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# **1. Executive Summary**

## **Introduction**

The market for locally grown pastured poultry has grown steadily in the U.S.; lack of suitable processing options has kept many small-scale producers from this promising farm enterprise and market niche. Throughout the US, farmers and service providers are exploring use of “mobile poultry processing units” (MPPUs) – a processing option that allows small-scale producers to process poultry on their own farms and market their products in their own states.

## **Objectives**

This business plan is documented to inform and support small-scale producers – those raising and processing about 5,000 chickens. This document serves as a guide to its readers for learning the intricacies of the functionality of an MPPU.

## **Scope**

This document looks at the various aspects involved in starting a MPPU meant for small scale poultry processors. The market analysis section deals with the current reality in the USA and Iowa as well as the need and prospects of setting up MPPUs. The operations plan describes the day to day actions, the equipment needed, and the regulatory system that should be followed. Additionally, sample floor plans and operations budgets are included. The management plan discusses the role of prospective MPPU employees. The marketing plan details the target market, the marketing/promotional strategies, the marketing channels, and the pricing strategies. The financial feasibility section details the potential viability of a project, the initial finances required to set up the unit, and rough estimates of expenses under different scenarios.

## **Methodology**

The document has been prepared by referring the studies on existing Mobile Poultry Processing units in the US, the regulations prevailing in Iowa, existing equipment plans, floor plans, and sample budgets.

## **Conclusion & Recommendations**

MPPUs are a viable opportunity for the small scale poultry producers, restaurant owners and the local consumers. If the finances are handled judiciously, proper help from the government is obtained and operational/manpower costs are kept low then a potential mobile unit should be considered.

## **2. US Poultry Industry Analysis**

According to Center of Concern (COC), chicken industry in the US is a profitable and globally competitive industry. The industry is self-described as a model for efficient production of affordable, nutritious, high quality products that reach customers in the US and across the globe. Companies operating the US chicken industry have and continue to be major innovators in transforming the industry from one defined by scattered family farmers to one dominated by a few large firms that have transformed the common chicken into a global commodity (the “broiler”) at the heart of a domestic industry which produced 36.1 billion pounds and saw a retail value of US\$43 billion in 2007. Prices have trended downward for many years and per capita consumption now exceeds 80 pounds. The US poultry industry attributes its success to a more efficient structural organization, improved production and processing technologies, and a continuing responsiveness to consumer demands.

In terms of consumer demands, US shoppers have more options than ever before. Product inventory has expanded from whole dressed birds and cut-up-parts to numerous further processed items like frozen meals, chicken nuggets, and ready-to-eat cooked chicken.

### **2.1 Market Statistics**

According to National Chicken Council, Americans consume more chicken than anyone else in the world – 83.6 pounds per capita – the number one protein consumed in the US.<sup>1</sup> Table 1 below represents the key economic measurement facts for Broiler Chicken Industry.

**Table 1: Broiler Chicken Industry – Key Facts**

<b>Basic Economic Measurement include:</b>	
Number of workers directly employed	300,000
Number of workers indirectly employed	200,000
Number of family farms growing broilers and/or producing hatching eggs	30,500
Amount of corn used for broiler and breeder feed	1.2 billion bushels
Amount of soybean (meal component) used for Broiler and breeder feed	500 million bushels
Amount of mixed feed used	55 million tons
Wholesale value of shipments of industry	US\$50 billion
Consumer expenditures for chicken	US\$70 billion

*Source: National Chicken Council*

Few facts:<sup>2</sup>

- In 2011, the poultry industry processed: 8.7 billion chickens
- In 2011, American poultry companies produced: 37.7 billion pounds of chicken.

The US Poultry and Egg Association (“USPEA”) lists 43 broiler companies on its website. The two largest broiler companies, Pilgrim’s Pride Corp. and Tyson Foods Inc., accounted for 40% of the 2010 market. The table below shows the top 25 broiler companies and their relative market share.

**Table 2: Top 25 Broiler Companies in 2010**

<b>2010 Rank</b>	<b>Company</b>	<b>Finished Weight Avg. Weekly Lbs</b>	<b>Finished Weight Avg. Annual Lbs</b>	<b>Market Share</b>
<b>1</b>	Pilgrim's Pride	146	7,592	20.3%

<sup>1</sup> “Broiler Chicken Industry Key Facts”. National Chicken Council. Retrieved on December 16<sup>th</sup> 2013.

<<http://www.nationalchickencouncil.org/about-the-industry/statistics/broiler-chicken-industry-key-facts/>>

<sup>2</sup> “The United States Meat Industry at a Glance.” Meat AMI.com. Retrieved on 16<sup>th</sup> December 2013.

<<http://www.meatami.com/ht/d/sp/i/47465/pid/47465>>

2	Tyson Foods	144	7,488	20.0%
3	Perdue Farms	55	2,860	7.6%
4	Sanderson Farms	42	2,184	5.8%
5	Wayne Farms	34	1,768	4.7%
6	Mountaire Farms	32	1,664	4.4%
7	House of Raeford Farms	24	1,248	3.3%
8	Keystone Farms	24	1,248	3.3%
9	Foster Farms	20	1,040	2.8%
10	Koch Foods	18	936	2.5%
11	O.K. Foods	18	936	2.5%
12	Allen Family Foods	17	987	2.4%
13	George's	15	780	2.1%
14	Fieldale Farms	15	780	2.1%
15	Peco Farms	15	780	2.1%
16	Townsend's	14	728	1.9%
17	Case Foods	11	572	1.5%
18	Simmons Foods	10	520	1.4%
19	Gold'n Plump Poultry	8	416	1.1%
20	Cagle's	7	364	1.0%
21	Amick Farms	7	364	1.0%
22	Mar-Jac Poultry	7	364	1.0%
23	Marshall Durbin Companies	6	312	0.8%
24	Claxton Poultry Farms	6	312	0.8%
25	Harrison Poultry	5	234	0.6%
	Other	22	1,125	3.0%
	Total	722	37,499	100.0%

*Source: National Chicken Council*

The value of sales from chickens (excluding broilers) in 2012 was US\$79.0 million, down 3% from US\$81.1 million a year ago. The number of chickens sold in 2012 totaled 178 million, down 2% from the total sold during the previous year.<sup>3</sup>

Prices for finished whole birds are set daily through the interaction of supply and demand, and are not controlled by individual poultry processors. Changes in the market prices of chickens trail the changes in the price of feed, leading to poor financial performance during periods of rising feed costs and good performance in periods of declining feed costs. The industry is currently experiencing a period of high feed costs and low chicken prices.<sup>4</sup>

<sup>3</sup> "Economic Data". USpoultry.org. Retrieved on December 16<sup>th</sup> 2013. <[http://www.uspoultry.org/economic\\_data/](http://www.uspoultry.org/economic_data/)>

<sup>4</sup> "Poultry Processing Economic Review." Focus Management Group. Retrieved on 16<sup>th</sup> December 2013.

