The balance of cost to income for these markets will need to be considered when deciding where to sell your products. In general, and depending on the size of the market, you will want to have a Market Manager and Sales Associate to staff the market or Farmers' market. These positions may fill multiple roles or may be family members also assisting on the farm.

- Market Manger: This employee is responsible for managing all aspects of either the Farm Market or selling through the Farmers' market. The Manager is responsible for coordinating transportation of the products to the market, ensuring adequate inventory, tracking sales and transactions, and conducting sales directly to customers.

- Sales Associate: The Market Manager may be assisted by a Sales Associate who is responsible for conducting sales and providing general labor as needed for any market or selling activities.

Online Sales

Meat cuts and processed meats may also be sold directly to consumers through an online e-commerce store. Many farmers have adopted an online market as part of their operations in response to the safety guidelines in place during the COVID-19 pandemic when many farmers' markets and other retail locations were shut down. Through an online market, consumers can place their order directly with the farmer to purchase products that are then shipped to their house. Some farmers may also provide a pick-up option for orders placed locally, typically at the farm or another central location.

Location and Infrastructure Needs

Online sales can provide a more convenient shopping experience for consumers who do not frequent farmers' markets but still seek local products. Online sales may also provide access to markets beyond the local community to consumers across the nation. The exact location of the farm does not play as vital a role in online sales as it would for on-site markets. Easy access to major highways for shipments, or to shipping centers, such as FedEx or UPS will make shipping orders easier.

Resources

Farmers Guide to Direct Sales Software Platforms, National Young Farmers Coalition

Selling Meat Online (Podcast), Small Farm Nation

With online sales, farmers also do not need to have the dedicated infrastructure for a market, only access to cold storage for holding inventory until orders are fulfilled. However, you will want to consider your broadband access and high-speed internet when conducting sales online. Additionally, you will need an engaging website that is easy to navigate for shoppers. Finding the right software platform to manage your online sales is an important part of the planning process when selling online.

You must be able to easily manage the online store or communicate with customers more efficiently when conducting sales online. The National Young Farmers Coalition provides a comprehensive guide to finding direct sales platforms that fit your farm. A list of the platforms included in this guide has been provided in the appendix and a link to the full documents is provided in the Resources section.

The Cost of Online Sales

Compared to direct in-person sales, online sales have added costs, such as shipping, specialized packaging to keep the frozen products safe, and the cost associated with establishing and maintaining an e-commerce platform. Some of these additional costs, such as shipping or services fees for online sales may be passed along to the customer, increasing the overall cost for the customer. There is a customer base who would be willing to pay a premium for farm-fresh products and the additional costs

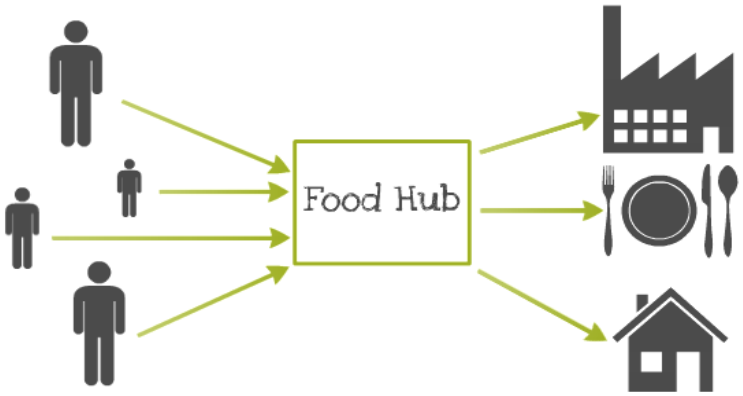
associated with the convenience of direct shipping. However, that market will be limited, and additional investments in marketing to build the brand online would be needed.

Some farmers have found ways to reduce or mitigate additional costs associated with online sales. For example, some large transporters, such as FedEx or UPS provide business accounts that reduce the shipping costs depending on how many shipments are made each month. Additionally, some farmers provide return shipping labels with their packages to allow customers to easily send back the insulated packaging to then be reused or recycled by the farmer. Producers may also elect to provide a subscription for CSA-style meat boxes at a reduced rate to provide guaranteed cash flow for the business.

For Consideration
Online sales can provide a more convenient outlet for some customers but incur higher costs from shipping and maintaining the sales platform.

Food Hubs

Food hubs provide another potential market for retail meat cuts and products. A food hub is a business that typically aggregates and sells local foods, such as produce, dairy, and proteins. Food hubs will generally pay the farmers a percentage price that is higher than typical wholesale, but lower than direct-to-consumer pricing. The food hub will then aggregate these products with those from other farmers to sell either directly to consumers, restaurants, or wholesale. Some food hubs may provide additional services, such as further value-added processing.



Food hubs offer a solution to issues farmers and producers face often. Food hubs provide links between farmers and buyers and provide individual farmers with the means to market and sell products together as one larger entity, serving high-demand buyers. Food hubs also provide farmers with fair and consistent pricing for their products. For buyers, food hubs can provide better education on specific products, such as health benefits or how families can integrate more products into their diets.

For Consideration
Food hubs may provide a price lower than retail, but typically higher than wholesale. Food hubs also reduce the costs and time associated with selling directly to consumers.

Food hubs can provide a benefit to small farmers who are not able to access larger buyers or do not want to invest the time into selling directly to customers at farmers' markets. Food hubs can generally access more buyers by providing larger quantities from multiple farms or combining products through a CSA-style box. Food hubs reduce the infrastructure investment the time burden from the farmer, and the farmer is typically only required to transport their packaged product to the hub. However, not all food hubs are equipped to handle meat sales due to the need for additional licensing and dedicated cold storage.

MARKETING POULTRY TO CONSUMERS

Selling any products through direct-to-consumer or retail outlets requires a much higher level of marketing and planning than other outlets, such as wholesale. Developing a marketing strategy can help you identify your target customers and the best way to reach them. Through direct marketing to your consumers, you can build a relationship with them and help them connect directly with the individuals or families that grow their food.

A marketing strategy typically addresses four main components: the products you provide, the price of those products, the promotional activities you use, and the place where your products are provided. These components are explored more in-depth throughout this section with a focus on marketing for meat cuts and products through retail and direct-to-consumer outlets.

The Product

Defining the product you provide includes not only the specific cuts and meat that you sell but also the quality of the product and the overall experience for the customer. This is especially important when it comes to pricing your product (discussed further in the section) as you will need to communicate the attributes of your product to help the customer understand its value. Understanding what needs your product addresses also comes from understanding your market. Are you primarily selling into a low-income community or a food desert that needs betters access to healthy foods? Are you targeting higher-income consumers who are seeking a more natural product and a further connection to the agricultural community?

Resources

Inspection & Grading- What Are the Differences?, NC Department of Agriculture and Consumer Services

Check the Label and Bring to the Table- USDA Grades Explained, USDA AMS

As previously discussed, some meat cuts and products command a higher price in the market than others, however, this higher price may be offset by higher processing expenses required for those cuts. Additionally, some products may be further graded for quality, further adding to the value of the product. (Additional information on labeling and certifications is provided further in the Marketing section). This section covers the common cuts and products from cattle, hogs, and goats that may be sold through the retail market. The market does exist for whole, halves, or quarter cuts, however most retail and direct-to-consumer markets are for individual cuts or sub-primal cuts.

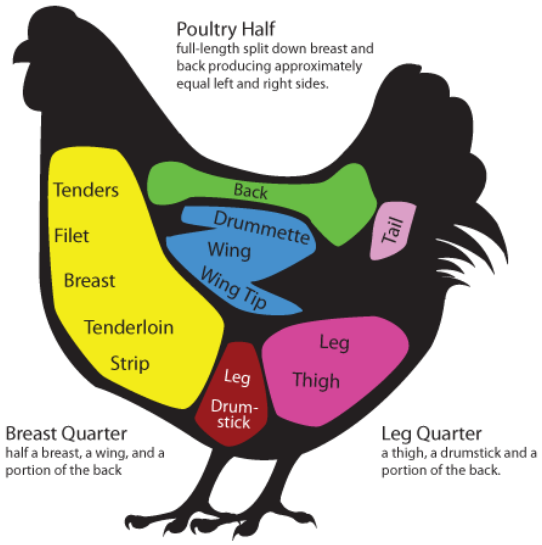
Primal vs. Sub Primal

Primal cuts refer to wholesale cuts that are the next step beyond halving and quartering. Sub primal cuts refers to retail meat cuts that may include fatter or leaner portions.

Poultry Cuts

Poultry has become the most popular choice of meat for many consumers over the years, with chicken dominating the sector of the industry. Turkeys and broilers are sold as whole birds, especially turkeys, but chicken is also sold as individual cuts. Primal cuts of a chicken carcass are the half, breast quarter, and leg quarter. The figure below shows a breakdown of retail chicken cuts.

Figure 13: Breakdown of Chicken Cuts



As discussed previously, boneless chicken breast remains the most popular cut of chicken in terms of consumption per capita. Thighs, legs, and wings are also popular retail products.

Table 2: Primal and Sub Primal Poultry Cuts

Breast (boneless or bone-in)	Thigh (bone-in or boneless)
Fillets/ Tenders	Wing (whole)
Leg	Wing drumette
Drumstick	Wing tip

Poultry also carries a grade label from the USDA based on the type and quality of the meat, receiving a grade of A through C. Grade A is the highest quality and the only grade that is typically found on retail poultry products. Products under this grade are typically free from defects that include bruises, discolorations, and feathers. Grades B and C are typically applied to products that are used in further processed or value-added products. There are no grade standards for chicken necks, wing tips, tails giblets, or ground poultry.

Marketing Terminology

Conventionally raised: Broilers are raised cage-free in the U.S., mostly in large, environmentally controlled houses, safe from diseases and predation. Most laying hens in the U.S. are housed in these.

Cage-free: Cage-free layers are housed in indoor-only, controlled environments that provide chickens the freedom to roam within the house. Outdoor access is not required.

Free-range: Growers must demonstrate to the USDA's Food Safety and Inspection Service that the laying hens have been allowed outside access for 51% of their laying cycle. Access to a porch-style area can be considered free-range.

Pasture-raised: Poultry are raised in pastured or woodlot settings where they can roam freely, foraging in vegetation. These designations are granted from verifying bodies such as American Humane Certified or Certified Animal Welfare.

Natural: Natural products typically contain no artificial ingredients or added color. All eggs meet these criteria.

Certified organic free-range poultry and cage-free eggs are strictly regulated through the USDA's National Organic Program. 100% Organic must be produced using sustainable production practices without prohibited methods like genetic engineering. Organic products must contain no less than 95% of certified organic ingredients. "Made With Organic" products are made with at least 70% certified organic ingredients.

No antibiotics: Poultry with this label have not been treated with antibiotics. If treated, a withdrawal period is always required before slaughter.

No hormones: Hormones aren't used in poultry, ever.

Value-Added Meat Products

In addition to the individual cuts described above for each product, producers may choose to add further value to their cuts through further processing such as sausage making, smoking, curing, and other processes. The addition of these items to your product lineup can help further diversify your offerings, as well as increase the value of lower cuts or waste products.

Value-added products can include a variety of products and techniques. Popular examples of value-added poultry meat products include:

- Tenders, wings, nuggets, thighs, chicken sausage
- Flavor-infused meats, such as flavored nuggets
- Seasoned and ready-to-cook meats
- Meal kits that include other fresh ingredients such as vegetables and sauces
- Cooked and ready-to-eat products such as barbeque

The Price

Finding the right price for your products is an essential piece of your marketing strategy. The price can directly impact a customer's willingness to buy your products but needs to be at a level that will cover all associated expenses and provide a return to your business. Pricing also communicates the value of your products to consumers and is typically associated with perceived product quality. Product pricing is the consumer's cost of purchasing the product, which would be your meat cuts. Pricing is usually directly linked with a customer's perceived value of a product and is typically the main factor in deciding whether to purchase.

How do you find the right price?

The first step in finding the right price for your products should be to determine your cost of production including the cost of your animal. There may be high levels of variation for cost due to the different animal breeds and other factors such as organic practices, etc. This process requires

understanding exactly how much it will cost you to raise that animal from the moment it is born (or otherwise under your care) until it is slaughtered. The recommendation is to maintain detailed records and ensure that your expenses are accurately recorded so that your financial costs result in pricing profitability. This is referred to as "**cost of production**".

Another thing to consider is your "**carcass weight**," (usually referred to as hanging weight) which is a percentage of your animal's live weight to the hanging slaughtered weight. The weight difference from live to hanging is from loss of blood, head, hide, hooves, viscera, lungs, and heart. The hanging weight is usually about 60% of the live weight. Begin by dividing your cost of production by your carcass weight percent, making sure to include any **additional processing** expenditures your animal incurred, such as delivery, handling, and so on.

After this, you will factor in your "**cut-out**" costs, which are the costs of breaking down the carcass into your chosen cut of meat, depending on how you want to sell your cuts. Something important to consider with "cut-out" costs is that this weight is also usually about 60-65% of the hanging weight. Two factors contribute to the change in weight. The first occurs during the 10-14 days when the carcass is hung (or "cured"), about 4% of its weight is lost during this process (water weight). Then, during the cutting process, another 30-35 percent is lost. This amount is highly variable due to the amount of fat in the meat and the type of cuts. Essentially, the more fat in the cut, the more weight loss you can expect.

The final stage is the most volatile because you'll be dividing your final costs by a **mark-up percent** to arrive at "retail value," which is the final price you'll charge. Seeing what local retailers have chosen as their markups can be a very useful tool for determining your retail price, which would be dependent on community social-economic demographics.

The following is provided by Mike Debach of the Leona Meat Plant in Troy, Pennsylvania to illustrate pricing your meat:

1. Cost of the live animal = $1.35 per pound ***(cost of production)***
2. $1.35 divided by 58% = $2.33 ***(carcass weight)***
3. $2.33 plus $0.65 (per pound processing fee) = $2.98 ***(add processing)***
4. $2.98 divided by 65% = $4.58 ***(cut-out costs)***
5. This is the final cost of your animal becoming single cuts of meat $4.58 divided by 75% = $6.11 ***(markup to retail value)***

A sale price of $6.11 per pound would give you a 25% return on your product

Promotion

Promotion is how you communicate with your customers and may include a mix of activities as part of your overall promotional strategy. Promotion for retail and direct-to-consumer sales is typically a little more personal and is used to help build a relationship between your customers and your farm. This section highlights common promotional activities and how they may be used as part of your local meat marketing strategy.

To promote a poultry processing facility, you can start by highlighting the facility's state-of-the-art equipment and advanced processing techniques. Showcase how these factors contribute to superior quality and safety standards in the poultry products. Consider partnering with local restaurants, grocery stores, and food service providers to feature your facility's products. Utilize social media platforms to

share engaging content, such as behind-the-scenes videos, employee spotlights, and testimonials from satisfied customers. Don't forget to emphasize the facility's commitment to sustainability and responsible sourcing. By effectively communicating these unique selling points, you'll attract attention and build trust among consumers and businesses alike.

Branding

A brand is one of the easiest and most apparent ways that a customer identifies and differentiates products and businesses. Branding includes not only your logo or tagline but also your overall reputation and perception by the community and customers. For customers, a brand can play three main roles for your products and business:

1. A brand can provide basic information about your products.
2. Brands can educate consumers on how your products fit their needs and lifestyle.
3. Your brand can reassure the customer in their product decision.

Resources

Branding Your Farm Business, Penn State Extension

How to Direct Market Your Beef, Sustainable Agriculture Network

Marketing Strategies for Farmers and Ranchers, Sustainable Agriculture Network

Elements of your brand include your logo, associated tag lines or phrases, and color scheme. Each of these elements works together to share the values of the business and form the initial connection to a customer.

Logo: A logo is typically the first thing consumers notice when viewing a label, packaging, website, or printed marketing materials. A logo can be simple or complex, but at its core, it must represent your farm and vision with your customers. A logo may include only a picture or a combination of pictures and words.

Tag lines and slogans: A short phrase as a slogan or tag line may help further communicate your values, benefits, and mission. Tag lines or slogans may be presented alongside your logo or worked into the overall design.

Color Scheme: The colors you decide to use in your logo or your packaging are also a part of your overall branding. As consumers begin to engage with your brand, they may even be able to recognize your products from the color of the label. Colors can also evoke emotions or perceptions about a brand.

Packaging and Labeling

Product packaging not only serves to protect your products and make them easier to handle, but it also supports your brand and image. As a meat handler and seller with the appropriate permitting, you cannot re-package or further process inspected products, which means you must rely on the packaging options available at your processor. However, packaging can include additional boxes, inserts in those boxes, and shipping components.

For Consideration

Product packaging may depend on options provided by the processor. Other packaging components such as boxes and inserts can further differentiate your packaging.

Labeling for local meat products is extremely important from a regulatory standpoint. When using an inspected facility, you should receive your products with all the appropriate labeling which is further described under the Regulations section of this document. This label must remain on the individual packaging and cannot be altered or covered.

In addition to the regulatory label, you can place a label with your business logo and information, if you do not include any breed, production, or natural claims that are not included on the label from the inspected facility. Additional certifications that may be included on the branding label are indicators that the product was grown and processed locally or in the same state, organizations that the owners may be a part of like Home Grown by Heroes. More information is provided below on product and business certifications.

Product Certifications

Additional product certifications can help further communicate the features of your products, as well as your farm's values and mission. Certifications can include those for specific production methods, animal care, source of the product, and business ownership. Typically, any certification requires following a specific set of standards or requirements established by the certification program. Once certified, you can use the provided certification label on your products and marketing materials. The following are some common certifications known and sought in the industry:

USDA Organic

USDA's National Organic Program Final Rule of the Organic Foods Production Act defined the term "organic" and set standards for U.S. production and handling of agricultural products.

Certifiers are responsible for making sure that USDA organic products meet all organic standards. For meat products, organic regulations require that animals are raised in living conditions accommodating their natural behaviors, fed 100% organic feed and forage, and not administered antibiotics and hormones. Meat cannot also be labeled or sold as organic unless it has been slaughtered and processed at a facility that is certified organic.

Actual certification costs or fees vary widely depending on the certifying agent and the size, type, and complexity of your operation.

Certified Animal Welfare Approved by AGW

Certified Animal Welfare Approved by AGW is an independent, nonprofit farm certification program that evaluates animal welfare, outdoor access for animals, and sustainability. The Certified Animal Welfare Approved by AGW standards were developed in collaboration with scientists, veterinarians, researchers, and farmers across the globe to maximize practicable, high-welfare farm management. Slaughter and

processing facilities must follow Animal Welfare Approved guidelines for products to be labeled with the certification.

State-Grown Certifications

Almost every state in the nation provides a state-grown certification for products produced in their state. Using a state-grown certification helps consumers easily identify local products that were produced where they live.

For example, producers may use the Virginia Grown logo to indicate that their items are produced in Virginia. In addition, the state offers the "Virginia's Finest" program with is a trademark that is available for producers who meet or exceed quality standards under the program. Producers must submit an application that is evaluated by the review committee. If products meet or exceed the standards set by the industry, the producers are permitted to use the Virginia's Finest certification in their marketing materials.

Homegrown By Heroes

This certification is provided by the Farmer Veteran Coalition to farmers, ranchers, and fishermen of all military eras to sell their products as veteran-owned and produced. Approved farmers may use the logo in their marketing to indicate that their business is owned by farmer veterans. To be eligible, the business or farm must be at least 50% owned and managed by a veteran of any branch of the military (including those currently serving) who has also received an honorable or general discharge.

To apply for the Homegrown by Heroes certification, you must become a member of the Farmer Veteran Coalition, which is completely free.

Online Marketing and Web Presence

A major form of promotion for many businesses is maintaining an online presence through a dedicated website and online marketing campaign. Online marketing can help you easily expand your overall market and further your reach to customers outside of the immediate community. It also offers different ways for you to interact with your customers that may not be possible when working at the farmers' market or when they are visiting your farm. Online marketing includes multiple components such as your website, social media networking, and online advertisements.

Website

Having a well-maintained website for your business is one of the most essential elements of your online presence. Buyers, consumers, and the general public typically expect to be able to find your business online to learn more about your business, you, and your products.

Advantages of having a website include the ability to easily share information about your farm, the history of your business, what products you provide and their benefit, the location of your farm and where your products are sold, and any other events or organizations that you may be a part of. You can also easily share pictures of our products, which is especially important for meat products that may not be able to be fully displayed while in the cooler or freezer in your farm market or at the farmers' market. You can also provide your contact information or contact form to allow the customer to easily get in touch, as well as links to your social media pages to further connect with your customers.

Your website is also always available any time a customer searches for it, so it becomes a passive form of marketing. Some of the disadvantages of only marketing through your website include less of an opportunity to connect directly with customers. You also need to provide frequent content updates to make sure your website stays up-to-date, including any new products that you offer, changes to operating times, etc.

A website can also provide a potential sales outlet for your products through the implementation of an e-commerce platform. Online sales can significantly increase your market size; however, it also increases the technological and logistics needs of the business. More information on selling through an online store is provided under the Meat Retailer Sales Outlets section of this document.

Demographics of Two Popular Social Media Platforms

Instagram

- Average Age: high use with millennials (ages 18-32)
- Interests: Photography
- Primary use: Sharing photos, following celebs and inspirational figures
- Fun facts: 400 million active users, 60 percent of users check their Instagram at least once a day
- Advertising pros: Easy to reach audience

Facebook

- Average age: 25-34
- Interests: videos, articles, life updates
- Primary use: connect with friends and family, stay up to date on news and interesting info
- Fun facts: 300 million photo uploads per day, average time spent on Facebook is 20 minutes
- Advertising pros: many ad placement options

Source: Pew Research Center, https://www.pewresearch.org/internet/fact-sheet/social-media/

Social Media

Social Media is another major component of your online presence and provides and much more direct connection between you and your customers. Social media is an excellent tool for reaching out to potential customers. By addressing common concerns and offering expertise with other professional audiences, your meat brand may gain much-needed influence by adding effective social media strategies into your marketing strategy. Employ social media presence to create awareness and form foundational relationships. Given the current environment, it is the ideal time to reassert your beliefs, service excellence, and readiness to go above and beyond.

To dominate the social media promotion space, consider the platforms that would work best with your chosen meat market. Consider the most popular platforms and decide which one best fits the demographic and socioeconomic background of the region you're targeting, as each will provide the same return on investment for your meat business. Double your effort on the two platforms where they're spending the most time.

Agricultural Events

Attending and/or hosting events fosters the opportunity to advertise yourself and your meat products to potential clients face to face. There are several considerations you should give when determining the event itself such as: is the event important enough to justify the time and resources invested? If hosting, the event would need to be both unique and memorable, and that requires a certain number of resources to be allocated If attending, you need to ensure you will generate the visibility of your business by attendance, which would be time spent away from conducting your own business.

As with most aspects of your meat business, sales and traffic are two indicators that should be tracked and analyzed. Keep in mind that it may take more than one attempt of offering and/or attending an event to obtain a desired level of profitability. However, it also offers the opportunity for you to exchange the skills you've mastered, goods offered, and goals with prospective clientele. Any information you can give them will help advertise your meat products and spread the word about you and your work.

RISKS, REGISTRATION, REGULATIONS, & POTENTIAL ISSUES

Disclaimer
It is the responsibility of the owner of a business to become familiarized with the federal, state, county, and local laws governing his or her business. Failure to do so may result in penalties, fines, and ultimate cessation of business. The following sections are intended to provide a general overview in an attempt to highlight possible considerations that could affect a business and are not intended to be exhaustive.

Business expansion faces many potential risks as it develops and attempts to increase sales. Though it may be difficult to quantify a specific dollar value of these risks, it is useful to present them and permit the owners to determine the facility's individual level of risk tolerance.

- **COVID-19**

The ongoing COVID-19 pandemic has significantly impacted the food and agricultural industries over the past three years, reducing processing capacity and food availability for many across the country. The meat and poultry industries in particular were impacted by the reduction in slaughter facility operations and an overall reduction in food traveling through the traditional supply chains. This brought the importance of local meats and poultry to the forefront of food and agricultural discussions. Improving the processing capacity of your facility will help to improve overall access to local foods, but the potential negative impacts of COVID-19 such as employee illness, impacts on wholesale customers if their business is impacted by COVID resurgence, and other factors should be considered.

- **Avian Flu and other Catastrophes**

The ongoing outbreak of Highly Pathogenic Avian Influenza (HPAI) impacting the nation's poultry supply is one example of potential catastrophes that could be faced by all poultry operations. The facility is in a more remote location, without any other nearby poultry operations, lessening the chances of HPAI or other illnesses being transferred from other sick flocks. However, since they plan to also source birds from other poultry producers, the chances of processing activities being impacted by the disease increases. Should other poultry suppliers lose head, that portion of revenue will decrease, impacting the bottom line.

- **Capital Risks**

The project will continue to require capital outlay. Obtaining and operating processing equipment represents a significant expense at the venture's outset, and insufficient access to capital funds is a common reason for new businesses to fail. The assumptions in this study do not include much leeway for unexpected cost overruns that could endanger the venture.

- **Cash Flow Risks**

Changes in price, volume sold, or accounts receivable turnover, for example, could seriously affect the venture's cash flow. Additional cash beyond that generated by the operation may be needed to supplement operations. The processing facility will be wholly dependent on customers sourced by the owners, which directly affects the amount of product the business can process and sell.

In addition, the construction necessary for the operation may need significant build-out or equipment requirements. Costs such as these will be incurred during a time when the facility will not be generating significant revenue. The owners should carefully manage costs and source sufficient funds to cover this build-out period until revenue can be generated from operations.

Finally, there may be periods during the year when the venture experiences negative cash flow. This should be closely monitored for business liquidity. A small change in price or payment period could quickly turn a profit into a loss or exacerbate this cash flow risk.

- **Management Experience Risks**

Businesses can "fly or die" based on management caliber. While the owners of the project have significant experience in the care of large animals, their experience is more limited in regard to processing and marketing operations. It is imperative that management has experience in the industry. The selection and oversight of management, both at the business as well as the operational level, are critical for the success of the venture.

- **Legal Liabilities and Risks**

The venture will face legal liabilities and potential risks due to the nature of the product, visitor risk, transport of the product, worker safety, and environmental risks. Since the business will produce and sell products intended for consumption, they will need to address any potential legal risks that could arise. The risk should be reduced with insurance and written policies where possible.

- **Regulatory Risks**

There are numerous regulatory risks the venture will need to continue to address as it moves forward. There is a potential that these factors could substantially constrict the ability of the venture to operate profitably. Additionally, some regulations are in constant flux; statutes that may not affect the operation today could have a dramatic impact on it in the future.

The Virginia Department of Agriculture and Consumer Services (VDACS) administers and regulates all red meat processing facilities in the state through its Office of Meat and Poultry Services. This oversight also includes regulations set by the FDA and USDA.[25]

- **Operational Risks**

Due to the newness of the expansion, several operational issues that do not proceed along the lines of the assumptions of this study could occur. The quality of the company's products is highly dependent on the skill of the processing manager, the practices implemented, and sales are in turn dependent on the owners reaching the business's target market.

[25] VDACS. Inspection Guide. https://www.vdacs.virginia.gov/pdf/inspectionguide.pdf

The owners could face operational risks in equipment handling and processing if human resources are not sufficient to cover the minimum management requirements. For example, if the quality of the equipment or product handling is not in compliance with state and federal regulations, it could risk the failure of the whole operation.

- **Market Development Risks**

The facility has already established itself within the industry with its successful sales in the past, building a strong customer base. This will aid in the expansion of the facility and addition of poultry processing.

There is no guarantee that the venture will succeed in capturing sufficient buyers to purchase its products. It is assumed that consumers have a tangible interest in the new local Halal meat products; this may not be a true assumption.

The proposed image for the expansion is based on a minimum promotional strategy budgeted and explained in the study, but there is still a risk that the activities proposed may not be sufficient to support the sales strategy.

- **Price Risks**

There is no doubt that the consumer is becoming increasingly interested in how and where food is produced. While it is more likely that a higher price can continue to be obtained for humanely slaughtered, halal, locally sourced and processed red meats and poultry, there is no guarantee. The specialty product market in general experiences greater price stability than the commodity market; however, the same factors can cause price variations and lead to a loss of revenue from processed meat products.

- **Food Contamination Risks**

Food contamination is always an area of concern in the agricultural industry, but it is of even greater concetoith the slaughter and handling of meat products. Bacterial contamination may occur, causing illness, product recalls and damage to the brand. Even being associated as one step in the processing chain can have negative consequences, whether or not the facility itself was the cause of contamination.

Care should also be taken if product is supplied to retail outlets for sale to the public. Careless handling techniques by the retailer could also cause the risks previously mentioned.

- **Production Risks**

If the venture experiences issues due to animal health or contamination, the venture may need to discontinue production temporarily. Because the facility only generates revenue when in production, this could cause significant financial issues.

- **Inventory Risks**

An inventory of perishable products brings its own set of risks. If sales are lower than expected, inventory may increase, spoil, and need to be disposed of. If negative cash flows occur, then the venture may not be able to comply with short-term obligations. While the product could be frozen, the operation would require the owners of the venture to buy additional freezing equipment not anticipated at this time.

Food Safety and Quality Assurance

The production of safe, high-quality products are of primary concern to the owners of the project. Food safety begins with an appreciation for cleanliness through the entire supply chain. Good agricultural practices, an understanding of microbiology, good manufacturing practices, safe procedures for cleaning and sanitizing, and a thorough understanding of the principles of Hazard Analysis and Critical Control Point (HACCP) development all matter to the project.

Sanitation Standard Operating Procedures (SSOP)

The USDA mandates SSOP for meat and poultry operations as of 1997. The regulation requires that procedures be developed to outline sanitary practices to prevent contamination of poultry products. These procedures include written steps for cleaning and sanitizing all areas and equipment, and include sanitation guidelines for before and during processing. All procedures must be appropriately documented and validated. Purdue University Extension provides a helpful document, "SSOP and FMP Practices and Programs"[26] on further information about SSOP.

Good Manufacturing Practices

Good Manufacturing Practices (GMP) have two meanings when used in the context of a food processing facility. The first refers to actual federal code sections of GMPs and the second is a set of operating procedures based upon these codes. The actual codes provide the basis for both the federal and state food processing regulations that serve as guidance for facility construction, equipment and utensil selection, sanitation, personnel hygiene, food handing, and production and processing controls. These are contained in the Good Manufacturing Practices as detailed in Title 21 of the Code of Federal Regulations Subpart E-- Production and Process Controls. The CFR is accessible online via www.ecfr.gov.

While these GMPs are generic, it provides an excellent overview of most facets of sanitary facility operation. Once understood, a facility operator can use these codes to develop GMPs for their own facility. A typical GMP program consists of several parts, each of which has a written set of policies and a checklist based upon those policies.

A written GMP program should also include sanitation and pest control policies and documentation. The sanitation program should include information about the cleaning chemicals used in the plant, how effective they are handled and stored, and how the Material Safety Data Sheets (MSDS) are maintained. Additionally, the sanitation program should detail weekly, monthly, and periodic cleaning schedules and how that cleaning is to be monitored and recorded.

[26] Keener, K. "SSOP and GMP Practices and Programs." Perdue Extension. https://www.extension.purdue.edu/extmedia/FS/FS-21-W.pdf

The GMP plan should include a section on “Production and Process Controls” that addresses the methods of preventing contamination, processing time, temperature controls, and other critical factors. The firm must have a means of lot coding each batch of product so that a product recall can be initiated, if necessary.

Hazard Analysis Critical Control Point

As defined by the USDA Food Safety and Inspection Service (FSIS) the Hazard Analysis Critical Control Point (HACCP) system is a scientific approach to process control. It is designed to prevent the occurrence of problems by assuring that controls are applied at any point in a food production system where hazardous or critical situations could occur. Hazards include biological, chemical, or physical contamination of food products.

The Food Safety and Inspection Service (FSIS) published a final rule in July 1996 mandating that HACCP be implemented as the system of process control in all inspected meat and poultry plants. HACCP plans are currently mandatory in the juice and meat industry, with compliance in other industries being largely voluntary. A plan should be prepared in accordance with the Code of Federal Regulations (CFR) Hazard Analysis and Critical Control Point section (Part 417).

A HACCP Plan is a written document that outlines a process, identifies the points in that process where contamination is likely to occur, and then outlines a procedure for addressing those identified “critical control points” and establishes a procedure for dealing with variances that may occur that are not covered by the plan. It also encompasses the recording and documentation of the procedures and their effectiveness.

It is important to recognize that a HACCP plan only works if an effective sanitation program and documented GMPs are in place. A HACCP program is not designed to compensate for generally poor practices, but to use solid practices as a basis to provide the highest assurance of safety.

The writing and implementation of a HACCP plan involve a significant investment in time and planning. Because of the complexity and risk associated with the slaughter of animals, the process will require detailed analysis to create a thorough plan. An approved plan will need to be in place prior to a facility beginning operations.

Business Registration

The registration needs of a venture can vary depending on federal, state, and local laws. Some registration processes are free of charge, but certain types of business are subject to various registration fees and permits.

Businesses can form under another business or the owner’s name, or they can choose to do business under a fictitious name, which requires the filing of a DBA (Doing Business As). Sometimes known as an “assumed name” certificate, a DBA is a document that provides owner identification when a business is operating under any name other than their legal name. Ventures organized as corporations may also need a DBA if they plan to use a different name than the one provided on their corporation paperwork (legal name).

Registration of Food Facilities

Facilities that process, store, or ship food for human or animal consumption are required to register with the FDA. First, a person must establish, at no cost, an online account with the FDA. Once an account is established, a person can register his or her farm or company, and edit the registration information. The Food Safety and Inspection Service (FSIS) of USDA have prepared a guideline with good practices for food processors to take into account. It is available at www.fsis.usda.gov.

Brand Registration and Trademark

According to the U.S. Patent and Trademark Office (USPTO) a trademark includes any word, name, symbol, or device, or any combination, used, or intended to be used, in commerce to identify and distinguish the goods of one manufacturer or seller from goods manufactured or sold by others, and to indicate the source of the goods. In short, a trademark is a brand name.

The name and logo design of the operation needs to be trademarked and registered at the national level. Failure to obtain appropriate intellectual property protection invites others to pirate the venture's work. The practical purpose of a trademark is to prevent consumers from becoming confused about who provided the goods or services they purchased.

This venture has already developed and registered a name and logo that it intends to continue utilizing for this expansion.

Taxes

Federal, state, and local level authorities all have tax requirements that affect the formation or expansion of a business.

Taxpayer ID and Employer Identification Numbers

The Federal (Employer) Identification Number, also known as a Tax Identification Number or EIN, is a number issued by the IRS for the purposes of identifying businesses. If the business has no employees or the business is a type other than a corporation, a Social Security number generally functions as the EIN. Nearly all business structures that employ individuals, as well as other business entities use EINs. To apply for an EIN use form SS-4: Application for Employer Identification Number, or over the phone by contacting the IRS at: 1-800-829-1040 or 866-816-2065, or online at: www.irs.gov.

It is necessary to do recordkeeping for tax purposes (bank deposits, sales receipts and other elements of support) and to have the record available for examination by IRS.

Some of the most complex issues facing small business owners today are the various taxes and tax structures. The business may be subject to, or responsible for, collecting or withholding:

- Taxes on the business itself
- Ad Valorem Taxes (Taxes on Property)
- Sales and Use taxes
- Employment and Income Taxes.

Federal
For specific information regarding federal tax requirements, contact the Internal Revenue Service to obtain a copy of the Small Business Resource Guide. This guide contains information on federal tax obligations as well as various publications for starting a business.

Required Federal Employment Taxes
- Federal Income Tax Withholding
- Social Security and Medicare Taxes (FICA)
- Federal Unemployment Tax (FUTA)

Forms and Employees
It is required that all employers have their employees fill out the following forms: Form I-9 and Form W-4. More information explaining the Federal tax responsibilities of the employers can be found in the IRS' Publication 15, Circular E, Employer's Tax Guide.

- **Form I-9**: Employment Eligibility Verification. This document is available from the Immigration and Naturalization Service by calling 800-357-2099 or online at www.bcis.gov.

- **Form W-4**: Employee's Withholding Allowance Certificate. This form is available from the Internal Revenue Service. Call FORMS/PUBLICATIONS at 800-829-3676, or INFORMATION at 800-829-1040. The form can also be downloaded by visiting www.irs.gov.

Certain agricultural employers are required to fill out specialized forms depending on their type of work or they may be exempt from certain laws. For more information, see www.irs.gov.

State and Local
In addition to business taxes required by the federal government, some state and local taxes will normally have to be paid. Each state and locality has its own tax laws. Having knowledge of state tax requirement can help avoid problems and save money.

- **Tax Permit:** In most states, business owners are required to register their business with a state tax agency and apply for certain tax permits. For example, in order to collect sales tax from customers, many states require businesses to apply for a state sales tax permit.

- **Income Taxes:** Nearly every state levies a business or corporate income tax. The tax requirement depends on the legal structure of the business. For example, if the business is a Limited Liability Company (LLC), the LLC gets taxed separately from the owners, while sole proprietors report their personal and business income taxes using the same form. Consult a tax advisor/CPA for specific requirements for the business.

- **Employment Taxes:** In addition to federal employment taxes, business owners with employees are also responsible for paying certain taxes required by the state. All states require payment of state workers' compensation insurance and unemployment insurance taxes. Also some states require a business to pay for temporary disability insurance.

- **Sales Tax and Resellers:** In the case of a business purchasing items that are intended for resale, many states that collect sales taxes allow a business to purchase resale items tax free. The requirements and guidelines vary from state to state; check with the locality for specific information.

Business Regulation

USDA

The United States Department of Agriculture (USDA) is responsible for overseeing federal policy regarding farming, agriculture, and food products. Distribution, labeling and packaging, quality, recalls, safety, and security are all functions governed by the USDA. Regulations and requirements of the USDA must be met in order to be in compliance with applicable laws.

Federal-State Inspection Act (Talmadge-Aiken Act)

The Federal-State Inspection Act, also known as the Talmadge-Aiken Act was signed into law in September of 1962. This act allows state inspectors to also conduct federal inspections at facilities located in rural areas. The purpose of this act is to provide federal inspection services in remote locations while also reducing the travel costs of assigning federal employees to these rural plants.

Products that pass inspection by state employees under the Talmadge-Aiken Act are granted federal marks of inspections. State inspectors who conduct federal inspections under the Talmadge-Aiken Act are working on behalf of the federal Food Safety and Inspection Service (FSIS) and as such any appeals of these state inspectors are directed initially to the FSIS instead of state regulatory offices. Virginia is one of the ten states that fall under the jurisdiction of the Talmadge-Aiken Act, thus the act may apply to the discussed processing facility.[27]

Packers and Stockyards Act[28]

The Packers and Stockyards Act oversees competition and trade practices within the overall livestock and poultry sectors. Its goals include:

- Assuring fair competition and trade practices
- Safeguarding farmers and ranchers
- Protecting consumers
- Protecting livestock, meat, and poultry industry members from unfair, deceptive, unjustly discriminatory, and monopolistic practices

The following is a fact sheet on the PSA provided by the USDA AMS
https://www.ams.usda.gov/sites/default/files/media/PSActFactSheet.pdf

The PSA regulates and investigates everyone from the small livestock trader to multinational companies involved with livestock and poultry, and will prosecute when necessary.

[27] Code of Federal Regulations. 7 U.S.C. Section 450. https://legislation.lawi.us/talmadge-aiken-act/
[28] Packers and Stockyards Act. https://www.ams.usda.gov/sites/default/files/media/PSAct.pdf

The minimum bond amount is $10,000. The amount of the Packers and Stockyards Act Surety Bond is typically based on the dollar value of business done in two business days. The bonds are determined from an annual livestock report that is done through self-reporting required by the regulations and submitted to the Central Reporting Unit of the Grain Inspection, Packers and Stockyards Administration.

More information can be found https://www.ams.usda.gov/rules-regulations/packers-and-stockyards-act/regulated-entities/how-to-comply-bond-requirement

Formal questions can be directed to:

Packers and Stockyards Administration
Eastern Regional Office
75 Ted Turner Drive SW, Suite 230
Atlanta, GA 30303
Telephone 404-562-5840
FAX 404-562-5848
E-mail: PSDAtlantaGA@usda.gov

The Atlanta office will either respond to their inquiry or forward it to the field agent responsible for poultry or Virginia.

FSIS

The Food Safety and Inspection Service (FSIS) is the public health agency in the U.S. Department of Agriculture responsible for ensuring that the nation's commercial supply of meat, poultry, and egg products is safe, wholesome, and correctly labeled and packaged.

Due to the existing public concern over the outbreak of listeria bacteria in ready-to-eat meat and poultry products, The Food Safety and Inspection Service (FSIS) has removed sodium benzoate, sodium propionate and benzoic acid from a list of prohibited substances. These substances were included on the prohibited substances list because, when used at certain levels, they have the potential ability to conceal damage or inferiority in meat products sold to the public. After reviewing various data sets, the FSIS believes that the benefits of these substances as antimicrobial agents outweigh the prior concern that they will be used to conceal inferiorities in meat products. This rule was amended in 2013.

Humane handling practices are also covered by the FSIS. Because the facility intends to be certified organic, and in general the organic handling standards are even more restrictive than general handling requirements, the facility can be considered to have addressed this issue.

Poultry Products Inspection Act (PPIA)

The PPIA, first enacted in 1957 as the Wholesome Poultry Products Act, requires the inspection of all domestic fowl slaughtered and processed for human consumption. The intent of the legislation is to prevent the sale of adulterated or misbranded poultry products and to ensure that sanitary slaughter conditions are maintained. The types of fowl covered by the act include chickens, turkeys, ducks, geese, guinea fowl, and ratites.

The act itself contains provisions covering the cooperation of federal and state inspection programs, inspection in official establishments, operation of the facilities and equipment involved in slaughter, labeling and container standards, prohibited acts, offenses and punishment, rules and regulations, exemptions, seizure and condemnation, imports, and administration.

Any business that slaughters or processes poultry for use as human food is required to do so under Federal or State inspection, unless the slaughter or processing operations at the business meets certain exemption criteria in the Act[29].

Modernization of Poultry Slaughter Inspection
This rule was proposed by the FSIS on 27 January 2012 and approved in 2014 The rule applies to the slaughter of turkeys and young chickens and would replace all of the existing inspection systems, except for traditional inspection. Elements of this rule include[30]:

(1) Requiring that establishment personnel sort carcasses and remove unacceptable carcasses and parts before the birds are presented to the FSIS carcass inspector.
(2) Reducing the number of online carcass inspectors to one.
(3) Permitting faster line speeds than are permitted under the existing inspection systems.
(4) Replacing the existing Finished Product Standards (FPS) with a requirement that establishments that operate under the new inspection system maintain records to document that the products resulting from their slaughter operations meet the definition of ready-to-cook poultry.

The FSIS believes that the implementation of this rule will lead to a decrease in food-borne illnesses such as *Salmonella* and *Campylobacter.* A study conducted by the Risk Assessment Division of the USDA found that instances of these contaminants decline by an average of 2% when these regulations were applied to a poultry processing facility.[31]

Environmental Protection Agency (EPA)

The US Environmental Protection Agency (EPA) and state environmental agencies regulate the impact of businesses on the environment. EPA develops and enforces regulations that implement environmental laws enacted by Congress. Likewise, state agencies enforce regulations that implement laws enacted by the state legislature.

The U.S. Small Business Administration divides the environmental regulations into different areas such as air pollution, basics of environmental compliance, cleanup, ecosystems, environmental management (odor control, etc.), environmental permits and planning, pollutants and chemicals, pollution prevention, storage tanks, waste and water (preventing contamination of water supplies, etc.). More specifics on each case are available at www.sba.gov.

[29] U.S.C. Title 21 - FOOD AND DRUGS (govinfo.gov)
[30] Modernization of Poultry Slaughter Inspection. https://www.fsis.usda.gov/wps/portal/fsis/topics/regulatory-compliance/haccp/haccp-based-inspection-models-project/himp-study-plans-resources/poultry-slaughter-inspection
[31] FSIS Risk Assessment for Guiding Public Health-Based Poultry Slaughter Inspection. 14 Nov 2011. http://www.fsis.usda.gov/PDF/Poultry_Slaughter_Risk_Assess_Nov2011.pdf

The owners of the facility need to consider environmental constraints related to the use of natural resources as well as in processing and waste disposal. Thus, the environmental effects of food processing are intimately linked with the type of product and processing technique and the effluents from that process. It is necessary to determine the characteristics of the effluent to identify the best option for treatment according to the end purpose (for example land application). The Environmental Protection Agency, as well as the FDA and Department of Agriculture coordinate efforts to enforce laws in agri-food activities.

FDA

The US Food and Drug Administration (FDA) oversees much of the nation's food supply, as well as drugs and medical devices. The agency is also responsible for interpreting the law and writing regulations concerning specific food products and processes. Rules and regulations established by the FDA are published in Title 21 of the Code of Federal Regulations (CFR) which can be found at www.ecfr.gov. These laws are intended to assure that foods are safe to eat, pure, wholesome, and produced under sanitary conditions.

FDA inspectors have the authority to inspect any establishment where food is processed, packaged, or held for shipment in interstate commerce. They can also inspect products after shipment, vehicles used to transport food in interstate commerce, equipment, finished products, containers, and labeling.

Food Safety Modernization Act (FSMA)

The FSMA, the broadest reform of the food safety laws in more than 70 years, was signed into law on January 4, 2011. It aims to ensure the U.S. food supply is safe by shifting the focus from responding to contamination to preventing it and requires that food from abroad be as safe as domestically produced goods.

FDA has redesigned its webpage dedicated to the Food Safety Modernization Act (FSMA): www.fda.gov/FSMA. The agency encourages consumers, industry and food-safety professionals, local and state regulators, and international trading partners to get more involved in implementing the new law by learning what the FDA is doing, as well as providing feedback to help guide the FDA in the future. Key elements of the page include:

- A link to the new web-based search engine for recalled foods
- Frequently asked questions about the landmark food-safety legislation
- Videos and graphics explaining how the law will be implemented
- Information about public meetings on these reforms

The FSMA allows the FDA to administratively detain food the agency believes has been produced under unsanitary or unsafe conditions. Previously, the FDA's ability to detain food products applied only when the agency had credible evidence that a food product presented was contaminated or mislabeled in a way that presented a threat of serious adverse health consequences or death to humans or animals. Full implementation of the law will take time; however, beginning July 2011, the FDA is able to detain food products that it has reason to believe are adulterated or misbranded for up to 30 days, if needed, to ensure they are kept out of the marketplace.

Traceability
The federal Bioterrorism Act (BTA) is driving significant changes in food regulation. This federal law mandates regulations regarding record-keeping and product traceability. The FDA has published a guidance document that summarizes the recordkeeping and traceability requirements. More information is available at www.fda.gov.

Producers will be required to trace ingredients one step backward in the food chain and tie the ingredients to finished products one step forward in the chain if the products are being sold through retailers or wholesale distributors.

Food Handling Regulations
Any person who handles food should be aware of food legislation. The primary enabling legislation states the aims and objectives of the law. This provides the power to the relevant U.S. Departments of State to introduce specific regulations. For example, the Food Safety Modernization Act is a legislation approved by Congress and later allows the Food and Drug Administration to write a regulation/s for that law.

In general, food legislation has two objectives:

1. To ensure that the food offered is of the quality it is supposed to be.
2. To ensure that the food will not be harmful to the consumer.

For food processors, there are parameters for minimum standards with which products have to comply. For example, in bacteriological quality terms, tests done by laboratories have to follow the specifications as stated in the Bacteriological Analytical Manual (BAM) of the U.S. Department of Health & Human Services, U.S. Food and Drug Administration (FDA). This manual is available at www.fda.gov.

Virginia Department of Agriculture and Consumer Services (VDACS)

Production of red meat and poultry products falls under the authority of VDACS, specifically their mandate to "administer regulatory programs to ensure that safe, wholesome, unadulterated and truthfully labeled food and agricultural products are offered for sale to consumers."

Red meat and poultry business operators who plan to sell their meat to businesses outside their organization are required to undergo continuous inspection. This means that the process is inspected daily during operation. This is meant to ensure the safety of the food being produced.[32]

VDACS provides oversight on all aspects of meat processing and meat sales within the state. Their Office of Meat and Poultry Services (OMPS) provides guidelines on selling meat products in the state, including who can sell meat and what inspections are required. According to their guide,[33] all "amenable" species including cattle, swine, sheep, goats, and poultry must be inspected if they are

[32] VDACS Inspection of Meat and Poultry Products http://www.vdacs.virginia.gov/meat&poultry/pdf/fact.pdf
[33] VDACS. "A Guide to Selling Meat and Poultry Products in Virginia." https://www.vdacs.virginia.gov/pdf/inspectionguide.pdf

slaughtered and sold, unless exempt. Wild birds and animals cannot be sold for food, only meat from domestically raised birds and animals.

Products that have been processed at a USDA/FSIS facility or VDACS OMPS inspected facility can be sold at farmers markets, to restaurants, at retail stores, and through online stores. A Meat Handlers Permit may be required for any facility that is a broker, distributor, or peddler of meat and/or poultry products. A business that has been inspected by the Virginia Department of Heath and/or VDACS Office of Dairy and Foods may sell meat products.

A product that has been inspected should have the appropriate labeling indicating if it was inspected by the USDA or by VDACS. Products that only have state inspection labels are not able to be sold across state lines.