## 2.2 Market Trends

Acquisitions by larger industry operators have increased concentration even further during the past five years. This trend is projected to continue due to profitability pressures in many major firms, as key players concentrate on core business development to achieve optimal economies of scale. Most of the larger operators within this industry produce more than one type of meat product, and many are expanding their product range.<sup>5</sup>

Poultry processors operate under the watchful eye of Food Safety Inspection Service (“FSIS”) of the USDA. Any processor engaged in interstate commerce is subject to FSIS rules, regulations and inspection requirements. FSIS inspectors are present in a processing facility 100% of the time the facility is processing chickens.

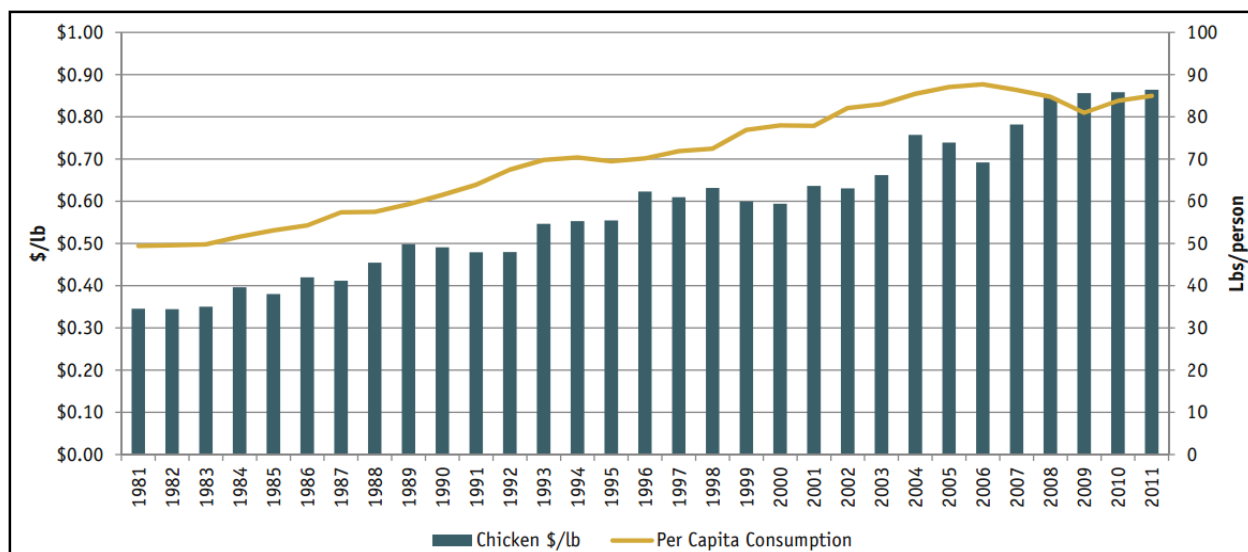
US demand for poultry products, as well as the prices for these products, has increased in an almost linear fashion over recent decades, with most projections indicating that this trend will continue. Production of poultry products has been designed to match demand and as a result long term pricing volatility has remained fairly low. Spikes or valleys in the market price for poultry are reasonably moderate when compared to many other commodities.<sup>6</sup> The figure below represents the chicken price and per capita consumption in the US.

### Figure 1: US Chicken Price and Consumption

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<sup>5</sup> “Meat, Beef & Poultry Processing in the US: Market Research Report.” IBISWorld. Retrieved on 17<sup>th</sup> December 2013. <<http://www.ibisworld.com/industry/default.aspx?indid=251>>

<sup>6</sup> “Poultry Processing Economic Review.” Focus Management Group. Retrieved on 16<sup>th</sup> December 2013.



*Source: National Chicken Council*

In the US, per-capita consumption of chicken products continues to be more than consumption of beef and pork, its two main competitors. In 2010, the per-capita consumption of total broiler products reached 82.3 pounds. Per-capita consumption for broilers, beef and pork in the US totaled 189.6 pounds. Broilers constituted 43% of the top three meats consumed in the domestic market in 2010.<sup>7</sup>

## 2.3 Consumer Demographics for Local and Sustainable Food in the US

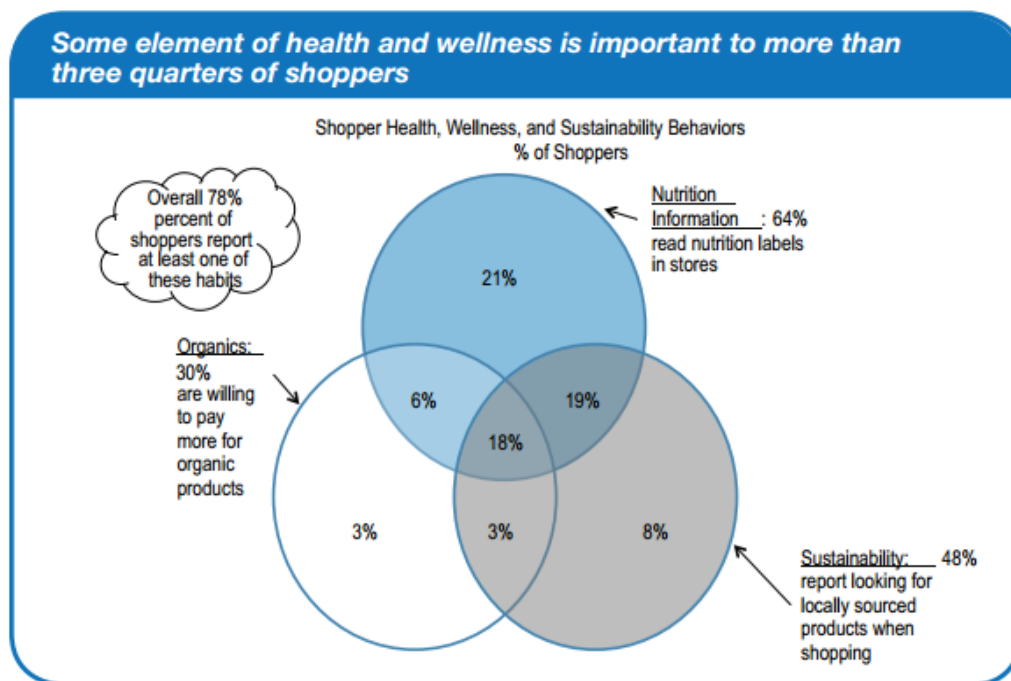
According to 2012 Food & Health Survey, around 2/3<sup>rd</sup> of Americans reported that they have given some thought to whether foods and beverages they purchase or consume are produced in a sustainable way. When asked what actions they purposely take on a regular basis, about four in ten (41%) say they purchase foods and beverages that are advertised as “local.” A slightly smaller percentage report buying “foods and beverages at farmers markets” (39%) and purchasing “foods and beverages in recycled and/or recyclable packaging” (38%).<sup>8</sup>

<sup>7</sup> “The Poultry Industry and Its Economic Impact.” Mississippi State University Extension Service. Retrieved on 17<sup>th</sup> December 2013. <<http://msucare.com/pubs/publications/p2719.pdf>>

<sup>8</sup> “2012 Food & Health Survey.” Foodinsight.org. Retrieved on 2<sup>nd</sup> January 2014. <[http://www.foodinsight.org/Resources/Detail.aspx?topic=2012\\_Food\\_Health\\_Survey\\_Consumer\\_Attitudes\\_toward\\_Food\\_Safety\\_Nutrition\\_and\\_Health](http://www.foodinsight.org/Resources/Detail.aspx?topic=2012_Food_Health_Survey_Consumer_Attitudes_toward_Food_Safety_Nutrition_and_Health)>

According to another survey conducted in 2010 in Michigan, people who were white and had higher incomes generally tend to buy local food but placed lower importance on factors associated with value and convenience, while Latinos and those working part time were more likely to value these factors. Interestingly, Latinos were also more likely to value certain local-specialty attributes like hormone-free animal products and access to information about how food was produced.<sup>9</sup>

According to Booz & Company analysis, shoppers may be spending fewer real dollars at the grocery store, and are more interested in value than ever before, their interest in health and wellness and sustainability has rebounded tremendously, outpacing traditional product categories. For example, 78% of shoppers report interest in reading nutrition labels, paying more for organic products, or looking for locally sourced products. The figure below represents the same.<sup>10</sup> These trends are extremely positive for sustainable and locally grown poultry, which many consumers consider to be healthier.



**Source:** Booz & Company Analysis

<sup>9</sup> "Locally Grown Foods and Farmers Markets: Consumer Attitudes and Behaviors." Sustainability 2010. Retrieved on 3<sup>rd</sup> January 2014.

<sup>10</sup> "US Grocery Shoppers Trends 2012." Intelligent Clearing Network. Retrieved on 3<sup>rd</sup> January 2014. < [http://www.icn-net.com/docs/12086\\_FMIN\\_Trends2012\\_v5.pdf](http://www.icn-net.com/docs/12086_FMIN_Trends2012_v5.pdf)>



*Note: It is difficult to find consumer demographics for local consumption covering the overall US. However, there is a comprehensive study conducted in North Carolina concerning local food. It will give the user some idea about demographics. We have mentioned few major outcomes for the study below:*

- **Spending on local food by age:** Consumers which are in 18-35 years age group and 55+ years age group reported to spend more on local food. In 2011, these two age groups spent around 40% of their food spending on local food (monthly).

**Table 3: Reported Spending on Local Food Over Time, by Age – North Carolina**

Age		0-5%	6-10%	11-20%	>20%	Total
18-35 years	2000	43%	31%	14%	11%	100%
	2004	50%	25%	18%	17%	100%
	2011	22%	14%	22%	41%	100%
35-54 years	2000	57%	26%	10%	7%	100%
	2004	53%	24%	15%	8%	100%
	2011	16%	34%	26%	24%	100%
55+ years	2000	59%	25%	5%	10%	100%
	2004	56%	14%	10%	20%	100%
	2011	16%	25%	19%	41%	100%

*Source: Appalachian Sustainable Agriculture Project (ASAP)*

- **Spending on Local Food by Demographics:** Income and education are inversely related to the reported level of spending on local food. While shoppers in household earning less than \$25,000 per year report a smaller amount of spending on all food, local and non-local, they are more likely than higher income shoppers to say that local food expenditures make up a sizeable proportion of their total spending. Approximately one-quarter (26%) of consumers with household incomes below \$25,000, compared to 14% of those with incomes above \$50,000, said that local food purchases constitute over 30% of their spending.

The pattern is similar with respect to education: over one-third (36%) of those without a high school diploma reported spending more than 30% of their bill on local food, in contrast to 21% of college graduates and 14% of those with some graduate schooling. The table below represents the spending on local food by education, gender and income.