The following flow chart is provided by VDACS OMPS to determine what inspection permits are required:

Figure 14: Inspection Permit Requirements

In order to determine the type of inspection your business may be subject to, ask yourself the question in the **bold type** and then follow the appropriate arrow. If you answer, "Yes" to more than one question your business may require inspection from more than one office.

Do you provide a service by slaughtering and/or processing livestock for the owner of the livestock for their personal use?	Yes	A Custom Permit of Exemption is required Contact the Office of Meat and Poultry Services (804) 786-4569
Do you slaughter and/or process 1,000 - 20,000 birds annually and offer these for sale to household consumers, retail store(s), outlets(s) or to restaurants?	Yes	A Poultry Permit of Exemption is required Contact the Office of Meat and Poultry Services (804) 786-4569
Do you slaughter and/or process less than 1,000 birds of your own raising annually and offer these for sale to household consumers, retail store(s), outlets(s) or to restaurants?	Yes	Contact the Office of Meat and Poultry Services (804) 786-4569 for requirements
Do you slaughter livestock and further process carcasses then wholesale these carcasses or products?	Yes	Grant of Inspection is required Contact the Office of Meat and Poultry Services (804) 786-4569
Do you purchase meat products[1], further process these products and then wholesale these products?	Yes	
Do you slaughter over 20,000 birds annually and offer them for sale?	Yes	
Do you engaged in business as a broker, distributor, or peddler of meat and/or poultry products. This includes persons or businesses, sell products at farmers markets, door-to-door sales, and wholesalers, and owners/operators of public warehouses where meat and poultry products in or for commerce are stored.	Yes	You must be registered as a meat and poultry handler with either the Office of Meat and Poultry Services or USDA. Contact the Office of Meat and Poultry Services for more information (804) 786-4569
Are you engaged in the business of buying, selling, transporting in commerce, or importing, any dead, dying, diseased or disabled cattle, sheep, swine, goats, horses, mules, equines or poultry, whether intended for human food or other purposes?	Yes	You must be registered as an inedible hauler with the Office of Meat and Poultry Services (804) 786-4569
Are you engaged in the business of buying, selling, transporting in commerce, or importing, inedible parts and products of the carcasses of any animal or poultry?	Yes	

VA Pollution Abatement Regulation and General Permit for Poultry Waste Management[34]
The VPA Regulation and General Permit for Poultry Waste Management governs the management of poultry waste at confined poultry feeding operations and poultry waste utilized or stored by poultry waste end-users or poultry waste brokers.

For more information about Virginia's animal agricultural waste regulations, go to https://www.deq.virginia.gov/water/land-application-beneficial-reuse/animal-agricultural-waste

VA Initial State Response and Containment Plan (ISRCP) and Prevention and Rapid Response for Low Pathogenic Avian Influenza (H5 and H7)
Virginia's poultry industry implemented its state response and prevention plans for low pathogenic avian influenza (LPAI) following a large 2002 LPAI outbreak in Virginia's Shenandoah Valley. This planning effort became the forerunner to USDA Animal and Plant Health Inspection Services (APHIS) planning requirements for states requesting federal indemnification for poultry owner and grower financial losses associated with LPAI and later high pathogenic avian influenza. Poultry companies and growers are expected to follow their state plans to maintain minimum eligibility for and facilitate timely federal indemnification.

The Virginia Poultry Disease Task Force serves as Virginia's Emergency Disease Management Committee for these plans. The Task Force is comprised of poultry industry stakeholders, including state and federal animal health officials, and administered by the Virginia Poultry Federation, Inc. https://www.vapoultry.com/programs/poultryHealth.cfm. The Task Force was established separate from government agencies to protect confidential business information from being made available to the public.

Virginia Entry Requirements for Poultry[35]
All poultry entering Virginia must bear official identification and the official identification number must be noted on the Certificate of Veterinary Inspection (CVI). Other movement documents approved by the State Veterinarian such as a VS 9-3 Form are acceptable if the shipper is a National Poultry Improvement Plan (NPIP) participant.

Hatching eggs and day-old poultry imported into Virginia must originate exclusively from flocks or hatcheries participating in the National Poultry Improvement Plan (NPIP) and be Avian Influenza Clean or the equivalent.

All other poultry must be tested negative for Pullorum-typhoid within 30 days prior to entry or be a participant of the National Poultry Improvement Plan (NPIP). Adult poultry must be tested negative for Avian Influenza within 14 days of movement to Virginia regardless of NPIP status.

VA Entry Requirements Contact
If you have questions about Virginia's animal admission requirements, please contact the Office of Veterinary Services.

[34] Virginia Pollution Abatement Regulation. https://law.lis.virginia.gov/admincode/title9/agency25/chapter630/
[35] VA Entry Requirements for Poultry. https://law.lis.virginia.gov/admincode/title2/agency5/chapter141/section60/

Labor Regulations

It is vital to choose the right method for recruiting and selection that best adapts to a business venture. Having clear and defined objectives, duties, and responsibilities for each position will ensure proper selection of personnel, as well as avoid costly lawsuits related to discrimination and sexual harassment.

Many additional labor laws and regulations will begin to affect the business should the venture approach 50 employees. It is important to monitor operations carefully to determine if the extra labor is feasible, given the additional cost that new regulations may carry. Affirmative Action, Equal Employment Opportunity, the Family and Medical Leave Act, and the Affordable Care Act all have provisions and regulations that are triggered once a business reaches the "50 or more" employee mark.

Employment Eligibility Verification

Workers must have valid work permits if they are not U.S. citizens. Each farm labor contractor, agricultural employer, and agricultural association which is subject to the MSPA and who employs any migrant or seasonal agricultural worker(s) shall post and keep posted in a conspicuous place at the place of employment a poster prepared by the Department of Labor which explains the rights and protections for workers required under the Migrant and Seasonal Agricultural Worker Protection Act (source: DOL).

Safety Issues and OSHA

The Occupational Safety and Health Administration, or OSHA, is responsible for enforcing compliance with US laws regarding safety and workplace conditions. Compliance is expected to be voluntary, with inspections as a consequence for extended non-compliance.

Employers have the responsibility to provide a safe workplace. Employers must provide their employees with a workplace that does not have serious hazards and follow all OSHA safety and health standards. Employers must find and correct safety and health problems. OSHA further requires that employers try to eliminate or reduce hazards first by making changes in working conditions rather than just relying on masks, gloves, ear plugs or other types of personal protective equipment (PPE). Switching to safer chemicals, enclosing processes to trap harmful fumes, or using ventilation systems to clean the air are examples of effective ways to get rid of or minimize risks.

If there are laboratories in the facility, then a manual with clear procedures for each quality test must be in place and in compliance with FDA and USDA regulations. Safety globes, hats, industrial aprons, boots and glasses should be available for workers in the processing areas. In this context, having accident insurance for workers is an important matter as well.

Exit signs, easy access in and out of the building, fire extinguishers, evaluation, medical supplies, and procedures are also important considerations. Other issues include hazard prevention and control, safety and health recordkeeping, and injury/illness records. It is important to develop an action plan to cover these types of situations. More details are available at www.osha.gov.

Transportation Regulations[36]

The processing facility must comply with certain federal transportation regulations regarding the pickup and delivery of products. A sanitary transportation rule currently exists as part of the FSMA that sets safety and cleanliness standards during the transportation of food. Certain entities are exempt from these rules, such as farms, but a food hub operation may need to ensure compliance.

Any pick-ups or deliveries made within a 60-mile radius of the facility may fall under several exceptions designated by the Federal Motor Carrier Safety Administration (FMCSA).

An air mile is a term used by the FMCSA to define a unit of measurement used in transportation. An air mile is longer than a statute mile, with 100 air miles equally 115.08 statute miles. The 100-air mile radius exemption may apply to a facility if all pick-ups and deliveries occur within 100 air miles of the facility and no driver works more than 12 hours in one day, the drivers are not required by law to maintain a logbook of their on and off duty hours.

Drivers are required to hold a commercial driver's license (CDL) if the load of the truck is greater than 26,001 pounds. Drivers of any semi-trucks used to transport product will be required to hold a CDL.

In general, commercial drivers must abide by the 14-hour consecutive duty period limit, meaning that they cannot have more than 14 hours of drive time in a 24-hour period. For drivers who fall under the 16-hour short haul exemption, an allowance is made to extend the 14-hour per day drive time limit to 16 hours once every seven consecutive workdays or after 34 hours off duty.

Deliveries not utilizing a truck that require a CDL will not be subject to certain restrictions. To qualify for this exemption, the driver must operate a truck that does not require a CDL and work within 150 air miles of their reporting locations.

Under this exemption, drivers are not required to keep a logbook. They are also allowed to maintain 16-hour duty periods twice every 7 days or after 34 hours of off duty time.

Processing Procedures

Written product specifications, processing flow diagrams, and processing procedures should be constructed both for the ease of tabulation for the owner of the venture, as well as for use in inspection and regulation aspects of the business. In some cases, detailed diagrams and other information regarding processing procedures may be required.

Potential Issues

Product Liability Insurance

Similar to other food products intended for retail sale and consumption, poultry products may be subject to various contamination risks and the potential for recalls and food safety issues carry a risk of liability. The operation will need to have a product liability insurance policy in place. This type of

[36] Interstate Truck Driver's Guide to Hours of Service. https://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/Drivers%20Guide%20to%20HOS%202015_508.pdf

insurance is available through most commercial insurance carriers. Insurance carriers should be contacted to provide actual quotes.

Internet
The Internet Corporation for Assigned Names and Numbers (ICANN) is responsible for managing and coordinating the Domain Name System (DNS) to ensure that every address is unique and internet users can find all valid addresses. For more information see www.icann.org.

Domain names can be registered through many different companies (known as "registrars") that compete with one another. A listing of these companies appears in the Registrar Directory available at www.internic.net/regist.html.

Regardless of the sales channel, all foods sold in the U.S. must be in full compliance with FDA food labeling requirements that are specified in the U.S. Code of Federal Regulations. The FDA monitors the websites of companies on the internet, so companies have to comply with all regulations and claims that are made about the foods and/or its ingredients.

Water & Sewer
Specific regulations govern the sources of water used in the production of food products. When locating any agricultural business that includes the production of large amounts of waste or byproducts, it is essential to address the regulations and constraints of disposal. Should a facility utilize a municipal water and sewer source, specific regulations governing the allowable limit of dissolved solids, as well as chemicals, nutrients, and PH levels allowed in wastewater will need to be addressed prior to production.

Should the facility be located in a region that does not include access to a municipal or other standardized water and sewer supply, environmental regulation may affect the disposal of production waste or by-products. Many pretreatment protocols mandate that the facility treat the wastewater, either by the use of physical, chemical, or biological processes, to reduce the amount of pollutants, or alter pollutants to a less harmful state prior to discharging to the sewer system.

Programs and regulations also often include rules stating that the facility must self-test their effluent water on a regular basis and provide records and results of this monitoring to the governing sewer authority. In addition to self-monitoring, the facility may be subject to annual local government testing. Failure to abide by applicable laws and regulations in this arena may result in fines or the cessation of business if they are not properly addressed.

Consumer Protection Concerns

The Federal Trade Commission (FTC) is the nation's consumer protection agency. The FTC's Bureau of Consumer Protection works for the consumer to prevent fraud, deception, and unfair business practices in the marketplace. More information is available at www.ftc.gov.

The owners are responsible for providing a safe environment both for employees and the general public. Examples include:

- Security elements set in place, such as clear exit signs at the facility, fire extinguishers, access for disabled persons, first aid kits, and emergency procedures.
- Laboratories that provide designated areas for sample analysis, where special ventilation systems must be in place if chemical substances are used.
- Using “caution hot” signs after burners have been used.
- Using “caution wet floor” signs after floors are washed.
- Protecting processing facilities to prevent vermin from entering the production area.
- Access/entrance to the farm. What was once acceptable as access to a farm for agricultural purposes, may no longer be legal access for the general public.

MODEL FINANCIAL PROJECTIONS AND METHODS

This report contains developed business financial models for the next three years of three backyard poultry operations, one small-scale poultry processing operation, and one medium-scale poultry operation. The data was modeled in Excel spreadsheets and the results are presented on an annual basis. This model is based on assumptions that have been derived both from the consultant's experience working with poultry processing plants of various scales, as well as research data and interview results gathered throughout the process of conducting this feasibility study. This model shows that all types of operations are feasible if market conditions are appropriate.

If these conditions are met, the operations described here will have a chance at long-term success and sustainability. More detail on the calculations and industry data that were used by the consultants to determine the assumptions that make up the financial model presented in this section can be found in the Appendices.

Backyard Poultry Processing

Backyard processing involves butchering, cleaning, and preparing poultry of no more than 1,000 birds per year. Due to the limited amount of poultry to be processed in a backyard operation, there will be a limited margin for a business at this scale to turn a profit. At this level of production, there are no USDA inspection requirements. This means that distribution will be limited, causing net income to be an insignificant performance indicator for success.

However, people at this level may want to save money by processing poultry themselves rather than buying chicken at local retail prices. Below describes some assumptions and calculations that the consultants made to model an average backyard poultry operation. Three variations of backyard poultry processing are included in this study:

- Backyard Meat Chicken Processing
- Backyard Turkey Processing
- Backyard Mix of Meat Chickens and Egg Layers

Assumptions

Poultry Weight: The study relies on live and dressed weights to determine costs such as feed, packaging, chemical cleanings, and more. This study uses an average live weight per meat chicken of around 6.6 lbs. with a dressed weight of around 3.64 lbs. Average live weight per tom (male turkey) is around 41 lbs. with a dressed weight of 22.6 lbs. The average live weight and dressed weight per turkey hen is around 17 lbs. and 9.4 lbs., respectively. Shrinkage from live weight to dressed weight for all poultry is assumed to be around 45%.

Animal Purchase Cost: Backyard poultry processors can expect to purchase chickens, sexed and unsexed, at around $1.50 per chick. Turkey processors at this scale can expect to purchase poults at around $3.00 each. This price can vary depending on the number of chicks purchased at one time, breeds, genetic backgrounds, and much more.

Feed Cost Calculations: Feed costs are around $0.42 per pound, rising to $0.51 to account for inflation. In addition, poultry feed may be purchased in bulk for cheaper, reducing the overall cost for

feed. It is important to note differences in feed costs for each operation to ensure that backyard processing remains feasible when compared to buying chicken at food retailers.

Feed Conversion Ratios: Feed conversion ratios describe how many pounds of feed is needed for an animal to gain one pound in weight. This ratio is recorded as an average over the birds' lifespans. Approximately 1.77 lbs. of chicken feed will correspond with 1 lb. of growth per chicken, and around 2 lbs. of feed will correspond with 1 lb. of growth per turkey. These ratios are subject to change depending on both genetic and environmental factors unique to each backyard operation.

Packaging Costs: Packaging includes wholesale boxes which hold 25 chickens or 10 turkeys, and individual sleeves or bags to hold each processed bird. Price per box is around $1.55 and each sleeve or bag costs around $0.05.

Egg Production: Out of the three backyard operations in this study, only the production mix involves egg production. On average, hens in this study lay around 0.9 eggs per day, lay for around 24 months, and lay an average of 712 eggs each throughout their lives. The number of eggs produced is dependent on the contentedness of the hen, as well as other genetic and environmental factors such as feed quality, size, temperament, and more.

Start-up Equipment: Start-up equipment for all backyard operations can be minimal when compared to a traditional poultry processing plant. Equipment consists of killing cones, a killing rack or trough, a scalder, a plucker, an evisceration table, and chilling equipment or coolers. Overall, start-up equipment is assumed to be fully purchased and new at cost of around $2,600 for this study. Cheaper or used equipment could reduce start-up costs drastically.

Retail Prices: Retail prices are what processors could assume to receive if they were to sell processed poultry. Since backyard operations are generally not for distribution, retail prices are used to determine the production required to break-even from an operation's initial investment in equipment. Chicken and turkey meat are priced at $2.95 per pound. The majority of chicken eggs are assumed to be sold at a wholesale price point while some are sold at retail prices, making the average price for eggs to be around $2.70 per dozen.

Unforeseen Loss: It is expected that 8% of the production will be lost or misplaced due to unforeseen circumstances for backyard processors. These losses can take the form of condemnation, spillage, spoilage, and more. This study presents loss in the form of premature deaths for chickens and turkeys. If 1,000 chicks or poults are purchased and raised in a year, then 80 will die or be unable to be processed.

Backyard Meat Chicken Processing

Backyard meat chicken processors can only process up to 1,000 birds per year. The financial model representing an average backyard meat chicken operation ranges three years. 700 birds are processed in year one, 850 birds in year two, and 1,000 birds in year three. The tables below describe the amount of initial capital required to process meat chickens at a home residence, the number of chickens that need to be processed for the venture to breakeven, the general processing cost per chicken, and retail chicken prices for comparison.

Table 3: Backyard Meat Chicken Processing Breakeven Summary

Breakeven Summary Table Y1-Y3		
Total Chickens Processed		**2550**
Chickens Required to Cover Start-Up Costs		**2075**
Shadow Price per Chicken	$	10.72
Processing Cost per Chicken	$	(9.46)
Start Up Cost	$	(2,620)

The processing cost of ($9.46) per chicken includes operating costs and fixed costs associated with raising and slaughtering birds for meat. Operating costs include a purchase cost of around ($1,000) for 700 chicks, rising to around ($1,500) for 1,000 chicks. Additionally, feed costs range from ($3,500) in year one to about ($5,000) in year three, and carcass cleaning chemicals cost around ($750) each year. Other operating costs include supplies of ($300 per year, a slight rendering/removal cost of around ($35) per year, and a packaging cost which includes boxes and bags for around ($95) per year.

Fixed costs associated with backyard meat chicken production include utilities, equipment repair, and pest control. Utilities include water and electricity usage for processing chickens of around ($100) each year. Pest control is assumed to cost around ($30) per month for approximately ($360) per year. Equipment repair is assumed to cost around 8% of startup costs, which totals around ($230) each year. In addition, approximately 8% of chickens are lost before they are processed, raising the total processing cost per chicken since the lost chickens still require resources to grow.

Compared to buying chickens at market price, processors will need to process around 2075 chickens to fully cover all start-up expenses. Processing meat chicken costs around $9.46 per bird and buying at retail price would cost around $10.72 per bird. Buying a chicken would cost around $1.26 more than processing at this level. Below is a table comparing the costs of processing chickens in a backyard operation over three years and the cost of purchasing the same amount of chicken at retail price.

Table 4: Backyard Meat Chicken Processing vs. Purchasing

Processing and Purchasing Comparison (2,346 Chickens)				
	Backyard Processing		**Purchasing Retail**	
Cost Per Chicken	$	(9.46)	$	(10.72)
Total Cost (plus Startup)	$	(24,818)	$	(25,160)

Raising around 2,500 chickens over three years with an 8% loss means that approximately 2,346 chickens are available for processing. It would cost approximately ($24,800) to purchase equipment and process 2,346 meat chickens for three years in a backyard operation. Meanwhile, it would take ($25,160) to buy the amount of chicken at a food retailer in Virginia. This means that processors save around ($350) by processing 2,346 chickens, or $1.26 per bird, instead of buying them elsewhere. It is feasible for backyard meat chicken processors to see a positive return on their initial investment of equipment within the first 2,100 birds they process as long as market conditions are optimal.

Backyard Turkey Processing

Backyard turkey processors can process up to 1,000 birds per year, but the three-year financial model assumes at most 500 turkeys per year due to their greater size compared to chickens. Accordingly, 300 turkeys are processed in year one, 400 turkeys are processed in year two, and 500 turkeys are processed in year three. The tables below describe the amount of initial capital required to process turkeys at a home residence, the number of turkeys that need to be processed for the venture to breakeven, the general processing cost per turkey, and retail turkey prices for comparison.

Table 5: Backyard Turkey Processing Breakeven Summary

Backyard Turkey Breakeven Summary Table	
Turkeys Processed per Year	1,104
Turkeys Required to Cover Start-Up Costs	202
Retail Cost per Turkey	$ 49.78
Processing Cost per Turkey	$ (36.78)
Start Up Cost	$ (2,620)

Backyard turkey processors are assumed to process 300 to 500 birds per year, typically due to land size restrictions. Start-up costs for backyard turkey processors include basic equipment for poultry processing for a total of around ($2,600). The equipment needs for turkey processors are the same as those processing meat chickens, but cones and tables may need to be larger to account for turkeys being larger in size.

Operating costs include a purchase cost of around ($900) for 300 poults, rising to around ($1,500) for 500 poults. Additionally, feed costs range from ($7,700) in year one to about ($13,000) in year three, and carcass cleaning chemicals cost around ($350) each year. Other operating costs include supplies of ($300) per year, a slight rendering/removal cost of around ($35) per year, and a packaging cost which includes boxes and bags for around ($80) per year.

Fixed costs associated with backyard turkey production include utilities, equipment repair, and pest control. Utilities include water and electricity usage for processing turkeys of around ($500) each year. This utility cost is much larger than that of processing meat chickens since turkeys are larger in size. Pest control is assumed to cost around ($30) per month for approximately ($360) per year. Equipment repair is assumed to cost around 8% of startup costs, which totals around ($230) each year. In addition, approximately 8% of turkeys are lost before they are processed, raising the total processing cost per turkeys, since lost turkeys still require feed and other things to grow.

Compared to buying turkeys at market price, processors will need to process around 202 turkeys to fully cover all start-up expenses. Processing turkeys costs around $36.78 per bird and buying turkeys at retail price would cost around $49.78 per bird. Buying a whole turkey would cost around $13.00 more than processing at this level. Below is a table comparing the costs of processing turkeys in a backyard operation over three years and the cost of purchasing the same amount of turkey at retail price.

Table 6: Backyard Turkey Processing vs. Purchasing

Processing and Purchasing Comparison (1,104 Turkeys)				
	Backyard Processing		Purchasing Retail	
Cost Per Turkey	$	(36.78)	$	(49.72)
Total Cost (plus Startup)	$	(43,222)	$	(54,955)

Raising around 1,200 turkeys over three years with an 8% loss means that approximately 1,104 turkeys are available for processing. It would cost approximately ($43,000) to purchase equipment and process 1,104 turkeys for three years in a backyard operation. Meanwhile, it would take ($55,000) to buy the amount of turkey at a food retailer in Virginia. This means that processors save around $11,500 by processing 1,104 chickens, or $13.00 per bird, instead of buying them elsewhere. It is feasible for backyard turkey processors to see a positive return on their initial investment of equipment within the first 250 birds they process as long as market conditions are optimal.

Backyard Mix of Meat Chickens and Egg Layers

Backyard chicken processors can only process up to 1,000 chickens per year. These processors may purchase an assortment of sexed or unsexed chicks. It is assumed that half of the straight run chicks are male meat chickens, and the other half are female egg layers. Below is a table describing the production totals for meat chickens, hens, and eggs for a backyard mixed chicken operation.

Table 7: Backyard Mixed Chicken Processing Three-Year Totals

Three-Year Production Totals	
Number of Meat Chickens	1,173
Number of Hens	1,173
Number of Eggs Produced	208,794

A total of 2550 birds are purchased in all three years, but only 2346 will lay eggs or be processed due to unforeseen loss. 700 birds are purchased in year one, 850 birds are purchased in year two, and 1,000 birds are purchased in year three. Half of these will be meat birds that are processed within three to four months. The other half, the female egg layers, only produce eggs and are not processed like meat birds. For the sake of simplicity, hens lay eggs for 24 months for an average of 712 eggs in a lifetime. This totals around 209,000 eggs over three years. Although backyard processors may slaughter their hens, this study only includes the slaughter of meat birds. The table below describes the difference in costs between processing and purchasing chicken meat and eggs.

Table 8: Backyard Mixed Chicken Processing vs. Purchasing

Three-Year Processing and Purchasing Comparison (2,346 Total Chickens)		
	Backyard Processing	**Purchasing Retail**
Cost per Meat Chicken	$ (10.50)	$ (10.72)
Cost per Dozen Eggs	$ (0.71)	$ (2.70)
Total Cost (plus Startup)	$ (24,987)	$ (51,882)

Processing meat chickens, when bought as a straight run assortment, costs around $10.50 per bird and buying at retail price would cost around $10.72 per bird. Buying a chicken would cost around $0.22 more than processing at this level. Meanwhile, producing a dozen eggs from a backyard operation will cost around $0.71 compared to buying retail at $1.45, which is a savings of $0.74 per dozen eggs.

Approximately 1275 chickens and 1275 hens, or 2,550 birds, are purchased for meat processing and egg laying over three years. With an 8% loss, only about 1173 meat chickens and 1173 hens will lay eggs or be available for processing. It would cost approximately ($25,000) to purchase equipment and process 2,346 chickens and hens for three years in a backyard operation. Meanwhile, it would take ($55,000) to buy the amount of chicken and eggs at a food retailer in Virginia. This means that processors save around $26,900 by processing 2,250 straight runs instead of buying retail chicken and retail eggs elsewhere.

The processing cost of ($10.50) per chicken includes operating costs and fixed costs associated with raising and slaughtering chickens for meat and eggs. Operating costs include a purchase cost of around ($1,000) for 700 chicks, rising to around ($1,500) for 1,000 chicks. Additionally, feed costs range from ($3,500) in year one to about ($6,000) in year three, and carcass cleaning chemicals cost around ($750) each year. Other operating costs include supplies of ($600) per year, a slight rendering/removal cost of around ($35) per year, and a packaging cost which includes boxes and bags for around ($95) per year.

Fixed costs associated with backyard meat chicken production include utilities, equipment repair, and pest control. Utilities include water and electricity usage for processing chickens and washing eggs of around ($100) each year. Pest control is assumed to cost around ($30) per month for approximately ($360) per year. Equipment repair is assumed to cost around 8% of startup costs, which totals around ($230) each year. In addition, approximately 8% of chickens are lost before they are processed, raising the total processing cost per chicken since the lost chickens still require resources to grow. The table below describes the total start-up costs, the differences in price between processing and purchasing meat and eggs, the number of eggs required to breakeven from start-up costs, and the number of meat birds needed to breakeven from start-up costs.

Table 9: Backyard Mixed Chicken Processing vs. Purchasing

Backyard Mixed Chicken Breakeven Analysis	
Total Start Up Costs	$2,620
Amount Saved by Processing (Per Dozen Eggs)	$1.99
Amount Saved by Processing (Per Meat Chicken)	$0.22
Number of Eggs to Breakeven	1313
Number of Chickens to Breakeven	11909

The amount saved from processing meat chickens is $0.22 per chicken. If backyard processors at this level were to sell only their meat chickens and not their eggs, then they would require around 12,000 processed chickens to fully recover from their start-up expenses. On the other hand, with savings of $1.99 per dozens of eggs, a backyard processor would need to sell 1,300 dozen eggs to break even from their initial investment in equipment of $2,600. Although these numbers can be achieved, a sufficient mix of meat processing and egg production will lead to lower amounts required to breakeven from the equipment required to operate at this level. It is feasible for backyard mixed chicken processors to see a positive return on their initial investment of equipment within the first three years of operations. Straight run processors at this level could break even from their initial investment by selling chickens only, but it would take longer than processing sorted chicks. Egg layers require the additional resources that it takes to receive higher margins off meat chickens.

Since egg prices are historically volatile, it is possible for producers to receive different prices than what is mentioned in this study. In order to analyze the amount of money saved by producing eggs, the consultants have added scenarios where egg prices increase and decrease up to 20%. The table below describes retail prices for eggs, the amount of money saved by producing eggs instead of buying at retail, and the number of eggs needed to breakeven at various egg price levels, ranging from -20% of baseline price to +20% of baseline price.

Table 10: Egg Price Scenario Analysis

	-20%	-10%	Baseline	+10%	+20%
Retail Egg Price (Dozen Eggs)	$2.16	$2.43	$2.70	$2.97	$3.24
Backyard Processing Egg Price (Dozen Eggs)	$0.71	$0.71	$0.71	$0.71	$0.71
Amount Saved by Processing (Per Dozen Eggs)	$1.45	$1.72	$1.99	$2.26	$2.54
Amount of Eggs to Breakeven	1,802	1,519	1,313	1,157	1,033

Retail egg prices range from $2.16 to $3.24 per dozen, but the amount it costs to process the same number of eggs stays the same throughout the price variations. Each 10% increase or decrease changes retail egg prices by around $0.27 per dozen. This also means that the amount saved by processing eggs, over buying them at retail prices, increases by $0.27 per dozen eggs for each incremental increase.

With a 20% decrease in retail egg prices to $2.16 per dozen, backyard processors can expect to save around $1.45 per dozen eggs they produce, meaning that producing around 1,800 dozen eggs will be satisfactory to pay off an initial equipment of around $2,600. This is around 500 more dozen eggs than the baseline breakeven production amount. It would take longer to reach a breakeven point with these market conditions when compared to baseline.

With a 20% increase in retail egg prices to $3.24 per dozen, the number of eggs required to breakeven drops by 300 to around 1,000. Since producers save around $2.54 per dozen from producing rather than buying retail, it would take a significantly shorter amount of time to pay off initial equipment when compared to saving $1.99 per dozen at baseline. Overall, producers are not sensitive to egg price

variations up to 20%. However, the time it takes to break-even from investments will vary with the number of eggs each bird produces.

Small-Scale Chicken Processing

A small-scale poultry plant involves slaughtering and processing no more than 20,000 birds per year. Since there are more products moving through the facility when compared to a backyard operation, there are more chances for businesses of this scale to operate with a positive net income in mind. The initial summary results, presented below, are what the consultants believe to be the most likely outcome for the next three years for small-scale chicken processing operations.

Table 11: Small-Scale Processing Plant Operational Summary

	Year 1	Year 2	Year 3
Revenues (Sales)	$171,162	$186,046	$209,040
Total Variable Operating Costs	($94,064)	($102,327)	($114,535)
Variable Margin (Loss)	$77,098	$83,719	$94,505
Total Fixed Costs	($39,137)	($42,149)	($48,093)
Earnings EBITDA (Loss)	$37,961	$41,570	$46,411
Non-Cash Expenses	($12,068)	($11,940)	($11,800)
Net Income (Loss)	$25,892	$29,630	$34,611

Year one of the operations shows sales of about $171,000. The variable margin in year one is about $77,000 with an EBITDA in year one of around 38,000. Once non-cash expenses are accounted for (interest and depreciation), the operation can expect positive earnings in year one of about $26,000. Year two total sales will be about $186,000, and year two ends with an EBITDA of $41,500 and net income of around $29,500. Sales increase again in year three to about $209,000, with an EBITDA of $46,000. Chicken processors of this size will likely experience a net gain in this third year of operation, totaling just above $34,500.

Model Assumptions

Amount of Chicken: It is assumed that a business of this scale will process between 15,000 chickens in year one to 19,500 chickens by year three. This is equivalent to processing 300 to 390 chickens per week, or 60 to 80 chickens per day the business is in operation.

Animal Purchase: Processors at this size may rotate broiler houses they use for the birds they receive, or they may source chickens elsewhere, such as family farms, agricultural input retailers, etc. The price that businesses receive for the birds they purchase is around $1.50 per bird, and adding feed costs makes this category around $4.69 per bird.

Price Point: Individual poultry processors may use additional procedures to create cuts of chicken meats, but, on average, processors will receive a price of $10.72 for each whole chicken sold.

Processing Supplies: Small-scale chicken processors of this size can expect to spend about ($600) in year one on processing supplies related to processing. This expense will increase moderately year over year as the processors increase production capabilities each year.

Rendering/Removal: The plant can expect byproduct expenses in year one of about ($1,700), increasing moderately to ($1,850) in year two and ($2,000) by year three.
Variable Labor: A poultry processor killing 60 to 80 birds per day can expect to hire at least one part-time hourly employee to work as a cutter, processor, or as a general laborer. These employees will be paid a variety of wages commensurate with experience and plant duties. There will be one employee to start off in year one, and years two and three will maintain this level of labor as long as production does not increase dramatically. This worker will be paid $12.00 per hour and work 20 hours a week on average. Total variable labor in year one will be about $12,000, rising to $14,500 by year three as production and sales greatly increase over time.

Repairs and Maintenance: Repairs and maintenance are estimated at ($3,200) in year one, increasing steadily as production increases, reaching about ($3,800) by year three. This expense uses commercial equipment and facility metrics which include 8% of equipment costs per year as maintenance.

Miscellaneous Equipment: Chicken processors can expect to purchase parts, labor, small pieces of equipment, etc. each year to assist in operations, estimated at ($700) per year.

Cleaning: Estimated cleaning expenses will be about ($150) per month or ($1,800) per year, increasing moderately each year as facility and equipment usage increases.

Pest Control: Facility pest control is estimated at ($1,300) per year.

Utilities: Utilities including waste disposal, water usage, electricity usage, etc. are estimated at ($3,500) in year one, increasing in dollar value to ($4,000) in year two and ($4,500) in year three as production increases and facility usage goes up.

Marketing: Promotional costs related to the operation are estimated to be about ($6,000) in year one, increasing to nearly ($7,500) by year three. The exact marketing operations that each chicken processor will accomplish will be unique, but businesses of this size in this industry can expect similar expenses each year for a combination of physical and digital marketing uses.

Professional Fees: Management will engage the assistance of accounting, legal, poultry processing, construction, and other professionals throughout each year of operations on an as needed basis. These fees will be about ($7,000) per year, increasing as necessary.

Office Supplies: Office supplies relating to equipment, paper, etc. will be about ($450) per year.

Travel: Some processors may have travel expenses of about ($1,400) per year, relating to finding new customers, engaging with consultants, local markets, conferences, and more.

Business Insurance: Poultry processing facilities of this size will have an umbrella insurance policy relating to its operations that is expected to cost about ($6,000) in year one, increasing to ($7,000) by year three.

Unforeseen and Miscellaneous: Every operation, especially new ones, faces expenses that do not neatly into some categories or appear suddenly due to unforeseen circumstances. To help management plan for these circumstances, about (6%) of sales each year are incurred in the model to be used on unexpected costs. This percentage will fall over time as the plant becomes more established, employees become more comfortable, market shares are established, and more.

Project Finance

Down payment amounts and financing amounts are estimated to be 10% down/90% financed and interest rates of 7.5% for the equipment. It should be noted that interest rates, building material costs, and housing prices have been rising during the completion of this study and may continue to rise in the future. This could present a significant impact on overall financing for the operation. The actual circumstances for the purchase of the equipment and facility will likely vary from what is described here.

Equipment: Equipment expenses for small-scale processors are assumed to be $116,300. Using the 10% equity, 90% debt load as described above at 7.5% interest rate and 15-year terms, to have a yearly payment of about ($11,800). The initial equity required for this equipment will be about ($11,630).

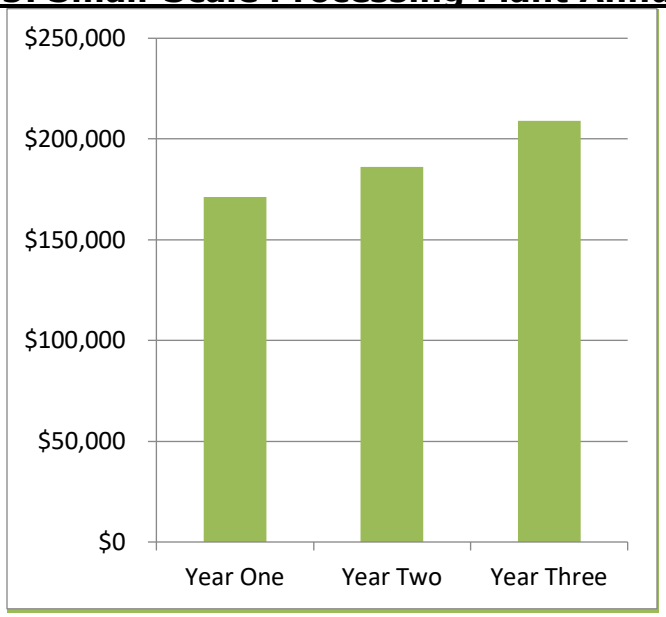
Facility: Processors of this level will need a facility or plant for their operations. Based on previous industry research, a facility with material and installation costs of $70,000 will be sufficient to hold the equipment and personnel required to maintain production levels. With the rates and terms described above, small-scale poultry processors will likely incur a yearly payment of ($7,500). The initial equity required for the facility will be around ($10,000).

This model attempts to be as realistic as possible while still permitting ease in interpretation. Though attempts have been made to make the tables as transparent as possible, several key project descriptions will be presented here. Due to the unique nature of this proposed venture, actual revenues and expenses are likely to be different were the facility put into operation. The analysis presented here is intended to be estimates only, based upon industry research, similar-sized operations, and the consultant's knowledge.

Income

The facility will have revenue streams from chicken processing in all three years of operation. It is anticipated that operations of similar size will see sales grow each year as they continue to become more established in the region and generate larger customer bases, seeing sales rise from nearly $171,000 in year one to around $209,000 in year three.

Figure 15: Small-Scale Processing Plant Annual Sales



Expenses

The chicken processing facility depicted in this model will see total expenses grow each year as the plant expands its operations to meet the rising demand for its product, seeing total expenses rise from about ($145,000) in year one to around ($175,500) in year three.

This section presents expenses associated with the variable and fixed costs of the business. These expenses are based on operations detailed previously in the document, and the consultant's assumptions presented in the appendix and the beginning of the financial section. Variable costs are those which change with production and are directly associated with sales. Fixed costs are the overhead costs required for the venture to exist and function, with examples including business insurance and promotional expenses.

Variable Expenses

The amount spent by the facility to cover variable costs increases from year to year as sales grow and the facility grows, rising from ($94,000) in year one to ($114,500) in year three. Costs categorized as variable in this economic model include processing supplies, rendering/removal, freight, chemicals for poultry cleaning, variable labor, wholesale chicken purchases, and packaging.

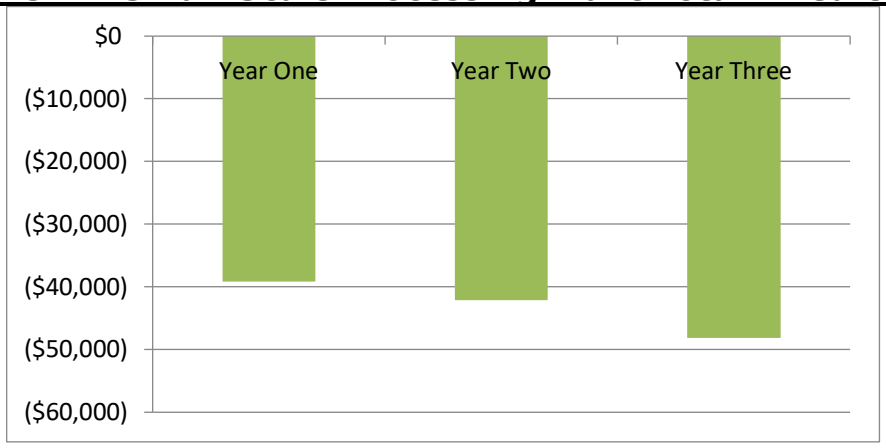
Figure 16: Small-Scale Processing Plant Total Variable Costs

The largest variable cost by far is that of wholesale chicken purchases. This will account for about ($75,000) and (44%) of sales in year one, increasing in dollar amount by year three to about ($92,500) and remaining (44%) of sales. Variable labor is the second largest variable expense, totaling about ($12,000) in year one, increasing to about ($14,500) by year three. Supplies, chemical cleaning, packaging, trucking and freight, and rendering/removal are the final categories in variable expenses and are much smaller than the previous two, with all five categories totaling only about ($7,000) combined in year one.

Fixed/Overhead Expenses

The plant's fixed expenses are expected to rise from ($39,000) in year one to ($48,000) in year three. Fixed expenses are those overhead costs that do not directly vary with production or sales. For the purposes of this study, there are five main fixed expense categories: equipment, facility, marketing, general/administrative costs, and unforeseen expenses. Of these, the largest amount of sales dollars is spent on the expenses associated with general and administrative costs.

Figure 17: Small-Scale Processing Plant Total Fixed Costs



In year one of the study, general and administrative costs account for the largest portion of fixed costs. Most of this expense is professional fees and fringe benefits associated with hiring employees. Other subcategories of general and administrative expenses are business insurance, office supplies, and travel costs. Total G&A expenses in year one is about ($12,500) and are equivalent to (7.2%) of sales. Year two G&A grows to about ($14,000), increasing in dollar amount and percentage of sales to ($16,500) and (7.9%) in year three, respectively. General and administrative expenses grow in dollar value and percentage of sales year-to-year.

Small-scale chicken processors are likely to incur various expenses related to equipment other than an initial purchase. This category totals about ($3,800) and (2.2%) of sales in year one, increasing to ($4,500) and remaining the same percentage of sales of (2.2%) of sales by year three.

Facility expenses follow a similar pattern to that of equipment. Total facility expenses in year one, other than the initial purchase, will be about ($7,000), increasing to ($8,000) by year three.

Unforeseen expenses account for (6%) of sales each year. As sales increase, the situations faced by the operation will change. This category totals about ($10,000) in year one and ($12,000) in year three. It is assumed that these costs can fall further as operations become more efficient and streamlined and the plant becomes more aware of what expenses it will and will not incur through experience. These costs can be anything that the operation may need to deal with during a year that does not fit neatly into the other categories. For example, should their storage space sustain significant damage from a refrigeration issue or mechanical failure, the plant would need to replace it. The plant *may* not have this amount of unforeseen expenses, but it is better to account for it and be prepared. The consultants have seen national examples of similar operations facing major setbacks or even early closure due to unforeseen natural disasters or operational occurrences.

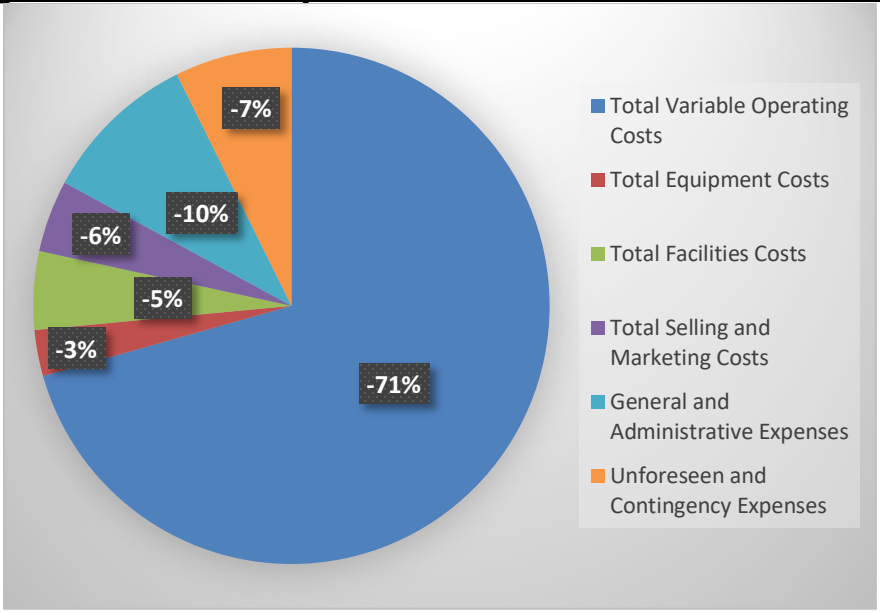
Selling and marketing costs account for a small percentage of sales. This expense is about ($6,000) in year one, rising to ($7,000) by year three, and is equivalent to roughly (3.5%) of sales yearly.

Reporting non-cash expenses (interest, depreciation, etc.) is separated from the total fixed costs reported above and ranges from ($12,000) in year one, falling to ($11,800) by year three. This cost falls each year as payments are made for the facility and equipment, thus decreasing interest expenses year after year.

Expenses as a Percentage of Sales

Variable operating costs, which include mostly labor and animal purchases accounts for the largest portion of expenses across the three-year period with about (71%) of total expenses. The second highest is that of general and administrative expenses at (10%) of total costs. The chart below highlights each expense category as a percentage of total sales. Figures are based on three-year totals and differ on a year-to-year basis.

Figure 18: Total Expenses for Small-Scale Processors

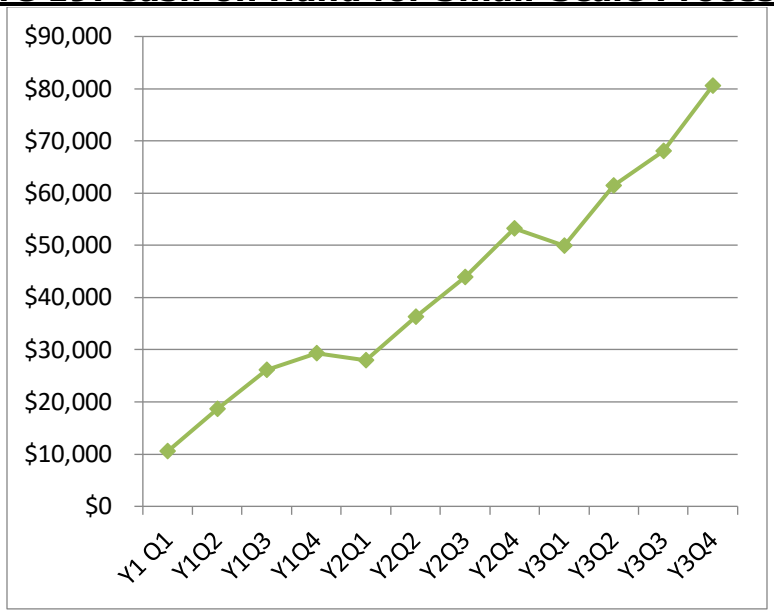


Cash Flow

Cash on hand and cash flow are critical factors to project success. A cash infusion of $10,000 is needed at the beginning of the project to ensure all operating costs are covered for the three-year period. This cash can come from a variety of sources including grants, donations, and more. A small reserve will be available for any cash shortfalls that may occur during this process. Working capital will be necessary as the plant gets underway.

The initial infusion has been added to the ongoing period of the model. This infusion is necessary to prevent the plant from having a cash negative position at any point during operations. Cash infusions remedy these situations until the operation can sustain itself through revenue generation.

Figure 19: Cash on Hand for Small-Scale Processors



Cash on hand reaches a cap at the end of year one as the plant gets underway but increases steadily as production reaches a higher level in later years. The consultants have taken the simplifying assumption of having all cash remain with the business for the entire period of the model. Major expenditures are incurred each year while production increases. Cash shows the largest periods of growth during the middle of the year due to the bulk of sales revenue being collected near the second half of the year. The project needs cash to stay above $0 during every quarter of this project to demonstrate that it has the appropriate cash flow to pay expenses. Cash on hand remains positive throughout all 12 quarters presented in the model. Cash on hand increases steadily in year one and reaches its lowest point at the beginning of the term in year two quarter one with just below $30,000. After a minor fall in cash near year three quarter one, the plant reaches its highest cash on hand during the scope of this study at $80,000 by year three quarter four.

Pro Forma Operating Statements

The *Pro Forma* operating statements are presented below and in the Appendix. This statement shows the annual sales, expenses, and income of operations over the three years included in the financial model and discussed in the sections above. Years one through three show net gains that increase each year for the plant.

Table 12: Small-Scale Processing Plant *Pro Forma* Operating Statement

	Startup	Y1	Y2	Y3
Revenues (Sales)	-	$171,162	$186,046	$209,040
Total Variable Operating Costs	(721)	($94,064)	($102,327)	($114,535)
Variable Margin (Loss)	(721)	$77,098	$83,719	$94,505
Total Equipment Costs	(173)	($3,841)	($4,225)	($4,647)
Total Facilities Costs	(495)	($6,701)	($7,081)	($7,817)
Total Selling and Marketing Costs	(188)	($6,000)	($6,600)	($7,260)
General and Administrative Expenses	(1,349)	($12,325)	($14,197)	($16,453)
Unforeseen and Contingency Expenses	(462)	($10,270)	($10,046)	($11,915)
Earnings EBITDA (Loss)	(3,388)	$37,961	$41,570	$46,411
Interest Expense	(987)	($7,898)	($7,769)	($7,630)
Depreciation Expense	(521)	($4,170)	($4,170)	($4,170)
Net Income (Loss)	(4,896)	$25,892	$29,630	$34,611

Small-scale chicken processors will have estimated startup expenses of about ($5,000). The assumption is the operation will begin setting up the facility, purchasing equipment, potentially hiring and training an employee, conducting some test marketing, and more during the lead into the official opening of the plant. These expenses are estimated to be about 1-2 months' worth of operating expenses.

Year one annual sales total around $171,000. Once all variable costs have been accounted for, the model reports a variable margin close to $77,000. Operational income (loss), also known as EBITDA, is defined as earnings or losses before interest, taxes, depreciation, and amortization. EBITDA in year one of the facility operations is $38,000. Once the two non-cash expenses of interest and depreciation are accounted for, this net gain in year one reaches $26,000. Profit margin in year one is about 15%.

Sales grow in year two, reaching $186,000 for the year as the plant increases production. Variable margins grow moderately, reaching a total of about $84,000. EBITDA for year two is just below $42,000. After non-cash expenses have been subtracted from year two EBITDA, year two net gains are about $29,500. Profit (loss) margin for year two of operations is around 16%.

The third year of operations for the plant show sales of about $209,000. The variable margin for this third year of operations is about $94,500. EBITDA and net income in year three are $46,000 and $34,500, respectively. Profit (loss) margin is just over 17% in year three.