**Table 4: Spending on Local Food by Demographics – North Carolina**

		None	1-5%	6-10%	11-20%	21-30%	>30%	Total
<b>Education</b>	No. H.S. Degree	-	14%	20%	16%	14%	36%	100%
	H.S. Grad.	2%	19%	27%	19%	13%	21%	100%
	College/technical school	4%	16%	29%	22%	12%	17%	100%
	College grad.	2%	17%	26%	21%	13%	21%	100%
<b>Age</b>	18-34	2%	20%	18%	21%	15%	24%	100%
	35-44	1%	17%	28%	25%	10%	18%	100%
	45-54	2%	14%	34%	21%	9%	20%	100%
	55-64	3%	19%	24%	19%	15%	21%	100%
	65+	2%	18%	27%	18%	14%	20%	100%
<b>Gender</b>	Men	3%	16%	32%	23%	8%	18%	100%
	Women	2%	18%	24%	20%	15%	21%	100%
<b>Household Income</b>	<\$25,000	4%	16%	25%	14%	16%	26%	100%
	\$25,000 – 50,000	3%	16%	25%	23%	9%	24%	100%
	\$50,000+	1%	18%	30%	24%	14%	14%	100%
<b>Total</b>		<b>2%</b>	<b>18%</b>	<b>27%</b>	<b>21%</b>	<b>13%</b>	<b>20%</b>	<b>100%</b>

*Source: Appalachian Sustainable Agriculture Project (ASAP)*

The most recent national data suggest that while local food consumers are demographically diverse, they are very similar in their motivations for buying local. The majority of respondents to a national study cited freshness (82%), support for the local economy (75%), and knowing the source of the product (58%) as reasons for buying local food at direct markets or in conventional grocery stores (Food Marketing Institute, 2009).

The local-food movement has been gaining momentum in developed countries, and in many developing countries as well, in recent years; in the US alone, sales of locally grown foods, worth about \$4 billion in 2002, could reach as much as \$7 billion by 2011. Local food's claimed benefits are driving health- and environment-conscious consumers to seek alternatives to the industrial agriculture system whose products dominate grocery-store shelves. It is also linked to the localization efforts of people who believe that rising transport

costs and reaction to globalization will trigger a shortening of economic links and greater reliance on local and regional economies.<sup>11</sup>

**Conclusion:** Local food, including poultry, is preferred by people who fall in the following two age groups: 18-35 years and 55+ years. These consumers are health-conscious and believe that locally grown food is more sustainable than other products available. Locally grown poultry is preferred by households with medium-to-high income as well as consumers who have higher levels of education.

## 2.4 Industry Forecast

Due to recovering consumer sentiment, population growth and strong export demand, poultry/meat processing revenue is forecast to increase annually during the five years to 2018.<sup>12</sup>

### **Consumption Demographics**<sup>13</sup>:

- According to the United States Department of Agriculture (USDA), the established trend toward increased poultry consumption will continue, rising from 100.3 lbs. per capita in 2010 to 109.3 lbs. in 2020.
- The greatest gains will be in chicken, as the consumption of turkey is projected to remain fairly consistent, at approximately 16 to 17 lbs. per person until 2020.
- Within chicken consumption there has been a move from fresh to more processed products. In 2000, 72% of eating occasions involved fresh chicken, as opposed to processed (15%), while in 2010, 68% of the occasions were associated with fresh as opposed to processed (22%) chicken.

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<sup>11</sup> "Is Local Food better." Worldwatch.org. Retrieved on 3<sup>rd</sup> January 2014. <<http://www.worldwatch.org/node/6064>>

<sup>12</sup> "Meat, Beef & Poultry Processing in the US Industry – October 2013." IBIS World. Retrieved on 16<sup>th</sup> December 2013. <<http://www.prweb.com/releases/2013/10/prweb11223040.htm>>

<sup>13</sup> "AMERICAN EATING TRENDS REPORT – July 2012". International Market Bureau. Retrieved on 16<sup>th</sup> December 2013. <<http://www.ats-sea.agr.gc.ca/amr/6215-eng.htm>>

### 3. Livestock & Poultry Production in Iowa

As per the USDA summaries, the Chicken population statistics for the state of Iowa for the years 2006–2010 is represented in table below:

**Table 5: details of the chicken population in Iowa over the years**

	2006	2007	2008	2009	2010
Numbers in 1000s					
Chicken*	61,605	64,958	65,429	65,972	66,118

**Source:** Livestock and Poultry Population Iowa State

#### Insights

- a) There has been a constant increase in the population of the chicken, which reflects that the demand of the chicken has also risen over the years.<sup>14</sup> However, these numbers should be taken with a grain of salt as much of Iowa poultry population is dedicated to egg production or contract broiler production. As such, much of this poultry will not be available to any potential MPPU looking to operate in Iowa.

#### 3.1 Mobile Poultry Processing in Iowa

While the niche market for locally grown pastured poultry continues to grow, convenient and affordable processing remains a serious challenge for small-scale poultry producers, preventing many from accessing this important market niche. Throughout the US, farmers and service providers have turned to MPPUs to enable smaller producers to process their own products on their own farms, allowing them to take advantage of this value added on-farm enterprise. Many small poultry processing plants have closed, in large part because of challenges finding laborers and sufficient birds to make a profit. Without these processing plants the farmers are unable to provide processed poultry to grocery stores, farmers markets, or institutions.<sup>15</sup> This comes at a time when the demand for local, fresh and sustainable poultry is increasing.

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<sup>14</sup> "Livestock and poultry population", Iowa State University, retrieved on 23rd Dec 2013, <http://www.extension.iastate.edu/agdm/livestock/html/b2-55.html>

<sup>15</sup> "On-Farm Poultry Processing for Home Use" Practical Farmers of Iowa, retrieved in 23rd December 2013, <http://practicalfarmers.org/blog/2013/on-farm-poultry-processing-for-home-use>

## **4. Operations Plan**

### **3.1 Infrastructure Plan**

The poultry processing facility has two parts: the farm, where the processing is to take place and the mobile processing unit. The property is an important piece that, when put together with the MPU, facilitates the legal sale of the poultry product.<sup>16</sup> Some of the processes involved while operating the MPPU and processing the Poultry are:

#### **Pre-slaughter**

Processing poultry begins by withdrawing feed prior to slaughter to reduce the amount of feed in the gut and reduce the likelihood of fecal contamination if the gut tears during processing. Feed should be withheld for 8-12 hours prior to slaughter.