Total sales for this plant are about $566,000. From an operational perspective, poultry processors of this size will experience net operational gains totaling nearly $126,000 across three years of operations. Once non-cash expenses such as interest and depreciation are considered, there will be total net gains across the three years of operation of $90,000.

Balance Sheet

Table 13: Small-Scale Processing Facility Balance Sheet

	Y1	Y2	Y3
Assets			
Cash and Equivalents	$29,345	$53,184	$80,616
Accounts Receivables	$14,263	$15,504	$17,420
Inventories	$0	$0	$0
Total Current Assets	$43,608	$68,688	$98,036
Buildings and Equipment, Net of Depreciation	$102,837	$98,666	$94,496
Other Assets, Net of Amortization	$0	$0	$0
Total Assets	$146,445	$167,354	$192,532
Liabilities and Members' Equity			
Current Liabilities			
Accounts Payable and Accrued Expenses			
Accrued Interest	($7,898)	($7,769)	($7,630)
Current Maturities of Long-Term Debt	($1,775)	($1,914)	($2,064)
Total Current Liabilities	($9,673)	($9,683)	($9,694)
Long-term Debt			
Senior Debt	$94,660	$92,885	$90,971
Less Current Maturities of Long-Term Debt	($1,646)	($1,775)	($1,914)
Members' Equity			
Member Equity and Equity Equivalents	$37,212	$56,298	$78,559
Dispersed Member Equity	$0	$0	$0
Retained Earnings (Losses)	$25,892	$29,630	$34,611
Total Liabilities and Current Members' Equity	$146,445	$167,354	$192,532

As discussed elsewhere, poultry processors will need a cash infusion at the beginning of the project to sustain operations until the plant can become self-sufficient. Cash and cash equivalents increase each year as sales increase. Building and equipment fall slightly year over year as depreciation occurs.

Senior debt falls each year as payments are made for the building and equipment. Retained earnings (losses) coincide with the net income (losses). These are increased each year as the operation increases production and becomes more efficient in its practices.

Total liability and member's equity increase throughout the plan in conjunction with assets.

Medium-Scale Chicken Processing

A medium-scale poultry plant processes no more than 800,000 birds per year within the first three years of this study. At this level, revenues from chicken processing are more than sufficient for the venture to operate and turn a profit. A summary table of revenue, expense, and net income projections for medium-scale chicken processors are shown below.

	Year 1	Year 2	Year 3
Revenues (Sales)	$5,120,558	$5,565,824	$6,324,800
Total Variable Operating Costs	($3,677,817)	($3,997,595)	($4,516,667)
Variable Margin (Loss)	$1,442,741	$1,568,229	$1,808,133
Total Fixed Costs	($906,972)	($962,596)	($1,082,376)
Earnings EBITDA (Loss)	$535,769	$605,633	$725,758
Non-Cash Expenses	($53,120)	($52,527)	($51,888)
Net Income (Loss)	$482,649	$553,106	$673,870

Year one of the operations shows sales of about $5.12 million. The variable margin in year one is about $1.4 million with an EBITDA in year one of $536,000. Once non-cash expenses are accounted for (interest and depreciation), the operation can expect positive earnings in year one of about ($483,000). Year two total sales will be about $5.6 million, and poultry processors of this size will achieve an EBITDA of $606,000 and net income of around $553,000. Sales increase again in year three to about $6.3 million, with an EBITDA of $726,000. Processors of this size could potentially experience a net gain in this third year of just under $674,000.

Model Assumptions

Amount of Chicken: It is assumed that a business of this scale will process between 647,000 chickens in year one to 800,000 chickens by year three. This is equivalent to processing 13,000 to 16,000 chickens per week, or 260 to 400 chickens per day the business is in operation.

Animal Purchase: Processors at this size may rotate broiler houses they use for the birds they receive, or they may source chickens elsewhere, such as family farms, agricultural input retailers, etc. With the inclusion of animal feed, the price that businesses receive for the birds they purchase is, on average, around $4.69 per bird.

Price Point: Individual poultry processors may use additional procedures to create cuts of chicken meats, but, on average, processors will receive a price of $10.72 for each whole chicken sold.

Processing Supplies: Medium-scale chicken processors of this size can expect to spend about ($600) in year one on processing supplies related to processing. This expense will increase moderately year over year as the processors increase production capabilities each year.

Rendering/Removal: The plant can expect byproduct expenses in year one of about ($51,000), increasing moderately to ($63,000) by year three.

Variable Labor: A poultry processor killing 2,600 to 3,200 birds per day can expect to hire at least 14 part-time hourly employees to work as cutters, processors, or as general laborers. These employees will be paid a variety of wages commensurate with experience and plant duties. These workers will be paid around $31,000 per year each. Total variable labor in year one will be about $430,000, rising to $520,000 by year three as production and sales greatly increase over time.

Repairs and Maintenance: Repairs and maintenance are estimated at nearly ($31,000) in year one, increasing steadily as production increases, reaching about ($37,500) by year three. This expense uses commercial equipment and facility metrics which include 58% of equipment costs per year as maintenance.

Miscellaneous Equipment: Chicken processors can expect to purchase parts, labor, small pieces of equipment, etc. each year to assist in operations, estimated at ($15,500) per year.

Cleaning: Estimated cleaning expenses will be about ($400) per month or ($4,800) per year, increasing moderately each year as facility and equipment usage increases.

Pest Control: Facility pest control is estimated at ($1,300) per year.

Utilities: Utilities including waste disposal, water usage, electricity usage, etc. are estimated at nearly ($110,000) in year one, increasing in dollar value to ($135,500) in year three as production increases and facility usage goes up.

Marketing: Promotional costs related to the operation are estimated to be about ($57,000) in year one, increasing to nearly ($69,000) by year three. The exact marketing operations that each chicken processor will accomplish will be unique, but businesses of this size in this industry can expect similar expenses each year for a combination of physical and digital marketing uses.

Professional Fees: Management will engage the assistance of accounting, legal, poultry processing, construction, and other professionals throughout each year of operations on an as needed basis. These fees will be about ($7,000) per year, increasing as necessary.

Inspection Expenses: The facility will have expenses related to plant inspection estimated at ($45,000) per year, slightly increasing as production grows. Inspection costs are compliant with USDA regulations for marketing and distribution.

Office Supplies: Office supplies relating to equipment, paper, etc. will be about ($14,500) per year.

Travel: Some processors may have travel expenses of about ($1,400) per year, relating to finding new customers, engaging with consultants, local markets, conferences, and more.

Business Insurance: Poultry processing facilities of this size will have an umbrella insurance policy relating to its operations that is expected to cost about ($6,000) in year one, increasing to ($7,000) by year three.

Unforeseen and Miscellaneous: Every operation, especially new ones, faces expenses that do not neatly into some categories or appear suddenly due to unforeseen circumstances. To help management plan for these circumstances, about (8%) of sales each year are incurred in the model to be used on unexpected costs. This percentage will fall over time as the plant becomes more established, employees become more comfortable, market shares are established, and more.

Project Finance

Down payment amounts and financing amounts are estimated to be 10% down/90% financed and interest rates of 7.5% for the equipment. It should be noted that interest rates, building material costs, and housing prices have been rising during the completion of this study and may continue to rise in the future. This could present a significant impact on overall financing for the operation. The actual circumstances for the purchase of the equipment and facility will likely vary from what is described here.

Equipment: Equipment expenses for poultry processors of this size are assumed to be around $150,000. Using the 10% equity, 90% debt load as described above at 7.5% interest rate and 15-year terms, to have a yearly payment of about ($10,500). The initial equity required for this equipment will be about ($15,000).

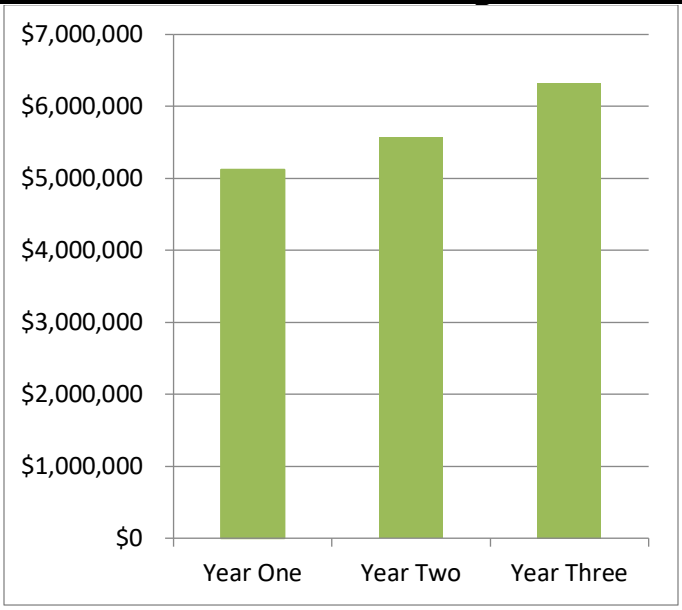
Facility: Processors of this level will need a facility or plant for their operations. Based on previous industry research, a facility with material and installation costs of $313,000 will be sufficient to hold the equipment and personnel required to maintain production levels. With the rates and terms described above, medium-scale poultry processors will likely incur a yearly payment of ($24,000). The initial equity required for the facility will be around ($31,000).

This model attempts to be as realistic as possible while still permitting ease in interpretation. Though attempts have been made to make the tables as transparent as possible, several key project descriptions will be presented here. Due to the unique nature of this proposed venture, actual revenues and expenses are likely to be different were the facility put into operation. The analysis presented here is intended to be estimates only, based upon industry research, similar-sized operations, and the consultant's knowledge.

Income

The facility will have revenue streams from chicken processing in all three years of operation. It is anticipated that operations of similar size will see sales grow each year as they continue to become more established in the region and generate larger customer bases, seeing sales rise from $5.1 million in year one to $6.3 million in year three.

Figure 20: Medium-Scale Processing Plant Annual Sales



Expenses

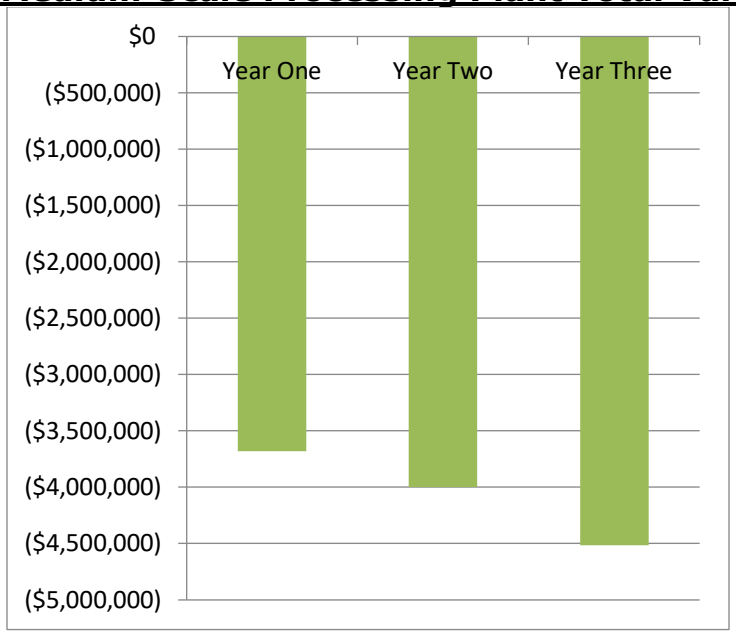
The chicken processing facility depicted in this model will see total expenses grow each year as the plant expands its operations to meet the rising demand for its product, seeing total expenses rise from about ($4.6 million) in year one to around ($5.7 million) in year three.

This section presents expenses associated with the variable and fixed costs of the business. These expenses are based on operations detailed previously in the document, and the consultant's assumptions presented in the appendix and the beginning of the financial section. Variable costs are those which change with production and are directly associated with sales. Fixed costs are the overhead costs required for the venture to exist and function, with examples including business insurance and promotional expenses.

Variable Expenses

The amount spent by the facility to cover variable costs increases from year to year as sales grow and the facility grows, rising from ($3.7 million) in year one to ($4.5 million) in year three. Costs categorized as variable in this economic model include processing supplies, rendering/removal, freight, variable labor, wholesale chicken purchases, and packaging.

Figure 21: Medium-Scale Processing Plant Total Variable Costs



The largest variable cost by far is that of wholesale chicken purchases. This will account for about ($3.04 million) and (59%) of sales in year one, increasing in dollar amount by year three to about ($3.8 million) and remaining (59%) of sales. Variable labor is the second largest variable expense, totaling about ($430,000) in year one, increasing to about ($520,000) by year three. Supplies, packaging, trucking and freight, and rendering/removal are the final categories in variable expenses and are much smaller than the previous two, with all five categories totaling only about ($208,000) combined in year one.

Fixed/Overhead Expenses

The plant's fixed expenses are expected to rise from ($907,000) in year one to ($1.08 million) in year three. Fixed expenses are those overhead costs that do not directly vary with production or sales. For the purposes of this study, there are five main fixed expense categories: equipment, facility, marketing, general/administrative costs, and unforeseen expenses. Of these, the largest amount of sales dollars is spent on the expenses associated with general and administrative costs.

Figure 22: Medium-Scale Processing Plant Total Fixed Costs

In year one of the study, general and administrative costs account for the largest portion of fixed costs. Most of this expense is professional fees, business insurance, and fringe benefits associated with hiring employees. Two managerial salaries of ($50,000) are included as fixed general and administrative costs. Other subcategories of general and administrative expenses are inspection costs, office supplies, and travel costs. General and administrative expenses grow in dollar value year-to-year but remain the same percentage of sales.

Total G&A expenses in year one is about ($278,000) and are equivalent to (5.4%) of sales. Year two G&A grows to about ($305,000), increasing in dollar amount to ($334,000) in year three but remaining the same percentage of sales of (5.3%).

Medium-scale chicken processors are likely to incur various expenses related to equipment. This category totals about ($46,500) and (1%) of sales in year one, increasing to ($56,000) and remaining the same percentage of sales to (1%) of sales by year three.

Facility expenses follow a similar pattern to that of equipment. Total facility expenses in year one will be about ($116,000), increasing to ($142,000) in year three.

Unforeseen expenses account for (8%) of sales each year. As sales increase, the situations faced by the operation will change. This category totals about ($410,000) in year one and ($481,000) in year three. It is assumed that these costs can fall further as operations become more efficient and streamlined and the plant becomes more aware of what expenses it will and will not incur through experience. These costs can be anything that the operation may need to deal with during a year that does not fit neatly into the other categories. For example, should their storage space sustain significant damage from a refrigeration issue or mechanical failure, the plant would need to replace it. The plant *may* not have this amount of unforeseen expenses, but it is better to account for it and be prepared. The consultants have seen national examples of similar operations facing major setbacks or even early closure due to unforeseen natural disasters or operational occurrences.

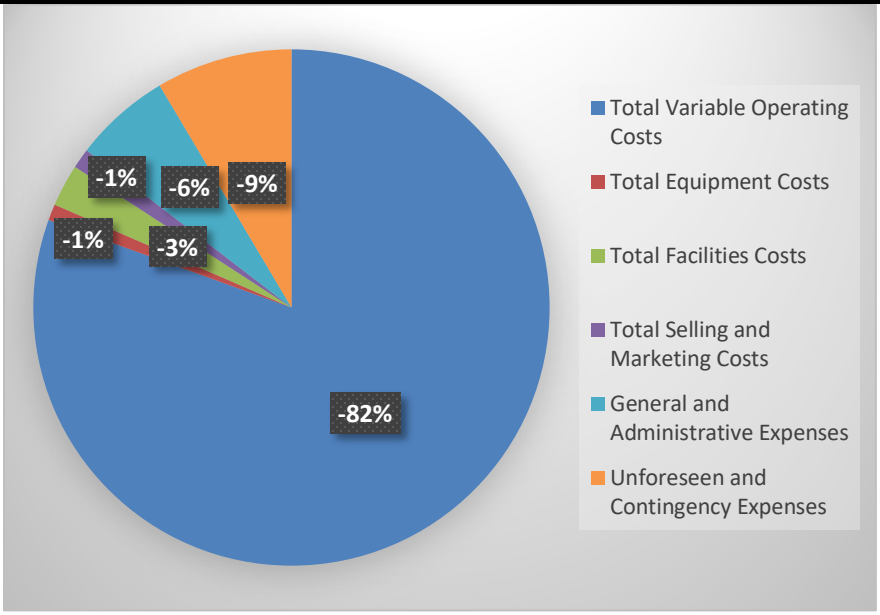
Selling and marketing costs account for around (1.1%) of sales each year. Processors at this size are likely to focus on marketing costs more than smaller operations. This expense is about ($57,000) in year one, rising to ($69,000) by year three.

Reporting non-cash expenses (interest, depreciation, etc.) is separated from the total fixed costs reported above and ranges from ($53,000) in year one, falling to ($52,000) by year three. This cost falls each year as payments are made on the facility and equipment, thus decreasing interest expenses year after year.

Expenses as a Percentage of Sales

Variable operating costs, which include mostly labor and animal purchases, accounts for the largest portion of expenses across the three-year period with about (82%) of total expenses. The second highest is that of unforeseen expenses at (9%) of total costs. The chart below highlights each expense category as a percentage of total sales.

Figure 23: Total Expenses for Medium-Scale Processors

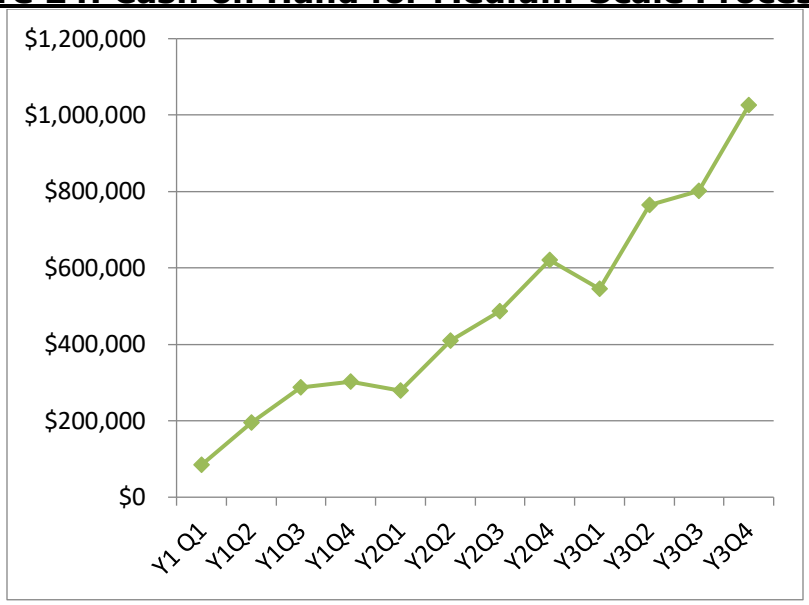


Cash Flow

Cash on hand and cash flow are critical factors to project success. A cash infusion of $80,000 is needed at the beginning of the project to ensure all operating costs are covered for the three-year period. This cash can come from a variety of sources including grants, donations, and more. A small reserve will be available for any cash shortfalls that may occur during this process. Working capital will be necessary as the plant gets underway.

The initial infusion has been added to the ongoing period of the model. This infusion is necessary to prevent the plant from having a cash negative position at any point during operations. Cash infusions remedy these situations until the operation can sustain itself through revenue generation.

Figure 24: Cash on Hand for Medium-Scale Processors



Cash on hand increases steadily as production reaches a higher level in later years. The consultants have taken the simplifying assumption of having all cash remain with the business for the entire period of the model. Major expenditures are incurred each year while production increases. Cash shows the largest periods of growth during the middle of the year due to the bulk of sales revenue being collected near the second half of the year. The project needs cash to stay above $0 during every quarter of this project to demonstrate that it has the appropriate cash flow to pay expenses. Cash on hand remains positive throughout all 12 quarters presented in the model. Cash on hand increases steadily in year one and reaches its lowest point at the beginning of the term in year two quarter one of just below $279,000. After a minor fall in cash near year three quarter one, the plant reaches its highest cash on hand during the scope of this study at $1.02 million by year three quarter four.

Pro Forma Operating Statements

The *Pro Forma* operating statements are presented below and in the Appendix. This statement shows the annual sales, expenses, and income of operations over the three years included in the financial model and discussed in the sections above. Years one through three show net gains that increase each year for the plant.

Table 14: Medium-Scale Processing Plant *Pro Forma* Operating Statement

	Startup	Y1	Y2	Y3
Revenues (Sales)	-	$5,120,558	$5,565,824	$6,324,800
Total Variable Operating Costs	(21,666)	($3,677,817)	($3,997,595)	($4,516,667)
Variable Margin (Loss)	(21,666)	$1,442,741	$1,568,229	$1,808,133
Total Equipment Costs	(2,089)	($46,430)	($51,073)	($56,181)
Total Facilities Costs	(4,184)	($115,741)	($143,227)	($142,147)
Total Selling and Marketing Costs	(1,781)	($57,000)	($62,700)	($68,970)
General and Administrative Expenses	(29,145)	($278,156)	($304,856)	($334,393)
Unforeseen and Contingency Expenses	(18,434)	($409,645)	($400,739)	($480,685)
Earnings EBITDA (Loss)	(77,300)	$535,769	$605,633	$725,758
Interest Expense	(4,304)	($34,429)	($33,836)	($33,197)
Depreciation Expense	(2,336)	($18,691)	($18,691)	($18,691)
Net Income (Loss)	(83,940)	$482,649	$553,106	$673,870

Medium-scale chicken processors will have estimated startup expenses of about ($84,500). The assumption is the operation will begin setting up the facility, purchasing equipment, potentially hiring and training an employee, conducting some test marketing, and more during the lead into the official opening of the plant. These expenses are estimated to be about 1-2 months' worth of operating expenses.

Year one annual sales total around $5.1 million. Once all variable costs have been accounted for, the model reports a variable margin close to $1.4 million. Operational income (loss), also known as EBITDA, is defined as earnings or losses before interest, taxes, depreciation, and amortization. EBITDA in year one of the facility operations is around $536,000. Once the two non-cash expenses of interest and depreciation are accounted for, this net gain in year one reaches just below $483,000. Profit margin in year one is about 9%.

Sales grow in year two, reaching $5.6 million for the year as the plant increases production. Variable margins grow moderately, reaching a total of about $1.57 million. EBITDA for year two is just below $606,000. After non-cash expenses have been subtracted from year two EBITDA, year two net gains are about $553,000. Profit (loss) margin for year two of operations is around 10%.

The third year of operations for the plant show sales of about $6.3 million. The variable margin for this third year of operations is $1.8 million. EBITDA and net income in year three are around $726,000 and $674,000, respectively. Profit (loss) margin is about 11% in year three.

Total sales for this plant are about $17 million. From an operational perspective, poultry processors of this size will experience net operational gains totaling nearly $1.87 million across three years of operations. Once non-cash expenses such as interest and depreciation are considered, there will be total net gains across the three years of operation of $1.71 million.

Balance Sheet

Table 15: Medium-Scale Processing Facility Balance Sheet

	Y1	Y2	Y3
Assets			
Cash and Equivalents	$302,345	$621,049	$1,025,392
Accounts Receivables	$426,713	$463,819	$527,067
Inventories	$0	$0	$0
Total Current Assets	$729,059	$1,084,867	$1,552,459
Buildings and Equipment, Net of Depreciation	$449,572	$430,881	$412,190
Other Assets, Net of Amortization	$0	$0	$0
Total Assets	$1,178,631	$1,515,748	$1,964,649
Liabilities and Members' Equity			
Current Liabilities			
Accounts Payable and Accrued Expenses			
Accrued Interest	($34,429)	($33,836)	($33,197)
Current Maturities of Long-Term Debt	($8,198)	($8,837)	($9,527)
Total Current Liabilities	($42,627)	($42,673)	($42,723)
Long-term Debt			
Senior Debt	$413,832	$405,635	$396,798
Less Current Maturities of Long-Term Debt	($7,605)	($8,198)	($8,837)
Members' Equity			
Member Equity and Equity Equivalents	$332,381	$607,878	$945,542
Dispersed Member Equity	$0	$0	$0
Retained Earnings (Losses)	$482,649	$553,106	$673,870
Total Liabilities and Current Members' Equity	$1,178,631	$1,515,748	$1,964,649

As discussed elsewhere, poultry processors will need a cash infusion at the beginning of the project to sustain operations until the plant can become self-sufficient. Cash and cash equivalents increase each year as sales increase. Building and equipment fall slightly year over year as depreciation occurs.

Senior debt falls each year as payments are made for the building and equipment. Retained earnings (losses) coincide with the net income (losses). These are increased each year as the operation increases production and becomes more efficient in its practices.

Total liability and member's equity increase throughout the plan in conjunction with assets.