Inspect the live birds to ensure all birds are healthy with no signs of disease, defects or damage. All suspect birds need to be separated and treated, or destroyed. The MPU cannot be used to process these birds.

#### **Immobilizing, Killing and Bleeding**

##### **Equipment used-Stunning Knife, Kill Cones and Racks**

The bird is placed head downward in a killing cone, a funnel-like device that exposes the head and neck of the bird while restraining its wings. The bird's wings should be folded down and inserted in the cone to prevent the bird from flapping its wings, which can cause hemorrhaging or broken bones, or cause it to back out of the cone.

Using a sharp knife slit the neck skin and the veins and arteries underneath. The bird rapidly bleeds to death as the heart pumps the blood from the body.

#### **Blood Recovery**

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<sup>16</sup> "Mobile Processing Unit" Montana Poultry Growers cooperative's Retrieved on 19th Dec, 2013  
<http://www.chicken.coop/wp-content/uploads/2010/05/Poultry-Manual-web.pdf>

Blood can be collected in a bucket and can be used in composting. Allow birds to bleed out completely.

## **Scalding**

### **Equipment Used - Scalding**

The next step in processing is scalding, which serves to loosen the feathers. The scalding will be set at 145-150°F with a timer of approximately 30 to 60 seconds. It is important to maintain the proper water temperature while processing birds to have the desired effect. The feathers on a properly scalded bird will be easy to remove by hand. If the scald water is too cool, the feathers will not pick easily. If the water is too hot, the skin will tear in the plucker.

## **Plucking**

### **Equipment Used-Plucker**

After removing the birds from the scalding they can be placed in the drum plucker. Plucking can be completed in 20-30 seconds. A drum plucker will defeather 3-5 chickens or 2 turkeys at a time. Poultry should be placed in covered containers before transfer to the evisceration unit.

## **Eviscerating**

### **Equipment Used-Eviscerating Table**

- The goal is to remove internal organs without tearing or cutting the intestines and organs.
- Pull out viscera and inspect for tumors, lesions or other abnormalities. Check heart, liver and small intestine. If abnormalities are present the bird must be discarded. If required, separate the giblets (heart, liver, and gizzard) and place remaining viscera in waste bucket.
- Rinse bird and place in chill tank. If giblets were saved, rinse and chill. Pass bird to quality control table. If any contamination with fecal matter occurs, the bird must be tagged, washed thoroughly and placed in a separate chill tank.

## **Quality Control**

### **Equipment Used-Chill Tanks**

- Remove lungs, head, feet and neck and place in waste bucket.
- If reserving the neck, either cut it off and place in chill tank or leave on the bird.
- Inspect body for any bruising, breaks or skin blisters and remove as necessary.
- Pull off any remaining pinfeathers. Rinse bird thoroughly, inside and out and then inspect body cavity and rinse again as necessary Place bird in chill tank.

### **Packaging Operations**

- Once birds' temperatures drop below 40°F, remove them from chill tank and allow excess water to drain. Place neck and giblets (if being sold with the bird) in the body cavity or package separately.
- Place birds in appropriately sized bags. Seal bag and vacuum pack.

### **Labeling**

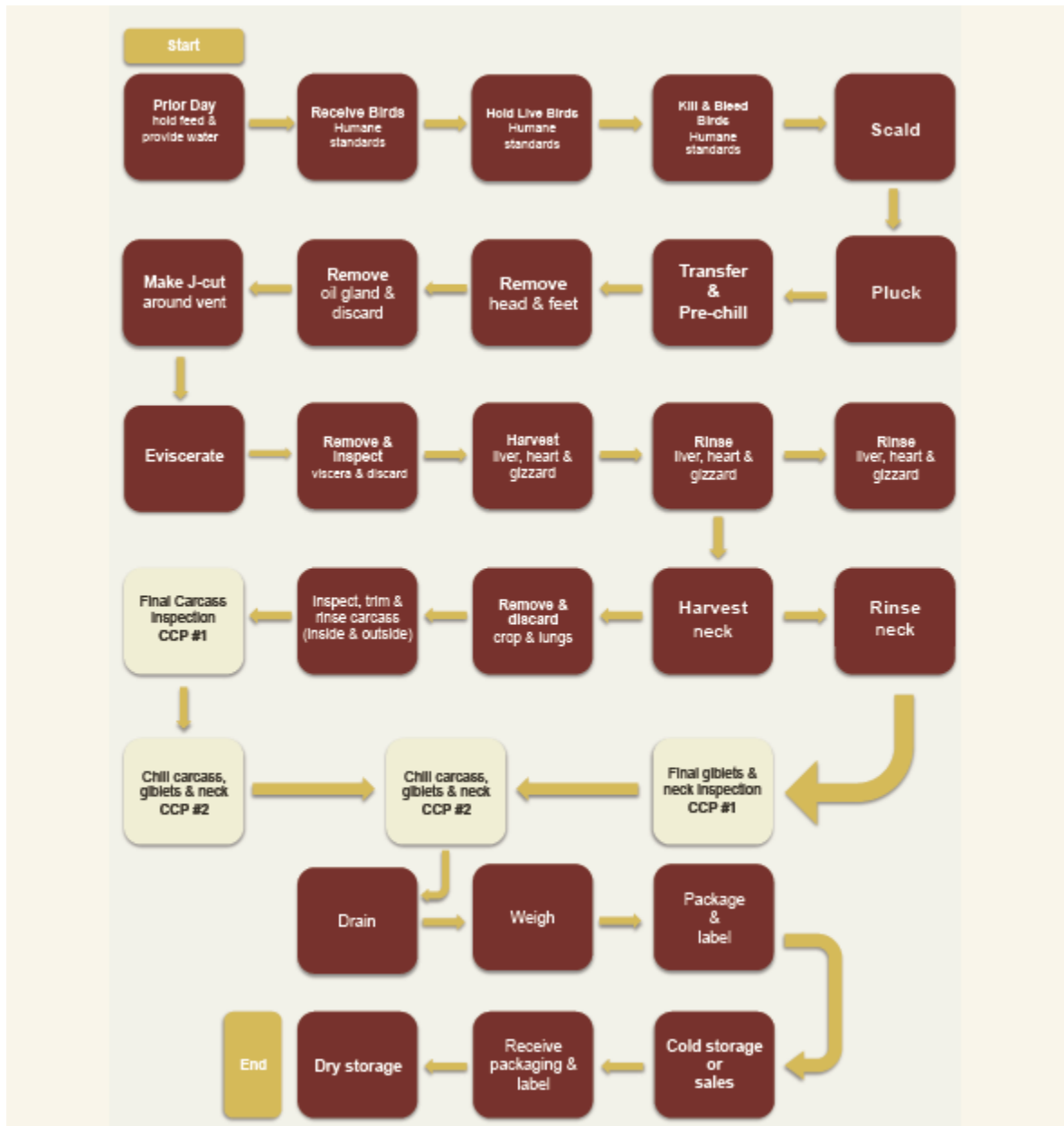
Weigh and record the bird and any pieces, and apply label.