APPENDIX A: REVENUE AND EXPENSES

Expense and Revenues Year 1 (Backyard Meat Chickens)		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals Year 1	
Product	Sales Seasonality	0.00%	25.00%	0.00%	0.00%	25.00%	0.00%	0.00%	25.00%	0.00%	0.00%	25.00%	0.00%	**100.00%**	
Chickens		0.00	175.00	0.00	0.00	175.00	0.00	0.00	175.00	0.00	0.00	175.00	0.00	**700**	
(Unforeseen)		0.00	-14.00	0.00	0.00	-14.00	0.00	0.00	-14.00	0.00	0.00	-14.00	0.00	**-56**	
Total Sales		0.00	161.00	0.00	0.00	161.00	0.00	0.00	161.00	0.00	0.00	161.00	0.00	**644**	
Variable Costs															
Supplies		$ -	$ (75)	$ -	$ -	$ (75)	$ -	$ -	$ (75)	$ -	$ -	$ (75)	$ -	**$ (300.00)**	**4.8%**
Chemical Cleaning and Materials		$ -	$ (174)	$ -	$ -	$ (174)	$ -	$ -	$ (174)	$ -	$ -	$ (174)	$ -	**$ (696.00)**	**11.1%**
Packaging		$ -	$ (20)	$ -	$ -	$ (20)	$ -	$ -	$ (20)	$ -	$ -	$ (20)	$ -	**$ (78.40)**	**1.3%**
Rendering/Removal		$ -	$ (8)	$ -	$ -	$ (8)	$ -	$ -	$ (8)	$ -	$ -	$ (8)	$ -	**$ (31.64)**	**0.5%**
Animal Purchase		$ -	$ (263)			$ (263)			$ (263)			$ (263)	$ -	**$ (1,050.00)**	**16.8%**
Feed Costs		$ -	$ (860)	$ -	$ -	$ (860)	$ -	$ -	$ (860)	$ -	$ -	$ (860)	$ -	**$ (3,439.71)**	**55.1%**
Fixed Costs															
Utilities		$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	**$ (81.60)**	**1.3%**
Pest Control		$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	**$ (360.00)**	**5.8%**
Equipment Repair & Expenses		$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	**$ (209.60)**	**3.4%**
Total Expenses														**$ (6,246.95)**	

Expense and Revenues Year 2 and Year 3 (Backyard Meat Chickens)		Y2Q1	Y2Q2	Y2Q3	Y2Q4	Totals Y2		Y3Q1	Y3Q2	Y3Q3	Y3Q4	Totals Y3		Three Year Total	
Product		25%	25%	25%	25%			25%	25%	25%	25%				
Chickens		212.50	212.50	212.50	212.50	**850.00**		250.00	250.00	250.00	250.00	**1000**		**2550**	
(Unforeseen)		17.00	17.00	17.00	17.00	**68.00**		20.00	20.00	20.00	20.00	**80**		**92**	
Total		195.50	195.50	195.50	195.50	**782.00**		230.00	230.00	230.00	230.00	**920**		**2346**	
Variable Costs															
Supplies		($82.50	-$82.50	-$82.50	-$82.50	**($330.00)**	**4.5%**	$ (90.75)	$ (90.75)	$ (90.75)	$ (90.75)	**$ (363.00)**	**4.2%**	**$ (993.00)**	**4.5%**
Chemical Cleaning and Materials		($191.40	-$191.40	-$191.40	-$191.40	**($765.60)**	**10.4%**	$ (210.54)	$ (210.54)	$ (210.54)	$ (210.54)	**$ (842.16)**	**9.8%**	**$ (2,303.76)**	**10.4%**
Packaging		($23.80	-$23.80	-$23.80	-$23.80	**($95.20)**	**1.3%**	$ (28.00)	$ (28.00)	$ (28.00)	$ (28.00)	**$ (112.00)**	**1.3%**	**$ (285.60)**	**1.3%**
Rendering/Removal		($8.70	-$8.70	-$8.70	-$8.70	**($34.80)**	**0.5%**	$ (9.57)	$ (9.57)	$ (9.57)	$ (9.57)	**$ (38.28)**	**0.4%**	**$ (104.72)**	**0.5%**
Animal Purchase		($318.75	-$318.75	-$318.75	-$318.75	**($1,275.00)**	**17.2%**	$ (375.00)	$ (375.00)	$ (375.00)	$ (375.00)	**$ (1,500.00)**	**17.5%**	**$ (3,825.00)**	**17.2%**
Feed Costs		- $1,044.20	- $1,044.20	- $1,044.20	- $1,044.20	**($4,176.79)**	**56.5%**	$ (1,228.47)	$(1,228.47)	$(1,228.47)	$(1,228.47)	**$ (4,913.87)**	**57.4%**	**$ (12,530.38)**	**56.4%**
															0.0%
Fixed Costs															**0.0%**
Utilities		-$22.44	-$22.44	-$22.44	-$22.44	**($89.76)**	**1.2%**	$ (24.68)	$ (24.68)	$ (24.68)	$ (24.68)	**$ (98.74)**	**1.2%**	**$ (270.10)**	**1.2%**
Pest Control		-$99.00	-$99.00	-$99.00	-$99.00	**($396.00)**	**5.4%**	$ (108.90)	$ (108.90)	$ (108.90)	$ (108.90)	**$ (435.60)**	**5.1%**	**$ (1,191.60)**	**5.4%**
Equipment Repair & Expenses		-$57.64	-$57.64	-$57.64	-$57.64	**($230.56)**	**3.1%**	$ (63.40)	$ (63.40)	$ (63.40)	$ (63.40)	**$ (253.62)**	**3.0%**	**$ (693.78)**	**3.1%**
Total Expenses						**$(7,393.71)**						**$(8,557.27)**		**$(22,197.93)**	

Expense and Revenues Year 1 (Backyard Turkeys)		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals Year 1	
Product	Sales Seasonality			33.33%				33.33%				33.33%			
Turkeys		0.00	0.00	100.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00	0.00	**300**	
(Unforeseen)		0.00	0.00	-8.00	0.00	0.00	0.00	-8.00	0.00	0.00	0.00	-8.00	0.00	**24**	
Total		0.00	0.00	92.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00	92.00	0.00	**276**	
Variable Costs															
Supplies		$ -	$ -	$ (91)	$ -	$ -	$ -	$ (91)	$ -	$ -	$ -	$ (91)	$ -	**$ (274.29)**	**2.6%**
Chemical Cleaning and Materials		$ -	$ -	$ (104)	$ -	$ -	$ -	$ (104)	$ -	$ -	$ -	$ (104)	$ -	**$ (313.00)**	**3.0%**
Packaging		$ -	$ -	$ (21)	$ -	$ -	$ -	$ (21)	$ -	$ -	$ -	$ (21)	$ -	**$ (61.50)**	**0.6%**
Rendering/Removal		$ -	$ -	$ (11)	$ -	$ -	$ -	$ (11)	$ -	$ -	$ -	$ (11)	$ -	**$ (31.64)**	**0.3%**
Animal Purchase		$ -	$ -	$ (300)	$ -	$ -	$ -	$ (300)	$ -	$ -	$ -	$ (300)	$ -	**$ (900.00)**	**8.6%**
Feed Costs		$ -	$ -	$ (2,577)	$ -	$ -	$ -	$ (2,577)	$ -	$ -	$ -	$ (2,577)	$ -	**$ (7,731.36)**	**74.0%**
Fixed Costs															
Utilities		$ (48)	$ (48)	$ (48)	$ (48)	$ (48)	$ (48)	$ (48)	$ (48)	$ (48)	$ (48)	$ (48)	$ (48)	**$ (572.88)**	**5.5%**
Pest Control		$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	**$ (360.00)**	**3.4%**
Equipment Repair & Expenses		$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	**$ (209.60)**	**2.0%**
Total Expenses														**$ (10,454.26)**	

Expense and Revenues Year 2 and Year 3 (Backyard Turkeys)	Y2Q1	Y2Q2	Y2Q3	Y2Q4	Totals Y2		Y3Q1	Y3Q2	Y3Q3	Y3Q4	Totals Y3		Three Year Total	
Product Seasonality	33%	0%	33%	33%			33%	0%	33%	33%				
Turkeys	133	0	133	133	**400**		167	0	167	167	**500**		**1200**	
(Unforeseen)	11	0	11	11	**32**		13	0	13	13	**40**		**96**	
Total	123	0	123	123	**368**		153	0	153	153	**460**		**1104**	
Variable Costs														
Supplies	$ (100.57)	$ -	$ (100.57)	$ (100.57)	**$ (301.71)**	**2.2%**	$ (110.63)	$ -	$ (110.63)	$ (110.63)	**$ (331.89)**	**2.0%**	**$ (907.89)**	**2.2%**
Chemical Cleaning and Materials	$ (114.77)	$ -	$ (114.77)	$ (114.77)	**$ (344.30)**	**2.5%**	$ (126.24)	$ -	$ (126.24)	$ (126.24)	**$ (378.73)**	**2.3%**	**$ (1,036.03)**	**2.6%**
Packaging	$ (27.33)	$ -	$ (27.33)	$ (27.33)	**$ (82.00)**	**0.6%**	$ (34.17)	$ -	$ (34.17)	$ (34.17)	**$ (102.50)**	**0.6%**	**$ (246.00)**	**0.6%**
Rendering/Removal	$ (11.60)	$ -	$ (11.60)	$ (11.60)	**$ (34.80)**	**0.3%**	$ (12.76)	$ -	$ (12.76)	$ (12.76)	**$ (38.28)**	**0.2%**	**$ (104.72)**	**0.3%**
Animal Purchase	$ (400.00)	$ -	$ (400.00)	$ (400.00)	**$ (1,200.00)**	**8.9%**	$ (500.00)	$ -	$ (500.00)	$ (500.00)	**$ (1,500.00)**	**9.0%**	**$ (3,600.00)**	**8.9%**
Feed Costs	$ (3,436.16)	$ -	$ (3,436.16)	$ (3,436.16)	**$ (10,308.48)**	**76.2%**	$ (4,295.20)	$ -	$ (4,295.20)	$ (4,295.20)	**$ (12,885.60)**	**77.5%**	**$ (30,925.44)**	**76.2%**
Fixed Costs														
Utilities	$ (157.54)	$ (157.54)	$ (157.54)	$ (157.54)	**$ (630.17)**	**4.7%**	$ (173.30)	$ (173.30)	$ (173.30)	$ (173.30)	**$ (693.19)**	**4.2%**	**$ (1,896.24)**	**4.7%**
Pest Control	$ (99.00)	$ (99.00)	$ (99.00)	$ (99.00)	**$ (396.00)**	**2.9%**	$ (108.90)	$ (108.90)	$ (108.90)	$ (108.90)	**$ (435.60)**	**2.6%**	**$ (1,191.60)**	**2.9%**
Equipment Repair & Expenses	$ (57.64)	$ (57.64)	$ (57.64)	$ (57.64)	**$ (230.56)**	**1.7%**	$ (63.40)	$ (63.40)	$ (63.40)	$ (63.40)	**$ (253.62)**	**1.5%**	**$ (693.78)**	**1.7%**
														0.0%
					$ (13,528.03)						**$(16,619.40)**		**$ (40,601.69)**	

Expense and Revenues Year 1 (Chicken and Hens)		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals Year 1	
Product	Sales Seasonality	0.00%	25.00%	0.00%	0.00%	25.00%	0.00%	0.00%	25.00%	0.00%	0.00%	25.00%	0.00%	**100.00%**	
Gross # of Meat Chickens		0.00	87.50	0.00	0.00	87.50	0.00	0.00	87.50	0.00	0.00	87.50	0.00	**350**	
(Meat Chicken Unforeseen)		0.00	-7.00	0.00	0.00	-7.00	0.00	0.00	-7.00	0.00	0.00	-7.00	0.00	**-28**	
Net # of Meat Chickens		0.00	80.50	0.00	0.00	80.50	0.00	0.00	80.50	0.00	0.00	80.50	0.00	**322**	
Gross # of Hens		0.00	87.50	0.00	0.00	87.50	0.00	0.00	87.50	0.00	0.00	87.50	0.00	**350**	
(Hens Unforeseen)		0.00	-7.00	0.00	0.00	-7.00	0.00	0.00	-7.00	0.00	0.00	-7.00	0.00	**-28**	
Net # of Hens		0.00	80.50	0.00	0.00	80.50	0.00	0.00	80.50	0.00	0.00	80.50	0.00	**322**	
# of Eggs Produced		0	14329	0	0	14329	0	0	14329	0	0	14329	0	**57316**	
Variable Costs															
Supplies		$ -	$ (150)	$ -	$ -	$ (150)	$ -	$ -	$ (150)	$ -	$ -	$ (150)	$ -	**$ (600.00)**	**9.2%**
Chemical Cleaning and Materials		$ -	$ (174)	$ -	$ -	$ (174)	$ -	$ -	$ (174)	$ -	$ -	$ (174)	$ -	**$ (696.00)**	**10.6%**
Packaging		$ -	$ (20)	$ -	$ -	$ (20)	$ -	$ -	$ (20)	$ -	$ -	$ (20)	$ -	**$ (78.40)**	**1.2%**
Rendering/Removal		$ -	$ (8)	$ -	$ -	$ (8)	$ -	$ -	$ (8)	$ -	$ -	$ (8)	$ -	**$ (31.64)**	**0.5%**
Animal Purchase		$ -	$ (263)			$ (263)			$ (263)			$ (263)	$ -	**$ (1,050.00)**	**16.0%**
Feed Costs		$ -	$ (860)	$ -	$ -	$ (860)	$ -	$ -	$ (860)	$ -	$ -	$ (860)	$ -	**$ (3,439.71)**	**52.5%**
Fixed Costs															
Utilities		$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	$ (7)	**$ (81.60)**	**1.2%**
Pest Control		$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	$ (30)	**$ (360.00)**	**5.5%**
Equipment Repair & Expenses		$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	$ (17)	**$ (209.60)**	**3.2%**
Total Expenses														**$ (6,546.95)**	

Expense and Revenues Year 2 and Year 3 (Chicken and Hens)	Y2Q1	Y2Q2	Y2Q3	Y2Q4	Totals Y2		Y3Q1	Y3Q2	Y3Q3	Y3Q4	Totals Y3		Three Year Total	
Product	25%	25%	25%	25%			25%	25%	25%	25%				
Gross # of Meat Chickens	106.25	106.25	106.25	106.25	**425.00**		125.00	125.00	125.00	125.00	**500**		**1275**	
(Meat Chicken Unforeseen)	-8.50	-8.50	-8.50	-8.50	**-34.00**		-10.00	-10.00	-10.00	-10.00	**-40**		**-102**	
Net # of Meat Chickens	97.75	97.75	97.75	97.75	**391.00**		115.00	115.00	115.00	115.00	**460**		**1173**	
Gross # of Hens	106.25	106.25	106.25	106.25	**425.00**		125.00	125.00	125.00	125.00	**500**		**1275**	
(Hens Unforeseen)	-8.50	-8.50	-8.50	-8.50	**-34.00**		-10.00	-10.00	-10.00	-10.00	**-40**		**-102**	
Net # of Hens	97.75	97.75	97.75	97.75	**391.00**		115.00	115.00	115.00	115.00	**460**		**1173**	
# of Eggs Produced	17400	17400	17400	17400	**69598**		20470	20470	20470	20470	**81880**		**208794**	
Variable Costs														
Supplies	$ (165.00)	$ (165.00)	$ (165.00)	$ (165.00)	**$ (660.00)**	**8.1%**	$ (181.50)	$ (181.50)	$ (181.50)	$ (181.50)	**$ (726.00)**	**7.3%**	**$ (1,986.00)**	**8.1%**
Chemical Cleaning and Materials	$ (191.40)	$ (191.40)	$ (191.40)	$ (191.40)	**$ (765.60)**	**9.4%**	$ (210.54)	$ (210.54)	$ (210.54)	$ (210.54)	**$ (842.16)**	**8.5%**	**$ (2,303.76)**	**9.3%**
Packaging	$ (23.80)	$ (23.80)	$ (23.80)	$ (23.80)	**$ (95.20)**	**1.2%**	$ (28.00)	$ (28.00)	$ (28.00)	$ (28.00)	**$ (112.00)**	**1.1%**	**$ (285.60)**	**1.2%**
Rendering/Removal	$ (8.70)	$ (8.70)	$ (8.70)	$ (8.70)	**$ (34.80)**	**0.4%**	$ (9.57)	$ (9.57)	$ (9.57)	$ (9.57)	**$ (38.28)**	**0.4%**	**$ (104.72)**	**0.4%**
Animal Purchase	$ (318.75)	$ (318.75)	$ (318.75)	$ (318.75)	**$ (1,275.00)**	**15.7%**	$ (375.00)	$ (375.00)	$ (375.00)	$ (375.00)	**$ (1,500.00)**	**15.1%**	**$ (3,825.00)**	**15.5%**
Feed Costs	$ (1,148.62)	$ (1,148.62)	$(1,148.62)	$(1,148.62)	**$ (4,594.47)**	**56.4%**	$(1,486.45)	$(1,486.45)	$(1,486.45)	$ (1,486.45)	**$ (5,945.79)**	**59.7%**	**$ (13,979.97)**	**56.7%**
Fixed Costs														**0.0%**
Utilities	$ (22.44)	$ (22.44)	$ (22.44)	$ (22.44)	**$ (89.76)**	**1.1%**	$ (24.68)	$ (24.68)	$ (24.68)	$ (24.68)	**$ (98.74)**	**1.0%**	**$ (270.10)**	**1.1%**
Pest Control	$ (99.00)	$ (99.00)	$ (99.00)	$ (99.00)	**$ (396.00)**	**4.9%**	$ (108.90)	$ (108.90)	$ (108.90)	$ (108.90)	**$ (435.60)**	**4.4%**	**$ (1,191.60)**	**4.8%**
Equipment Repair & Expenses	$ (57.64)	$ (57.64)	$ (57.64)	$ (57.64)	**$ (230.56)**	**2.8%**	$ (63.40)	$ (63.40)	$ (63.40)	$ (63.40)	**$ (253.62)**	**2.5%**	**$ (693.78)**	**2.8%**
Total Expenses					**$ (8,141.39)**						**$ (9,952.18)**		**$ (24,640.52)**	

Y1 Revenue and Expenses (Small-Scale Poultry)	Startup	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Y1 Monthly Avg.	Y1 Annual Total	% of Revenue
Chickens		479	639	1,118	1,118	1,437	1,756	1,118	1,916	1,756	1,597	1,597	1,437	1,331	15,967	
INCOME																
Sales																
Chickens		$5,135	$6,846	$ 11,981	$ 11,981	$15,405	$18,828	$ 11,981	$20,539	$18,828	$17,116	$17,116	$15,405	$ 14,263	$ 171,162	100.00%
Total Sales All Types		**5,135**	**6,846**	**11,981**	**11,981**	**15,405**	**18,828**	**11,981**	**20,539**	**18,828**	**17,116**	**17,116**	**15,405**	**14,263**	**171,162**	**100%**
Variable Costs																
Supplies	(27)	(18)	(24)	(42)	(42)	(54)	(66)	(42)	(72)	(66)	(60)	(60)	(54)	(50)	(600)	(0.4%)
Rendering/Removal	(77)	(51)	(68)	(120)	(120)	(154)	(188)	(120)	(205)	(188)	(171)	(171)	(154)	(143)	(1,712)	(1.0%)
Truck and Freight		(41)	(55)	(96)	(96)	(123)	(151)	(96)	(164)	(151)	(137)	(137)	(123)	(114)	(1,369)	(0.8%)
Animal Purchase		(2,247)	(2,995)	(5,242)	(5,242)	(6,740)	(8,237)	(5,242)	(8,986)	(8,237)	(7,488)	(7,488)	(6,740)	(6,240)	(74,883)	(43.8%)
Chemical Cleaning and Materials	(77)	(51)	(68)	(120)	(120)	(154)	(188)	(120)	(205)	(188)	(171)	(171)	(154)	(143)	(1,712)	(1.0%)
Packaging		(54)	(72)	(125)	(125)	(161)	(197)	(125)	(215)	(197)	(179)	(179)	(161)	(149)	(1,788)	(1.0%)
Variable Labor	(540)	(360)	(480)	(840)	(840)	(1,080)	(1,320)	(840)	(1,440)	(1,320)	(1,200)	(1,200)	(1,080)	(1,000)	(12,000)	(7.0%)
Total Variable Operations	**(721)**	**(2,822)**	**(3,763)**	**(6,584)**	**(6,584)**	**(8,466)**	**(10,347)**	**(6,584)**	**(11,288)**	**(10,347)**	**(9,406)**	**(9,406)**	**(8,466)**	**(7,839)**	**(94,064)**	**(55.0%)**
Variable Margin	**(721)**	**2,313**	**3,084**	**5,397**	**5,397**	**6,939**	**8,481**	**5,397**	**9,252**	**8,481**	**7,710**	**7,710**	**6,939**	**6,425**	**77,098**	**45.0%**

Y1 Revenue and Expenses (Small Scale Poultry) Cont'd		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Y1 Monthly Avg.	Y1 Annual Total	% of Revenue
Fixed Costs																
Equipment Repair and Expenses	(144)	(96)	(128)	(224)	(224)	(288)	(352)	(224)	(384)	(352)	(320)	(320)	(288)	(267)	(3,201)	(1.9%)
Misc. Equipment Expenses	(29)	(19)	(26)	(45)	(45)	(58)	(70)	(45)	(77)	(70)	(64)	(64)	(58)	(53)	(640)	(0.4%)
Total Equipment Costs	**(173)**	**(115)**	**(154)**	**(269)**	**(269)**	**(346)**	**(422)**	**(269)**	**(461)**	**(422)**	**(384)**	**(384)**	**(346)**	**(320)**	**(3,841)**	**(2.2%)**
Facilities																
Cleaning	(225)	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(1,800)	(1.1%)
Pest Control	(156)	(104)	(104)	(104)	(104)	(104)	(104)	(104)	(104)	(104)	(104)	(104)	(104)	(104)	(1,250)	(0.7%)
Utilities	(114)	(76)	(76)	(76)	(76)	(76)	(76)	(76)	(76)	(761)	(761)	(761)	(761)	(304)	(3,651)	(2.1%)
Total Facility Costs	**(495)**	**(330)**	**(330)**	**(330)**	**(330)**	**(330)**	**(330)**	**(330)**	**(330)**	**(1,015)**	**(1,015)**	**(1,015)**	**(1,015)**	**(558)**	**(6,701)**	**(3.9%)**
Fixed Sales and Marketing																
Promotional Costs	(188)	(125)	(125)	(125)	(125)	(125)	(125)	(125)	(125)	(1,250)	(1,250)	(1,250)	(1,250)	(500)	(6,000)	(3.5%)
Total Selling and Marketing Costs	**(188)**	**(125)**	**(125)**	**(125)**	**(125)**	**(125)**	**(125)**	**(125)**	**(125)**	**(1,250)**	**(1,250)**	**(1,250)**	**(1,250)**	**(500)**	**(6,000)**	**(3.5%)**

Y1 Revenue and Expenses (Small Scale Poultry) Cont'd		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Y1 Monthly Avg.	Y1 Annual Total	% of Revenue
General/Administrative																
Salaried Labor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
Fringe and Overhead	(108)	(72)	(96)	(168)	(168)	(216)	(264)	(168)	(288)	(264)	(240)	(240)	(216)	(200)	(2,400)	(1.4%)
Professional Fees	(750)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(6,000)	(3.5%)
Office Supplies	(59)	(40)	(40)	(40)	(40)	(40)	(40)	(40)	(40)	(40)	(40)	(40)	(40)	(40)	(475)	(0.3%)
Travel (incl. hotel, air, other)	(150)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(1,200)	(0.7%)
Business Insurance	(281)	(188)	(188)	(188)	(188)	(188)	(188)	(188)	(188)	(188)	(188)	(188)	(188)	(188)	(2,250)	(1.3%)
Total General/Administrative Costs	**(1,349)**	**(899)**	**(923)**	**(995)**	**(995)**	**(1,043)**	**(1,091)**	**(995)**	**(1,115)**	**(1,091)**	**(1,067)**	**(1,067)**	**(1,043)**	**(1,027)**	**(12,325)**	**(7.2%)**
Unforeseen/Contingency																
Unforeseen Expenses and Bad Debt	(462)	(308)	(411)	(719)	(719)	(924)	(1,130)	(719)	(1,232)	(1,130)	(1,027)	(1,027)	(924)	(856)	(10,270)	(6.0%)
Total Fixed Costs	**(2,667)**	**(1,778)**	**(1,943)**	**(2,438)**	**(2,438)**	**(2,768)**	**(3,099)**	**(2,438)**	**(3,264)**	**(4,908)**	**(4,743)**	**(4,743)**	**(4,578)**	**(3,261)**	**(39,137)**	(22.9%)
EBITDA	**(3,388)**	**535**	**1,141**	**2,959**	**2,959**	**4,170**	**5,382**	**2,959**	**5,988**	**3,573**	**2,967**	**2,967**	**2,361**	**3,163**	**37,961**	**22.2%**
Depreciation	(521)	(348)	(348)	(348)	(348)	(348)	(348)	(348)	(348)	(348)	(348)	(348)	(348)	(348)	(4,170)	(2.4%)
Interest Expense	(987)	(658)	(658)	(658)	(658)	(658)	(658)	(658)	(658)	(658)	(658)	(658)	(658)	(658)	(7,898)	(4.6%)
Net Income	**(4,896)**	**(470)**	**135**	**1,953**	**1,953**	**3,165**	**4,377**	**1,953**	**4,982**	**2,567**	**1,961**	**1,961**	**1,355**	**2,158**	**25,892**	**15.1%**

Y2 & Y3 Revenue and Expenses (Small Scale Poultry)	Y2Q1	Y2Q2	Y2Q3	Y2Q4	Y3Q1	Y3Q2	Y3Q3	Y3Q4	Annual Total Y2	Annual Total Y3	% of Revenue Y3
Chickens	2,430	4,686	5,207	5,033	2,730	5,265	5,850	5,655	17,355	19,500	
INCOME	$	$	$	$	$	$	$	$	$	$	$
Sales											
Chickens	$26,046	$50,232	$55,814	$53,953	$29,266	$56,441	$62,712	$60,622	186,046	209,040	**100.00%**
Total Sales All Types	**26,046**	**50,232**	**55,814**	**53,953**	**29,266**	**56,441**	**62,712**	**60,622**	**186,046**	**209,040**	**100.00%**
Variable Costs											
Supplies	(91)	(175)	(194)	(188)	(98)	(189)	(210)	(203)	(648)	(700)	(0.3%)
Rendering/Removal	(260)	(502)	(558)	(540)	(293)	(564)	(627)	(606)	(1,860)	(2,090)	(1.0%)
Truck and Freight	(208)	(402)	(447)	(432)	(234)	(452)	(502)	(485)	(1,488)	(1,672)	(0.8%)
Animal Purchase	(11,395)	(21,977)	(24,418)	(23,605)	(12,804)	(24,693)	(27,437)	(26,522)	(81,395)	(91,455)	(43.8%)
Chemical Cleaning and Materials	(260)	(502)	(558)	(540)	(293)	(564)	(627)	(606)	(1,860)	(2,090)	(1.0%)
Packaging	(262)	(506)	(562)	(544)	(281)	(542)	(602)	(582)	(1,874)	(2,007)	(1.0%)
Variable Labor	(1,848)	(3,564)	(3,960)	(3,828)	(2,033)	(3,920)	(4,356)	(4,211)	(13,200)	(14,520)	(6.9%)
Total Variable Operations	**(14,326)**	**(27,628)**	**(30,698)**	**(29,675)**	**(16,035)**	**(30,925)**	**(34,361)**	**(33,215)**	**(102,327)**	**(114,535)**	**(54.8%)**
Variable Margin	**11,721**	**22,604**	**25,116**	**24,279**	**13,231**	**25,516**	**28,351**	**27,406**	**83,719**	**94,505**	**45.21%**

Y2 & Y3 Revenue and Expenses (Small Scale Poultry) Cont'd	Y2Q1	Y2Q2	Y2Q3	Y2Q4	Y3Q1	Y3Q2	Y3Q3	Y3Q4	Annual Total Y2	Annual Total Y3	% of Revenue Y3
Fixed Costs											
Equipment Repair and Expenses	(880)	(880)	(880)	(880)	(968)	(968)	(968)	(968)	(3,521)	(3,873)	(1.9%)
Misc. Equipment Expenses	(176)	(176)	(176)	(176)	(194)	(194)	(194)	(194)	(704)	(775)	(0.4%)
Total Equipment Costs	**(1,056)**	**(1,056)**	**(1,056)**	**(1,056)**	**(1,162)**	**(1,162)**	**(1,162)**	**(1,162)**	**(4,225)**	**(4,647)**	**(2.2%)**
Facilities											
Cleaning	(450)	(450)	(450)	(450)	(495)	(495)	(495)	(495)	(1,800)	(1,980)	(0.9%)
Pest Control	(328)	(328)	(328)	(328)	(345)	(345)	(345)	(345)	(1,313)	(1,378)	(0.7%)
Utilities	(992)	(992)	(992)	(992)	(1,115)	(1,115)	(1,115)	(1,115)	(3,969)	(4,459)	(2.1%)
Total Facility Costs	**(1,770)**	**(1,770)**	**(1,770)**	**(1,770)**	**(1,954)**	**(1,954)**	**(1,954)**	**(1,954)**	**(7,081)**	**(7,817)**	**(3.7%)**
Fixed Sales and Marketing											
Promotional Costs	(1,650)	(1,650)	(1,650)	(1,650)	(1,815)	(1,815)	(1,815)	(1,815)	(6,600)	(7,260)	(3.5%)
Total Selling and Marketing Costs	**(1,650)**	**(1,650)**	**(1,650)**	**(1,650)**	**(1,815)**	**(1,815)**	**(1,815)**	**(1,815)**	**(6,600)**	**(7,260)**	**(3.5%)**
General/Administrative											
Fringe and Overhead	(370)	(713)	(792)	(766)	(407)	(784)	(871)	(842)	(2,640)	(2,904)	(1.4%)
Professional Fees	(1,800)	(1,800)	(1,800)	(1,800)	(2,160)	(2,160)	(2,160)	(2,160)	(7,200)	(8,640)	(4.1%)
Office Supplies	(137)	(137)	(137)	(137)	(157)	(157)	(157)	(157)	(547)	(629)	(0.3%)
Travel (incl. hotel, air, other)	(345)	(345)	(345)	(345)	(414)	(414)	(414)	(414)	(1,380)	(1,656)	(0.8%)
Business Insurance	(608)	(608)	(608)	(608)	(656)	(656)	(656)	(656)	(2,430)	(2,624)	(1.3%)
Total General/Administrative Costs	**(3,259)**	**(3,602)**	**(3,681)**	**(3,655)**	**(3,794)**	**(4,171)**	**(4,258)**	**(4,229)**	**(14,197)**	**(16,453)**	**(7.9%)**
Unforeseen/Contingency											
Unforseen Costs	(1,407)	(2,713)	(3,014)	(2,913)	(1,668)	(3,217)	(3,575)	(3,455)	(10,046)	(11,915)	(5.7%)
Total Fixed Costs	**(9,142)**	**(10,791)**	**(11,172)**	**(11,045)**	**(10,393)**	**(12,320)**	**(12,764)**	**(12,616)**	**(42,149)**	**(48,093)**	**(23.0%)**
EBITDA	**2,579**	**11,813**	**13,944**	**13,234**	**2,837**	**13,197**	**15,587**	**14,790**	**41,570**	**46,411**	**22.2%**
Depreciation	(1,043)	(1,043)	(1,043)	(1,043)	(1,043)	(1,043)	(1,043)	(1,043)	(4,170)	(4,170)	(2.0%)
Interest Expense	(1,942)	(1,942)	(1,942)	(1,942)	(1,908)	(1,908)	(1,908)	(1,908)	(7,769)	(7,630)	(3.7%)
Net Income	**(406)**	**8,828**	**10,959**	**10,249**	**(113)**	**10,246**	**12,637**	**11,840**	**29,630**	**34,611**	**16.6%**

Y1-3 Revenue and Expenses (Small Scale Poultry)	Y1 Monthly Avg.	Y1 Annual Total	% of Revenue	Quarterly Averages Y2 & Y3	Annual Total Y2	% of Revenue Y2	Annual Total Y3	% of Revenue Y3
Chickens	1,331	15,967		4,607	17,355		19,500	
INCOME	$	$	$	$	$	$	$	$
Sales								
Chickens	14,263	171,162		49,386	186,046		209,040	
Total Sales All Types	**14,263**	**171,162**	**100.00%**	**49,386**	**186,046**	**100.00%**	**209,040**	**100.00%**
Variable Costs								
Supplies	(50)	(600)	(0.4%)	(168)	(648)	(0.3%)	(700)	(0.3%)
Rendering/Removal	(143)	(1,712)	(1.0%)	(494)	(1,860)	(1.0%)	(2,090)	(1.0%)
Truck and Freight	(114)	(1,369)	(0.8%)	(395)	(1,488)	(0.8%)	(1,672)	(0.8%)
Animal Purchase	(6,240)	(74,883)	(43.8%)	(21,606)	(81,395)	(43.8%)	(91,455)	(43.8%)
Chemical Cleaning and Materials	(143)	(1,712)	(1.0%)	(494)	(1,860)	(1.0%)	(2,090)	(1.0%)
Packaging	(149)	(1,788)	(1.0%)	(485)	(1,874)	(1.0%)	(2,007)	(1.0%)
Variable Labor	(1,000)	(12,000)	(7.0%)	(3,465)	(13,200)	(7.1%)	(14,520)	(6.9%)
Total Variable Operations	**(7,839)**	**(94,064)**	**(55.0%)**	**(27,108)**	**(102,327)**	**(55.0%)**	**(114,535)**	**(54.8%)**
Variable Margin	**6,425**	**77,098**	**45.04%**	**22,278**	**83,719**	**45.00%**	**94,505**	**45.21%**

Y1-3 Revenue and Expenses (Small Scale Poultry) Cont'd	Y1 Monthly Avg.	Y1 Annual Total	% of Revenue	Quarterly Averages Y2 & Y3	Annual Total Y2	% of Revenue Y2	Annual Total Y3	% of Revenue Y3
Fixed Costs				0	0	0.0%	0	0.0%
Equipment Repair and Expenses	(267)	(3,201)	(1.9%)	(924)	(3,521)	(1.9%)	(3,873)	(1.9%)
Misc. Equipment Expenses	(53)	(640)	(0.4%)	(185)	(704)	(0.4%)	(775)	(0.4%)
Total Equipment Costs	**(320)**	**(3,841)**	**(2.2%)**	**(1,109)**	**(4,225)**	**(2.3%)**	**(4,647)**	**(2.2%)**
Facilities				0	0	0.0%	0	0.0%
Cleaning	(150)	(1,800)	(1.1%)	(473)	(1,800)	(1.0%)	(1,980)	(0.9%)
Pest Control	(104)	(1,250)	(0.7%)	(336)	(1,313)	(0.7%)	(1,378)	(0.7%)
Utilities	(304)	(3,651)	(2.1%)	(1,054)	(3,969)	(2.1%)	(4,459)	(2.1%)
Total Facility Costs	**(558)**	**(6,701)**	**(3.9%)**	**(1,862)**	**(7,081)**	**(3.8%)**	**(7,817)**	**(3.7%)**
Fixed Sales and Marketing				0	0	0.0%	0	0.0%
Promotional Costs	(500)	(6,000)	(3.5%)	(1,733)	(6,600)	(3.5%)	(7,260)	(3.5%)
Total Selling and Marketing Costs	**(500)**	**(6,000)**	**(3.5%)**	**(1,733)**	**(6,600)**	**(3.5%)**	**(7,260)**	**(3.5%)**
General/Administrative				0	0	0.0%	0	0.0%
Salaried Labor	0	0	0.0%	0	0	0.0%	0	0.0%
Fringe and Overhead	(200)	(2,400)	(1.4%)	(693)	(2,640)	(1.4%)	(2,904)	(1.4%)
Professional Fees	(500)	(6,000)	(3.5%)	(1,980)	(7,200)	(3.9%)	(8,640)	(4.1%)
Office Supplies	(40)	(475)	(0.3%)	(147)	(547)	(0.3%)	(629)	(0.3%)
Travel (incl. hotel, air, other)	(100)	(1,200)	(0.7%)	(380)	(1,380)	(0.7%)	(1,656)	(0.8%)
Business Insurance	(188)	(2,250)	(1.3%)	(632)	(2,430)	(1.3%)	(2,624)	(1.3%)
Total General/Administrative Costs	**(1,027)**	**(12,325)**	**(7.2%)**	**(3,831)**	**(14,197)**	**(7.6%)**	**(16,453)**	**(7.9%)**
Unforeseen/Contingency	0	0	0.00%	0	0	0.00%	0	0.00%
Unforeseen Expenses and Bad Debt	(856)	(10,270)	(6.0%)	(2,745)	(10,046)	(5.4%)	(11,915)	(5.7%)
Total Fixed Costs	**(3,261)**	**(39,137)**	**(22.9%)**	**(11,280)**	**(42,149)**	**(22.7%)**	**(48,093)**	**(23.0%)**
EBITDA	**3,163**	**37,961**	**22.2%**	**10,998**	**41,570**	**22.3%**	**46,411**	**22.2%**
Depreciation	(348)	(4,170)	(2.4%)	(1,043)	(4,170)	(2.2%)	(4,170)	(2.0%)
Interest Expense	(658)	(7,898)	(4.6%)	(1,925)	(7,769)	(4.2%)	(7,630)	(3.7%)
Net Income	**2,158**	**25,892**	**15.1%**	**8,030**	**29,630**	**15.9%**	**34,611**	**16.6%**

Y1 Revenue and Expenses (Medium-Scale Poultry)	Startup	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Y1 Monthly Avg.	Y1 Annual Total	% of Revenue
Chickens		19,430	25,907	45,338	45,338	58,291	71,245	45,338	77,722	71,245	64,768	64,768	58,291	53,973	647,680	
INCOME																
Sales																
Chickens		$153,617	$204,822	$358,439	$358,439	########	########	$358,439	$614,467	########	########	########	########	$ 426,713	$ 5,120,558	100.00%
Total Sales All Types		**153,617**	**204,822**	**358,439**	**358,439**	**460,850**	**563,261**	**358,439**	**614,467**	**563,261**	**512,056**	**512,056**	**460,850**	**426,713**	**5,120,558**	**100%**
Variable Costs																
Supplies	(27)	(18)	(24)	(42)	(42)	(54)	(66)	(42)	(72)	(66)	(60)	(60)	(54)	(50)	(600)	(0.0%)
Rendering/Removal	(2,304)	(1,536)	(2,048)	(3,584)	(3,584)	(4,609)	(5,633)	(3,584)	(6,145)	(5,633)	(5,121)	(5,121)	(4,609)	(4,267)	(51,206)	(1.0%)
Truck and Freight		(1,536)	(2,048)	(3,584)	(3,584)	(4,609)	(5,633)	(3,584)	(6,145)	(5,633)	(5,121)	(5,121)	(4,609)	(4,267)	(51,206)	(1.0%)
Animal Purchase		(91,207)	(121,609)	(212,816)	(212,816)	(273,620)	(334,424)	(212,816)	(364,827)	(334,424)	(304,022)	(304,022)	(273,620)	(253,352)	(3,040,222)	(59.4%)
Packaging		(3,148)	(4,197)	(7,345)	(7,345)	(9,443)	(11,542)	(7,345)	(12,591)	(11,542)	(10,492)	(10,492)	(9,443)	(8,744)	(104,924)	(2.0%)
Variable Labor	(19,335)	(12,890)	(17,186)	(30,076)	(30,076)	(38,669)	(47,263)	(30,076)	(51,559)	(47,263)	(42,966)	(42,966)	(38,669)	(35,805)	(429,660)	(8.4%)
Total Variable Operations	**(21,666)**	**(110,335)**	**(147,113)**	**(257,447)**	**(257,447)**	**(331,004)**	**(404,560)**	**(257,447)**	**(441,338)**	**(404,560)**	**(367,782)**	**(367,782)**	**(331,004)**	**(306,485)**	**(3,677,817)**	**(71.8%)**
Variable Margin	**(21,666)**	**43,282**	**57,710**	**100,992**	**100,992**	**129,847**	**158,702**	**100,992**	**173,129**	**158,702**	**144,274**	**144,274**	**129,847**	**120,228**	**1,442,741**	**28.2%**

Y1 Revenue and Expenses (Medium-Scale Poultry) Cont'd		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Y1 Monthly Avg.	Y1 Annual Total	% of Revenue
Fixed Costs																
Equipment Repair and Expenses	(1,393)	(929)	(1,238)	(2,167)	(2,167)	(2,786)	(3,405)	(2,167)	(3,714)	(3,405)	(3,095)	(3,095)	(2,786)	(2,579)	(30,954)	(0.6%)
Misc. Equipment Expenses	(696)	(464)	(619)	(1,083)	(1,083)	(1,393)	(1,702)	(1,083)	(1,857)	(1,702)	(1,548)	(1,548)	(1,393)	(1,290)	(15,477)	(0.3%)
Total Equipment Costs	**(2,089)**	**(1,393)**	**(1,857)**	**(3,250)**	**(3,250)**	**(4,179)**	**(5,107)**	**(3,250)**	**(5,572)**	**(5,107)**	**(4,643)**	**(4,643)**	**(4,179)**	**(3,869)**	**(46,430)**	**(0.9%)**
Facilities																
Cleaning	(600)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(4,800)	(0.1%)
Pest Control	(156)	(104)	(104)	(104)	(104)	(104)	(104)	(104)	(104)	(104)	(104)	(104)	(104)	(104)	(1,250)	(0.0%)
Utilities	(3,428)	(2,285)	(2,285)	(2,285)	(2,285)	(2,285)	(2,285)	(2,285)	(2,285)	(22,852)	(22,852)	(22,852)	(22,852)	(9,141)	(109,691)	(2.1%)
Total Facility Costs	**(4,184)**	**(2,789)**	**(2,789)**	**(2,789)**	**(2,789)**	**(2,789)**	**(2,789)**	**(2,789)**	**(2,789)**	**(23,357)**	**(23,357)**	**(23,357)**	**(23,357)**	**(9,645)**	**(115,741)**	**(2.3%)**
Fixed Sales and Marketing																
Promotional Costs	(1,781)	(1,188)	(1,188)	(1,188)	(1,188)	(1,188)	(1,188)	(1,188)	(1,188)	(11,875)	(11,875)	(11,875)	(11,875)	(4,750)	(57,000)	(1.1%)
Total Selling and Marketing Costs	**(1,781)**	**(1,188)**	**(1,188)**	**(1,188)**	**(1,188)**	**(1,188)**	**(1,188)**	**(1,188)**	**(1,188)**	**(11,875)**	**(11,875)**	**(11,875)**	**(11,875)**	**(4,750)**	**(57,000)**	**(1.1%)**

Y1 Revenue and Expenses (Medium-Scale Poultry) Cont'd		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Y1 Monthly Avg.	Y1 Annual Total	% of Revenue
General/Administrative																
Salaried Labor	(12,500)	(8,333)	(8,333)	(8,333)	(8,333)	(8,333)	(8,333)	(8,333)	(8,333)	(8,333)	(8,333)	(8,333)	(8,333)	(8,333)	(100,000)	(2.0%)
Fringe and Overhead	(7,617)	(4,245)	(5,104)	(7,682)	(7,682)	(9,401)	(11,119)	(7,682)	(11,979)	(11,119)	(10,260)	(10,260)	(9,401)	(8,828)	(105,932)	(2.1%)
Professional Fees	(750)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(6,000)	(0.1%)
Inspection Expenses	(5,625)	(3,750)	(3,750)	(3,750)	(3,750)	(3,750)	(3,750)	(3,750)	(3,750)	(3,750)	(3,750)	(3,750)	(3,750)	(3,750)	(45,000)	(0.9%)
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
Office Supplies	(1,563)	(1,042)	(1,042)	(1,042)	(1,042)	(1,042)	(1,042)	(1,042)	(1,042)	(1,042)	(1,042)	(1,042)	(1,042)	(1,042)	(12,500)	(0.2%)
Travel (incl. hotel, air, other)	(150)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(1,200)	(0.0%)
Business Insurance	(940)	(627)	(627)	(627)	(627)	(627)	(627)	(627)	(627)	(627)	(627)	(627)	(627)	(627)	(7,524)	(0.1%)
Total General/Administrative Costs	**(29,145)**	**(18,597)**	**(19,456)**	**(22,034)**	**(22,034)**	**(23,753)**	**(25,471)**	**(22,034)**	**(26,330)**	**(25,471)**	**(24,612)**	**(24,612)**	**(23,753)**	**(23,180)**	**(278,156)**	**(5.4%)**
Unforeseen/Contingency																
Unforeseen Expenses and Bad Debt	(18,434)	(12,289)	(16,386)	(28,675)	(28,675)	(36,868)	(45,061)	(28,675)	(49,157)	(45,061)	(40,964)	(40,964)	(36,868)	(34,137)	(409,645)	(8.0%)
Total Fixed Costs	**(55,634)**	**(36,256)**	**(41,676)**	**(57,936)**	**(57,936)**	**(68,776)**	**(79,616)**	**(57,936)**	**(85,036)**	**(110,871)**	**(105,451)**	**(105,451)**	**(100,031)**	**(75,581)**	**(906,972)**	(17.7%)
EBITDA	**(77,300)**	**7,026**	**16,034**	**43,056**	**43,056**	**61,071**	**79,085**	**43,056**	**88,093**	**47,831**	**38,823**	**38,823**	**29,816**	**44,647**	**535,769**	**10.5%**
Depreciation	(2,336)	(1,558)	(1,558)	(1,558)	(1,558)	(1,558)	(1,558)	(1,558)	(1,558)	(1,558)	(1,558)	(1,558)	(1,558)	(1,558)	(18,691)	(0.4%)
Interest Expense	(4,304)	(2,869)	(2,869)	(2,869)	(2,869)	(2,869)	(2,869)	(2,869)	(2,869)	(2,869)	(2,869)	(2,869)	(2,869)	(2,869)	(34,429)	(0.7%)
Net Income	**(83,940)**	**2,600**	**11,607**	**38,629**	**38,629**	**56,644**	**74,659**	**38,629**	**83,666**	**43,404**	**34,397**	**34,397**	**25,389**	**40,221**	**482,649**	**9.4%**

Y2 & Y3 Revenue and Expenses (Medium-Scale Poultry)	Y2Q1	Y2Q2	Y2Q3	Y2Q4	Y3Q1	Y3Q2	Y3Q3	Y3Q4	Annual Total Y2	Annual Total Y3	% of Revenue Y3
Chickens	98,560	190,080	211,200	204,160	112,000	216,000	240,000	232,000	704,000	800,000	
INCOME	$	$	$	$	$	$	$	$	$	$	$
Sales											
Chickens	$779,215	$1,502,772	$1,669,747	$1,614,089	$885,472	$1,707,696	$1,897,440	$1,834,192	5,565,824	6,324,800	**100.00%**
Total Sales All Types	**779,215**	**1,502,772**	**1,669,747**	**1,614,089**	**885,472**	**1,707,696**	**1,897,440**	**1,834,192**	**5,565,824**	**6,324,800**	**100.00%**
Variable Costs											
Supplies	(91)	(175)	(194)	(188)	(98)	(189)	(210)	(203)	(648)	(700)	(0.0%)
Rendering/Removal	(7,792)	(15,028)	(16,697)	(16,141)	(8,855)	(17,077)	(18,974)	(18,342)	(55,658)	(63,248)	(1.0%)
Truck and Freight	(7,792)	(15,028)	(16,697)	(16,141)	(8,855)	(17,077)	(18,974)	(18,342)	(55,658)	(63,248)	(1.0%)
Animal Purchase	(462,642)	(892,239)	(991,377)	(958,331)	(525,730)	(1,013,908)	(1,126,564)	(1,089,012)	(3,304,589)	(3,755,214)	(59.4%)
Packaging	(15,178)	(29,272)	(32,525)	(31,441)	(16,012)	(30,879)	(34,310)	(33,167)	(108,416)	(114,368)	(1.8%)
Variable Labor	(66,168)	(127,609)	(141,788)	(137,062)	(72,784)	(140,370)	(155,967)	(150,768)	(472,626)	(519,889)	(8.2%)
Total Variable Operations	**(559,663)**	**(1,079,351)**	**(1,199,279)**	**(1,159,303)**	**(632,333)**	**(1,219,500)**	**(1,355,000)**	**(1,309,833)**	**(3,997,595)**	**(4,516,667)**	**(71.4%)**
Variable Margin	**219,552**	**423,422**	**470,469**	**454,786**	**253,139**	**488,196**	**542,440**	**524,359**	**1,568,229**	**1,808,133**	**28.59%**