### **Storage**

Place bird in cooler if holding for a customer, or under refrigeration for transport

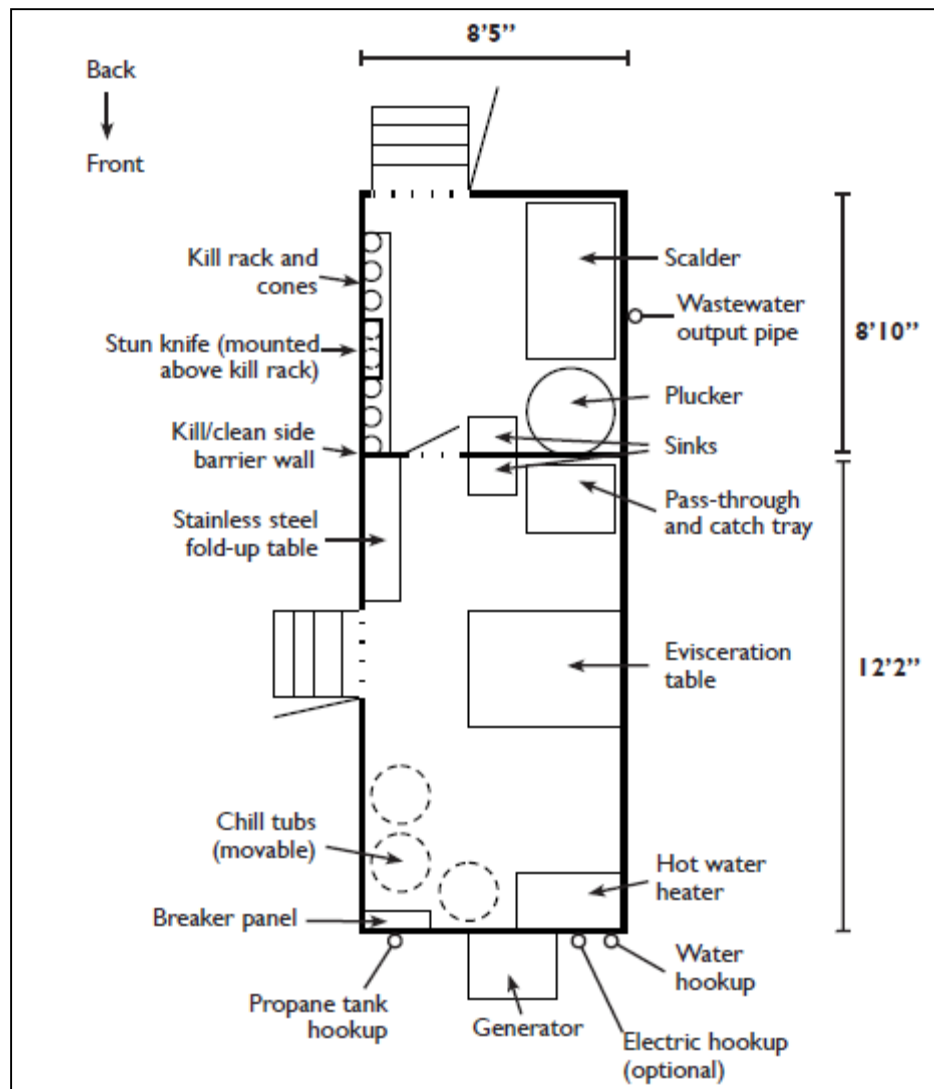
Process Flow of the Poultry Processing Unit is shown in the diagram below:

Figure 2: The process flow of the operations in the Mobile Poultry Processing Unit





**Figure 3: Sample Floor Plan of an Enclosed Mobile Poultry Processing Unit**



*Source: MPPU replication Guide*

Every plant floor should be designed in such a way as to support a smooth transition from slaughter, through scalding, plucking, pre-chilling, evisceration, and finally to chilling and packaging. Any MPPU should be separated by a removable barrier between the two activity areas..<sup>17</sup>

<sup>17</sup> "As Built in Guide to the Lampson Brook Farms Community" Mobile Poultry Processing Unit." Small farm.org retrieved on 24<sup>th</sup> Dec, 2013 <http://www.smallfarm.org/uploads/uploads/Files/as%20built%20final.pdf>

**Processing equipment used in the above set up are:**

Scalder: Ashley Sure-Scald AM30 (stainless steel) (125k BTU) \$9,000

Plucker: Pickwick SPJ3 Picker (stainless steel) \$6,600 (w/ stainless steel catch table)

Stun knife: Knase SKVS Electric Stunning Knife \$2,150

**Kill station**

Ashley Machine wall mount/catch basin (stainless steel) \$2,390

Knase stainless steel killing cones \$1,068

(6) For hens (15" long x 10" diameter at top), @ \$56/ea

(8) For broilers (16" long x 12" diameter at top), @ \$65/ea

(2) For turkeys (21" long x 11" diameter at top) @ \$106/ea.