Y2 & Y3 Revenue and Expenses (Medium-Scale Poultry) Cont'd	Y2Q1	Y2Q2	Y2Q3	Y2Q4	Y3Q1	Y3Q2	Y3Q3	Y3Q4	Annual Total Y2	Annual Total Y3	% of Revenue Y3
Fixed Costs											
Equipment Repair and Expenses	(8,512)	(8,512)	(8,512)	(8,512)	(9,363)	(9,363)	(9,363)	(9,363)	(34,049)	(37,454)	(0.6%)
Misc. Equipment Expenses	(4,256)	(4,256)	(4,256)	(4,256)	(4,682)	(4,682)	(4,682)	(4,682)	(17,024)	(18,727)	(0.3%)
Total Equipment Costs	**(12,768)**	**(12,768)**	**(12,768)**	**(12,768)**	**(14,045)**	**(14,045)**	**(14,045)**	**(14,045)**	**(51,073)**	**(56,181)**	**(0.9%)**
Facilities											
Cleaning	(1,200)	(1,200)	(1,200)	(1,200)	(1,320)	(1,320)	(1,320)	(1,320)	(4,800)	(5,280)	(0.1%)
Pest Control	(328)	(328)	(328)	(328)	(345)	(345)	(345)	(345)	(1,313)	(1,378)	(0.0%)
Utilities	(34,279)	(34,279)	(34,279)	(34,279)	(33,872)	(33,872)	(33,872)	(33,872)	(137,114)	(135,488)	(2.1%)
Total Facility Costs	**(35,807)**	**(35,807)**	**(35,807)**	**(35,807)**	**(35,537)**	**(35,537)**	**(35,537)**	**(35,537)**	**(143,227)**	**(142,147)**	**(2.2%)**
Fixed Sales and Marketing											
Promotional Costs	(15,675)	(15,675)	(15,675)	(15,675)	(17,243)	(17,243)	(17,243)	(17,243)	(62,700)	(68,970)	(1.1%)
Total Selling and Marketing Costs	**(15,675)**	**(15,675)**	**(15,675)**	**(15,675)**	**(17,243)**	**(17,243)**	**(17,243)**	**(17,243)**	**(62,700)**	**(68,970)**	**(1.1%)**
General/Administrative											
Salaried Labor	(27,500)	(27,500)	(27,500)	(27,500)	(30,250)	(30,250)	(30,250)	(30,250)	(110,000)	(121,000)	(1.9%)
Fringe and Overhead	(18,734)	(31,022)	(33,858)	(32,912)	(20,607)	(34,124)	(37,243)	(36,204)	(116,525)	(128,178)	(2.0%)
Professional Fees	(1,800)	(1,800)	(1,800)	(1,800)	(2,160)	(2,160)	(2,160)	(2,160)	(7,200)	(8,640)	(0.1%)
Inspection Expenses	(11,813)	(11,813)	(11,813)	(11,813)	(12,403)	(12,403)	(12,403)	(12,403)	(47,250)	(49,613)	(0.8%)
Office Supplies	(3,594)	(3,594)	(3,594)	(3,594)	(4,133)	(4,133)	(4,133)	(4,133)	(14,375)	(16,531)	(0.3%)
Travel (incl. hotel, air, other)	(345)	(345)	(345)	(345)	(414)	(414)	(414)	(414)	(1,380)	(1,656)	(0.0%)
Business Insurance	(2,031)	(2,031)	(2,031)	(2,031)	(2,194)	(2,194)	(2,194)	(2,194)	(8,126)	(8,776)	(0.1%)
Total General/Administrative Costs	**(65,816)**	**(78,105)**	**(80,940)**	**(79,995)**	**(72,161)**	**(85,678)**	**(88,797)**	**(87,757)**	**(304,856)**	**(334,393)**	**(5.3%)**
Unforeseen/Contingency											
Unforseen Costs	(56,104)	(108,200)	(120,222)	(116,214)	(67,296)	(129,785)	(144,205)	(139,399)	(400,739)	(480,685)	(7.6%)
Total Fixed Costs	**(186,170)**	**(250,554)**	**(265,412)**	**(260,459)**	**(206,281)**	**(282,287)**	**(299,827)**	**(293,980)**	**(962,596)**	**(1,082,376)**	**(17.1%)**
EBITDA	**33,382**	**172,868**	**205,057**	**194,327**	**46,858**	**205,909**	**242,613**	**230,378**	**605,633**	**725,758**	**11.5%**
Depreciation	(4,673)	(4,673)	(4,673)	(4,673)	(4,673)	(4,673)	(4,673)	(4,673)	(18,691)	(18,691)	(0.3%)
Interest Expense	(8,459)	(8,459)	(8,459)	(8,459)	(8,299)	(8,299)	(8,299)	(8,299)	(33,836)	(33,197)	(0.5%)
Net Income	**20,250**	**159,736**	**191,925**	**181,195**	**33,886**	**192,937**	**229,641**	**217,406**	**553,106**	**673,870**	**10.7%**

Y1-3 Revenue and Expenses (Medium-Scale Poultry)	Y1 Monthly Avg.	Y1 Annual Total	% of Revenue	Quarterly Averages Y2 & Y3	Annual Total Y2	% of Revenue Y2	Annual Total Y3	% of Revenue Y3
Chickens	53,973	647,680		188,000	704,000		800,000	
INCOME	$	$	$	$	$	$	$	$
Sales								
Chickens	426,713	5,120,558		1,486,328	5,565,824		6,324,800	
Total Sales All Types	**426,713**	**5,120,558**	**100.00%**	**1,486,328**	**5,565,824**	**100.00%**	**6,324,800**	**100.00%**
Variable Costs								
Supplies	(50)	(600)	(0.0%)	(168)	(648)	(0.0%)	(700)	(0.0%)
Rendering/Removal	(4,267)	(51,206)	(1.0%)	(14,863)	(55,658)	(1.0%)	(63,248)	(1.0%)
Truck and Freight	(4,267)	(51,206)	(1.0%)	(14,863)	(55,658)	(1.0%)	(63,248)	(1.0%)
Animal Purchase	(253,352)	(3,040,222)	(59.4%)	(882,475)	(3,304,589)	(59.4%)	(3,755,214)	(59.4%)
Packaging	(8,744)	(104,924)	(2.0%)	(27,848)	(108,416)	(1.9%)	(114,368)	(1.8%)
Variable Labor	(35,805)	(429,660)	(8.4%)	(124,064)	(472,626)	(8.5%)	(519,889)	(8.2%)
Total Variable Operations	**(306,485)**	**(3,677,817)**	**(71.8%)**	**(1,064,283)**	**(3,997,595)**	**(71.8%)**	**(4,516,667)**	**(71.4%)**
Variable Margin	**120,228**	**1,442,741**	**28.18%**	**422,045**	**1,568,229**	**28.18%**	**1,808,133**	**28.59%**

Y1-3 Revenue and Expenses (Medium-Scale Poultry) Cont'd	Y1 Monthly Avg.	Y1 Annual Total	% of Revenue	Quarterly Averages Y2 & Y3	Annual Total Y2	% of Revenue Y2	Annual Total Y3	% of Revenue Y3
Fixed Costs				0	0	0.0%	0	0.0%
Equipment Repair and Expenses	(2,579)	(30,954)	(0.6%)	(8,938)	(34,049)	(0.6%)	(37,454)	(0.6%)
Misc. Equipment Expenses	(1,290)	(15,477)	(0.3%)	(4,469)	(17,024)	(0.3%)	(18,727)	(0.3%)
Total Equipment Costs	**(3,869)**	**(46,430)**	**(0.9%)**	**(13,407)**	**(51,073)**	**(0.9%)**	**(56,181)**	**(0.9%)**
Facilities				0	0	0.0%	0	0.0%
Cleaning	(400)	(4,800)	(0.1%)	(1,260)	(4,800)	(0.1%)	(5,280)	(0.1%)
Pest Control	(104)	(1,250)	(0.0%)	(336)	(1,313)	(0.0%)	(1,378)	(0.0%)
Utilities	(9,141)	(109,691)	(2.1%)	(34,075)	(137,114)	(2.5%)	(135,488)	(2.1%)
Total Facility Costs	**(9,645)**	**(115,741)**	**(2.3%)**	**(35,672)**	**(143,227)**	**(2.6%)**	**(142,147)**	**(2.2%)**
Fixed Sales and Marketing				0	0	0.0%	0	0.0%
Promotional Costs	(4,750)	(57,000)	(1.1%)	(16,459)	(62,700)	(1.1%)	(68,970)	(1.1%)
Total Selling and Marketing Costs	**(4,750)**	**(57,000)**	**(1.1%)**	**(16,459)**	**(62,700)**	**(1.1%)**	**(68,970)**	**(1.1%)**
General/Administrative				0	0	0.0%	0	0.0%
Salaried Labor	(8,333)	(100,000)	(2.0%)	(28,875)	(110,000)	(2.0%)	(121,000)	(1.9%)
Fringe and Overhead	(8,828)	(105,932)	(2.1%)	(30,588)	(116,525)	(2.1%)	(128,178)	(2.0%)
Professional Fees	(500)	(6,000)	(0.1%)	(1,980)	(7,200)	(0.1%)	(8,640)	(0.1%)
Inspection Expenses	(3,750)	(45,000)	(0.9%)	(12,108)	(47,250)	(0.8%)	(49,613)	(0.8%)
Office Supplies	(1,042)	(12,500)	(0.2%)	(3,863)	(14,375)	(0.3%)	(16,531)	(0.3%)
Travel (incl. hotel, air, other)	(100)	(1,200)	(0.0%)	(380)	(1,380)	(0.0%)	(1,656)	(0.0%)
Business Insurance	(627)	(7,524)	(0.1%)	(2,113)	(8,126)	(0.1%)	(8,776)	(0.1%)
Total General/Administrative Costs	**(23,180)**	**(278,156)**	**(5.4%)**	**(79,906)**	**(304,856)**	**(5.5%)**	**(334,393)**	**(5.3%)**
Unforeseen/Contingency	0	0	0.00%	0	0	0.00%	0	0.00%
Unforeseen Expenses and Bad Debt	(34,137)	(409,645)	(8.0%)	(110,178)	(400,739)	(7.2%)	(480,685)	(7.6%)
Total Fixed Costs	**(75,581)**	**(906,972)**	**(17.7%)**	**(255,621)**	**(962,596)**	**(17.3%)**	**(1,082,376)**	**(17.1%)**
EBITDA	**44,647**	**535,769**	**10.5%**	**166,424**	**605,633**	**10.9%**	**725,758**	**11.5%**
Depreciation	(1,558)	(18,691)	(0.4%)	(4,673)	(18,691)	(0.3%)	(18,691)	(0.3%)
Interest Expense	(2,869)	(34,429)	(0.7%)	(8,379)	(33,836)	(0.6%)	(33,197)	(0.5%)
Net Income	**40,221**	**482,649**	**9.4%**	**153,372**	**553,106**	**9.9%**	**673,870**	**10.7%**

APPENDIX B: CASH FLOWS

Cash Flows Y1 (Small-Scale Poultry)	Ongoing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year 1
Operating Activities														Annual
Net Income (Loss)		($470)	$135	$1,953	$1,953	$3,165	$4,377	$1,953	$4,982	$2,567	$1,961	$1,961	$1,355	$25,892
Non cash charges to net income (loss)														
Depreciation		$348	$348	$348	$348	$348	$348	$348	$348	$348	$348	$348	$348	$4,170
(Increase) Decrease in current assets														$0
Accounts Receivable		($513)	($171)	($1,027)	($171)	($1,369)	($513)	($685)	($1,369)	($513)	($1,198)	($513)	($1,027)	($9,072)
Inventories														
Increase (decrease) in current liabilities														$0
Accounts payable and accrued expenses														$0
Accrued interest		($658)	($658)	($658)	($658)	($658)	($658)	($658)	($658)	($658)	($658)	($658)	($658)	($7,898)
Net Cash Provided by (used in) Operating Activities	$0	($1,295)	($346)	$615	$1,471	$1,485	$3,552	$958	$3,302	$1,743	$452	$1,137	$18	$13,093
Investing Activities														$0
Purchases of property and equipment	($107,007)													$0
Financing Activities														$0
Member contributions (distributions)	$20,701													$0
Other contributions		$658	$658	$658	$658	$658	$658	$658	$658	$658	$658	$658	$658	$7,898
Net borrowings (payments) on short-term loans or notes		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal payments on long-term loans		($137)	($137)	($137)	($137)	($137)	($137)	($137)	($137)	($137)	($137)	($137)	($137)	($1,646)
Proceeds from long-term debt borrowings	$96,307													$0
Net Cash Provided by (used in) Financing Activities	$10,000	$521	$521	$521	$521	$521	$521	$521	$521	$521	$521	$521	$521	$6,252
Net Increase in Cash	$10,000	($774)	$175	$1,136	$1,992	$2,006	$4,073	$1,479	$3,823	$2,264	$973	$1,658	$539	$19,345
Cash -beginning of period		$10,000	$9,226	$9,401	$10,537	$12,530	$14,536	$18,609	$20,088	$23,911	$26,175	$27,148	$28,806	$10,000
Cash - end of period	$10,000	$9,226	$9,401	$10,537	$12,530	$14,536	$18,609	$20,088	$23,911	$26,175	$27,148	$28,806	$29,345	$29,345

Years 2-3 Cash Flow (Small-Scale Poultry)	Y2 Q1	Y2 Q2	Y2 Q3	Y2 Q4	Y3 Q1	Y3 Q2	Y3 Q3	Y3 Q4	Annual Total Y2	Annual Total Y3
Operating Activities										
Net Income (Loss)	($406)	$8,828	$10,959	$10,249	($113)	$10,246	$12,637	$11,840	$29,630	$34,611
Non cash charges to net income (loss)									$0	$0
Depreciation	$1,043	$1,043	$1,043	$1,043	$1,043	$1,043	$1,043	$1,043	$4,170	$4,170
(Increase) decrease in current assets									$0	$0
Accounts Receivable	($1,540)	($1,064)	($3,959)	($1,622)	($3,773)	$846	($6,491)	$219	($8,186)	($9,198)
Inventories										
Increase (decrease) in current liabilities									$0	$0
Accounts payable and accrued expenses									$0	$0
Accrued interest	($1,942)	($1,942)	($1,942)	($1,942)	($1,908)	($1,908)	($1,908)	($1,908)	($7,769)	($7,630)
Net Cash Provided by (used in) Operating Activities	($2,846)	$6,864	$6,100	$7,727	($4,751)	$10,228	$5,282	$11,195	$17,845	$21,954
Investing Activities										
Purchases of property and equipment	$0				$0				$0	$0
Sale of Property and Equipment					$0				$0	$0
Financing Activities										
Member contributions (distributions)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other contributions	$1,942	$1,942	$1,942	$1,942	$1,908	$1,908	$1,908	$1,908	$7,769	$7,630
Net borrowings (payments) on short-term loans or notes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal payments on long-term loans	($444)	($444)	($444)	($444)	($479)	($516)	($557)	($600)	($1,775)	($2,151)
Proceeds from long-term debt borrowings	$0								$0	$0
Net Cash Provided by (used in) Financing Activities	$1,498	$1,498	$1,498	$1,498	$1,429	$1,391	$1,351	$1,307	$5,994	$5,479
Net Increase in Cash	($1,348)	$8,363	$7,599	$9,225	($3,322)	$11,619	$6,633	$12,502	$23,839	$27,432
Cash -beginning of period	$29,345	$27,997	$36,360	$43,959	$53,184	$49,862	$61,482	$68,114	$29,345	$53,184
Cash - end of period	$27,997	$36,360	$43,959	$53,184	$49,862	$61,482	$68,114	$80,616	$53,184	$80,616

Cash Flows Y1 (Medium-Scale Poultry)	Ongoing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year 1
Operating Activities														Annual

Net Income (Loss)		$2,600	$11,607	$38,629	$38,629	$56,644	$74,659	$38,629	$83,666	$43,404	$34,397	$34,397	$25,389	$482,649
Non cash charges to net income (loss)														
Depreciation		$1,558	$1,558	$1,558	$1,558	$1,558	$1,558	$1,558	$1,558	$1,558	$1,558	$1,558	$1,558	$18,691
(Increase) Decrease in current assets														$0
Accounts Receivable		($15,362)	($5,121)	($30,723)	($5,121)	($40,964)	($15,362)	($20,482)	($40,964)	($15,362)	($35,844)	($15,362)	($30,723)	($271,390)
Inventories														
Increase (decrease) in current liabilities														$0
Accounts payable and accrued expenses														$0
Accrued interest		($2,869)	($2,869)	($2,869)	($2,869)	($2,869)	($2,869)	($2,869)	($2,869)	($2,869)	($2,869)	($2,869)	($2,869)	($34,429)
Net Cash Provided by (used in) Operating Activities	$0	($14,073)	$5,175	$6,594	$32,197	$14,368	$57,985	$16,835	$41,390	$26,731	($2,759)	$17,723	($6,646)	$195,521
Investing Activities														$0
Purchases of property and equipment	($468,263)													$0
Financing Activities														$0
Member contributions (distributions)	$126,826													$0
Other contributions		$2,869	$2,869	$2,869	$2,869	$2,869	$2,869	$2,869	$2,869	$2,869	$2,869	$2,869	$2,869	$34,429
Net borrowings (payments) on short-term loans or notes		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal payments on long-term loans		($634)	($634)	($634)	($634)	($634)	($634)	($634)	($634)	($634)	($634)	($634)	($634)	($7,605)
Proceeds from long-term debt borrowings	$421,437													$0
Net Cash Provided by (used in) Financing Activities	$80,000	$2,235	$2,235	$2,235	$2,235	$2,235	$2,235	$2,235	$2,235	$2,235	$2,235	$2,235	$2,235	$26,825
Net Increase in Cash	$80,000	($11,838)	$7,410	$8,830	$34,432	$16,603	$60,221	$19,071	$43,625	$28,966	($524)	$19,959	($4,410)	$222,345
Cash -beginning of period		$80,000	$68,162	$75,572	$84,402	$118,835	$135,438	$195,658	$214,729	$258,354	$287,321	$286,797	$306,756	$80,000
Cash - end of period	$80,000	$68,162	$75,572	$84,402	$118,835	$135,438	$195,658	$214,729	$258,354	$287,321	$286,797	$306,756	$302,345	$302,345

Years 2-3 Cash Flow (Medium-Scale Poultry)	Y2 Q1	Y2 Q2	Y2 Q3	Y2 Q4	Y3 Q1	Y3 Q2	Y3 Q3	Y3 Q4	Annual Total Y2	Annual Total Y3
Operating Activities										
Net Income (Loss)	$20,250	$159,736	$191,925	$181,195	$33,886	$192,937	$229,641	$217,406	$553,106	$673,870
Non cash charges to net income (loss)									$0	$0
Depreciation	$4,673	$4,673	$4,673	$4,673	$4,673	$4,673	$4,673	$4,673	$18,691	$18,691
(Increase) decrease in current assets									$0	$0
Accounts Receivable	($46,085)	($31,837)	($118,441)	($48,534)	($112,875)	$24,328	($195,097)	$5,353	($244,896)	($278,291)
Inventories										
Increase (decrease) in current liabilities									$0	$0
Accounts payable and accrued expenses									$0	$0
Accrued interest	($8,459)	($8,459)	($8,459)	($8,459)	($8,299)	($8,299)	($8,299)	($8,299)	($33,836)	($33,197)
Net Cash Provided by (used in) Operating Activities	($29,621)	$124,113	$69,698	$128,875	($82,616)	$213,638	$30,917	$219,133	$293,065	$381,073
Investing Activities										
Purchases of property and equipment	$0				$0				$0	$0
Sale of Property and Equipment					$0				$0	$0
Financing Activities										
Member contributions (distributions)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other contributions	$8,459	$8,459	$8,459	$8,459	$8,299	$8,299	$8,299	$8,299	$33,836	$33,197
Net borrowings (payments) on short-term loans or notes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal payments on long-term loans	($2,049)	($2,049)	($2,049)	($2,049)	($2,209)	($2,382)	($2,568)	($2,768)	($8,198)	($9,926)
Proceeds from long-term debt borrowings	$0								$0	$0
Net Cash Provided by (used in) Financing Activities	$6,410	$6,410	$6,410	$6,410	$6,090	$5,918	$5,732	$5,531	$25,639	$23,270
Net Increase in Cash	($23,211)	$130,523	$76,107	$135,284	($76,526)	$219,556	$36,649	$224,664	$318,703	$404,343
Cash -beginning of period	$302,345	$279,134	$409,657	$485,764	$621,049	$544,523	$764,079	$800,728	$302,345	$621,049
Cash - end of period	$279,134	$409,657	$485,764	$621,049	$544,523	$764,079	$800,728	$1,025,392	$621,049	$1,025,392

APPENDIX C: PRO FORMA OPERATING STATEMENTS

Small-Scale Poultry	Startup	Y1	Y2	Y3
Revenues (Sales)	-	$171,162	$186,046	$209,040
Total Variable Operating Costs	(721)	($94,064)	($102,327)	($114,535)
Variable Margin (Loss)	(721)	$77,098	$83,719	$94,505
Total Equipment Costs	(173)	($3,841)	($4,225)	($4,647)
Total Facilities Costs	(495)	($6,701)	($7,081)	($7,817)
Total Selling and Marketing Costs	(188)	($6,000)	($6,600)	($7,260)
General and Administrative Expenses	(1,349)	($12,325)	($14,197)	($16,453)
Unforeseen and Contingency Expenses	(462)	($10,270)	($10,046)	($11,915)
Earnings EBITDA (Loss)	(3,388)	$37,961	$41,570	$46,411
Interest Expense	(987)	($7,898)	($7,769)	($7,630)
Depreciation Expense	(521)	($4,170)	($4,170)	($4,170)
Net Income (Loss)	(4,896)	$25,892	$29,630	$34,611

Medium-Scale Poultry	Startup	Y1	Y2	Y3
Revenues (Sales)	-	$5,120,558	$5,565,824	$6,324,800
Total Variable Operating Costs	(21,666)	($3,677,817)	($3,997,595)	($4,516,667)
Variable Margin (Loss)	(21,666)	$1,442,741	$1,568,229	$1,808,133
Total Equipment Costs	(2,089)	($46,430)	($51,073)	($56,181)
Total Facilities Costs	(4,184)	($115,741)	($143,227)	($142,147)
Total Selling and Marketing Costs	(1,781)	($57,000)	($62,700)	($68,970)
General and Administrative Expenses	(29,145)	($278,156)	($304,856)	($334,393)
Unforeseen and Contingency Expenses	(18,434)	($409,645)	($400,739)	($480,685)
Earnings EBITDA (Loss)	(77,300)	$535,769	$605,633	$725,758
Interest Expense	(4,304)	($34,429)	($33,836)	($33,197)
Depreciation Expense	(2,336)	($18,691)	($18,691)	($18,691)
Net Income (Loss)	(83,940)	$482,649	$553,106	$673,870

APPENDIX D: BALANCE SHEET

Small-Scale Poultry	Y1	Y2	Y3
Assets			
Cash and Equivalents	$29,345	$53,184	$80,616
Accounts Receivables	$14,263	$15,504	$17,420
Inventories	$0	$0	$0
Total Current Assets	$43,608	$68,688	$98,036
Buildings and Equipment, Net of Depreciation	$102,837	$98,666	$94,496
Other Assets, Net of Amortization	$0	$0	$0
Total Assets	$146,445	$167,354	$192,532
Liabilities and Members' Equity			
Current Liabilities			
Accounts Payable and Accrued Expenses			
Accrued Interest	($7,898)	($7,769)	($7,630)
Current Maturities of Long-Term Debt	($1,775)	($1,914)	($2,064)
Total Current Liabilities	($9,673)	($9,683)	($9,694)
Long-term Debt			
Senior Debt	$94,660	$92,885	$90,971
Less Current Maturities of Long-Term Debt	($1,646)	($1,775)	($1,914)
Members' Equity			
Member Equity and Equity Equivalents	$37,212	$56,298	$78,559
Dispersed Member Equity	$0	$0	$0
Retained Earnings (Losses)	$25,892	$29,630	$34,611
Total Liabilities and Current Members' Equity	$146,445	$167,354	$192,532

Medium-Scale Poultry	Y1	Y2	Y3
Assets			
Cash and Equivalents	$302,345	$621,049	$1,025,392
Accounts Receivables	$426,713	$463,819	$527,067
Inventories	$0	$0	$0
Total Current Assets	$729,059	$1,084,867	$1,552,459
Buildings and Equipment, Net of Depreciation	$449,572	$430,881	$412,190
Other Assets, Net of Amortization	$0	$0	$0
Total Assets	$1,178,631	$1,515,748	$1,964,649
Liabilities and Members' Equity			
Current Liabilities			
Accounts Payable and Accrued Expenses			
Accrued Interest	($34,429)	($33,836)	($33,197)
Current Maturities of Long-Term Debt	($8,198)	($8,837)	($9,527)
Total Current Liabilities	($42,627)	($42,673)	($42,723)
Long-term Debt			
Senior Debt	$413,832	$405,635	$396,798
Less Current Maturities of Long-Term Debt	($7,605)	($8,198)	($8,837)
Members' Equity			
Member Equity and Equity Equivalents	$332,381	$607,878	$945,542
Dispersed Member Equity	$0	$0	$0
Retained Earnings (Losses)	$482,649	$553,106	$673,870
Total Liabilities and Current Members' Equity	$1,178,631	$1,515,748	$1,964,649