**Evisceration table**

Ashley Machine 57" x 42" table with sloped gutter and offal chamber \$2,595

**Chill tubs: \$630**

(8) Brute 55 gal. tubs (white, food-grade plastic) @\$42/ea

(8) Brute dollies @32/ea

(2) Brute lids @\$19/ea

Subtotal: \$24,433

**Trailer components and specifications:**

Basic Specifications

2010 Brothers Custom Poultry Processing Trailer, Tandem Axle, Single Wheel

14,000 lb. GVWR, 14,000 lb. GAWR Tandem Axles, Std

Estimated Curb Weight – 9,000 Lb. (including all equipment)

Overall Dimensions - 30 ft. Length x 102 in. Width x 154 in. Overall Height (with exhaust fans)

Interior Dimensions - 25 ft., 4 in. Length x 98 in. Width x 96 in. Height

Platform Height from Ground - 38 in

Road Clearance Height from Ground - 13 in

Sample daily log that can be used for Pre and Post Operational Inspection and documents

Farm:				
Date:				
	PRE-OP INSPECTION/ CLEAN-UP: (Initial)	CLEAN/RINSE/ SANITIZE: (Initial)	POST OP INSPECTION/ CLEAN-UP/STORAGE: (Initial)	NOTES/CORRECTIVE ACTIONS REQUIRED and COMPLETED
		Pre-Op      Post-Op		
Killing cones		/		
Scalder and plucker		/		
Knives, implements and utensils		/		
Evisceration and work tables		/		
Chilling and holding tanks, tubs, etc.		/		
Cleaning and sanitizing equipment		/		
Pipes; hoses; water, propane and electric systems, backflow devices; floor, etc.		/		
Sanitary facilities		/		
<p>For each day of use, both before (pre-operation) and after (post-operation) use:</p> <p>1. Personnel visually inspect all water, electric and propane systems, and all processing equipment utensils for cleanliness and operability, and documents (initial log). Post-operation: picks up feathers and other matter, and removes receptacles for inedible material and trash. Document.</p> <p>2. Personnel clean, rinse and sanitize all product contact surfaces, equipment and utensils. Repeats if necessary. Post-operation: applies edible oil to all surfaces subject to corrosion. Stores supplies. Document.</p> <p>3. Producer-processor verifies, signs and dates.</p> <p style="text-align: right;">Signed/Date: _____</p>				

## Sample Daily Log: Operational Sanitation Maintenance

These logs can be maintained to keep the data on a regular basis about the

**Sample Sanitation and Maintenance daily log is listed below:**

Potential Hazard/Event* if any	Corrective Action**Required and Completed	Sign/Date

Examples:

1. Hazard: carcass falls to the floor.

Corrective action: immediately pick up carcass and wash/rinse thoroughly before further processing. Document in Log.

2. Hazard: poultry intestines are nicked during evisceration, contaminating evisceration table and utensils with fecal matter.

Corrective action: wash, rinse and sanitize processing area and utensils. Document in Log.

3. Hazard: area of unit or piece of equipment becomes contaminated.

4. \*\*Corrective Action: Clean, rinse and sanitize, as per Pre-Operational Sanitation Procedures. Maintain clean and sanitary conditions throughout the daily operation. Document corrective action in Log. Producer-processor verifies, signs and dates<sup>18</sup>

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<sup>18</sup> "<http://www.mass.gov/eohhs/docs/dph/environmental/foodsafety/food-farm-safety-mngmt-guide.pdf>"

## 3.2 Sample budget for a small scale Poultry Equipment

**Table 7: Sample Budget for MPPU**

<b>Sample Facility \$40,000</b> - bigger batch size on kill side (4 birds vs. 3 birds) Equipped to process turkeys, Stun knife for Animal Welfare Approved slaughter. More workspace for evisceration Farmer isn't solely responsible for chill tanks			
<b>Equipment type</b>	<b>Model</b>	<b>Cost (\$)</b>	<b>Notes</b>
Killing (cones)	Featherman/Cornerstone stainless steel Broiler/Roaster cones (8 @\$47/ea.) + turkey cones (2@ \$52)	\$480	Allows 4 birds to be "on deck" in the cones; up to 2 turkeys at once
Killing (rack/trough)	Homemade (w/ stainless steel backing and trough)	\$150	Needs to be big enough to accommodate 8 cones simultaneously
Killing (stun knife)	Knase SKVS electric stunning knife	\$1,995	
Scalding	Poultryman 30"	\$3,325	Up to 12 chickens; 6 broilers comfortably; 2 turkeys
Plucking	Poultryman plucker (stainless, 30")	\$2,275	4-6 broilers, 1-2 turkeys
Evisceration	Brower stainless steel foldup eviscerating table (2 @\$1,000)	\$2,000	Fits at least four eviscerators working at once, tables can be packed up afterward
Chilling	Featherman chill tub	\$350	300 gal. (200 chickens maximum); farmer required to provide chilling for any additional birds
	<b>Total equipment cost</b>	<b>\$10,575</b>	
	<b>Remaining (for trailer and miscellaneous costs)</b>	<b>\$29,425</b>	

Source: "Mobile Poultry Processing Unit-Replication guide". [www.nesare.org](http://www.nesare.org). Retrieved on 18<sup>th</sup> Dec, 2013  
<http://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=15&ved=0CH4QFjAO&url=http%3A%2F%2Fwww.nesare.org%2Fcontent%2Fdownload%2F67272%2F952270%2Ffile%2FMPPU%2520Replication%2520Guide.pdf&ei=0KqyUrLNIYmtrAew94D4BQ&usg=AFQjCNEBFxsRf48RKtCkDSxwYkEt3saiVw&bv m=bv.58187178,d.bmk&cad=rja>

## 3.3 Legal Compliance Planning

The Inspection and the limitations for processing the Poultry are represented below in Table 3.

**Table 8: Inspection and Limitations of the Poultry Processing Units in Iowa**

Summary of inspection types and limitations in the state of Iowa							
Criteria	USDA Inspected	State of Iowa Inspected	Custom Exemption	Producer/ Grower 1,000 bird Exemption	Producer/ Grower 20,000 bird Exemption	Producer/ Grower or other person Exemption	Small Enterprise Exemption
<b>Slaughter limit</b>	No limit	No limit	No limit	Yes 1,000 per calendar year	Yes 20,000 per calendar year	Yes 20,000 per calendar year	Yes 20,000 per calendar year
<b>Further processing</b>	Yes	Yes	Yes	Yes	Yes	Yes	Whole and cut up poultry only
<b>Sell to home consumer</b>	Yes	Yes	No	Yes	Yes	Yes	Yes
<b>Sell at farmers' market</b>	Yes	Yes	No	No	Yes	Yes	Yes
<b>Sell to any HRI*</b>	Yes	Yes	No	No	Yes	Not to all HRIs**	Yes
<b>Sell to distributor</b>	Yes	Yes	No	No	Yes	No	Yes
<b>Sell to retail store</b>	Yes	Yes	No	No	Yes	No	Yes
<b>Interstate sale</b>	Yes	No	No	No	No	No	No

Source: <http://www.extension.iastate.edu/publications/pm2068.pdf>

\* HRI = Hotels, Restaurants, and institutions

\*\* Product produced under the producer/grower or other person exemption may not be sold to institutions.

### Poultry Seller Licenses Information

Depending on how poultry is to be sold, there are four possible licenses a poultry seller may need from the Iowa Department of Inspections and Appeals, Food and Consumer Safety Bureau.

**Table 9: The licenses required in Iowa under different conditions**

<b>Iowa Department of Inspections and Appeals Licenses</b>	
<b>If the operator wants to . . .</b>	<b>License Needed</b>
<b>Sell poultry directly to home consumers</b>	No license needed
<b>Sell poultry at a farmers' market</b>	Farmers' Market License or Mobile Food Unit License
<b>Sell poultry at retail store</b>	Retail Food Establishment License
<b>Sell and distribute poultry to retail stores and/or HRIs*</b>	Warehouse License**

Source: <http://www.extension.iastate.edu/publications/pm2068.pdf>

\*HRI = Hotels, restaurants, and institutions.

\*\*A Warehouse License is NOT needed if the operator has a Retail Food Establishment License for the same premises.

Some important points for the State of Iowa related to poultry processing are:

- 1) Iowa accepts the federal exemptions for poultry processing. If not undergoing inspection by the USDA or State of Iowa, a producer may fall under one of five exemptions. Details for the exemptions are in Table 6.
- 2) The Iowa Department of Inspections and Appeals, Food and Consumer Safety Bureau provides four different licenses depending on where poultry is sold.
- 3) Iowa follows the USDA sanitation requirements. In addition, Chapter 76 Iowa Code 21-76.5 (189A) provides sanitation standard operation procedures for custom-exempt facilities. Iowa-inspected custom-exempt facilities shall develop and implement a sanitation standard operation procedure (SSOP) in a manner consistent with Section 416.12, Title 9, Chapter 111, and USDA regulations Code of Federal Regulations (see below).

## **Iowa Department of Inspection and Appeals**

Food and Consumer Safety Bureau

Lucas Bldg, 3rd F, 321 East 12th Street

Des Moines, Iowa 50319

Phone: (515) 281-6538

[www.state.ia.us/government/dia](http://www.state.ia.us/government/dia)

Iowa Department of Agriculture

Iowa Meat and Poultry Inspection Bureau

Wallace State Office Building

502 East 9th Street

Des Moines, Iowa 50319

Phone: (515) 281-3338

[meatAndPoultry@iowaagriculture.gov](mailto:meatAndPoultry@iowaagriculture.gov)

[www.iowaagriculture.gov/meatAndPoultryInspection.asp](http://www.iowaagriculture.gov/meatAndPoultryInspection.asp)

**Dr. Gary M. Johnson, Bureau Chief**



## **Good Manufacturing Practices-MPPU**

Good Manufacturing Practices should be followed in order to provide wholesome poultry to consumers. These guidelines are designed to help the Mobile Poultry processing operators create a processing environment that can meet stringent regulatory requirements for the safe and sanitary processing of a potentially hazardous food. The Good Manufacturing practices are listed below:

- a) Training must be provided to the personnel involved in the processing of poultry.
- b) Hygiene and Hygiene Policies should be established for the processing personnel. Eg. Personal hygiene practices, proper work attire personal cleanliness, hygienic hand practices etc.
- c) Maintaining a clean processing unit. For examples, an MPPU can be set up and arranged in such a manner that there is an easy and direct movement of the processed poultry to the storage area.
- d) Pest Control both inside and outside the processing environment
- e) Access to the MPPU should be limited to only the processing personnel. Non processing personnel access should not be allowed beyond the poultry holding area. Measures like prohibition on alcohol consumption, smoking and chewing gum also prevents any accidents during poultry processing.
- f) Potable water should be used for drinking, cleaning and sanitizing purpose. Proper care should be taken to avoid the contamination of water.
- g) Processing equipment and utensils should be maintained in good condition, so that they can perform effectively and can be used for a longer duration.
- h) All supplies and materials used in the cleaning, packaging and sanitizing area should be kept in secure storage areas with clear labels.
- i) Some states require a wastewater and solid waste management plan for an MPPU. A plan to manage the processing wastes is recommended.

## **5. Management Plan**

The small scale MPPU could employ several people to cater to different needs and work. Some of the main employees involved would be:

- a) Manager
- b) Stunning and Killing Employees
- c) Plucking and Scalding Staff
- d) Eviscerating Staff

### **Roles and Responsibilities**

- a) The manager is the person responsible for all aspects of the plant.
  - 1) Should have at least a Bachelor's degree. Though it is not mandatory for him to be that qualified.
  - 2) Should be understand USDA or state inspection regulations. (HACCP is a big part of this)
  - 3) Should inspect each department and confirm that equipment is functioning properly.
  - 4) Manage employees and training programs.
  - 5) Should be able to manage finances and anticipate cash flow.
  - 6) Responsible for sales of MPPU services/meat
- b) Kill Area Personnel
  - 1) Responsible for the stun, kill and proper bleeding of poultry
- c) Scalding Personnel
  - 1) Responsible for treating poultry in the scalding. Care has to be taken for the proper scalding as it is required to meet the proper temperatures and scald enough so that the feathers can be plucked properly. The ability to monitor and adjust water temperature is required.
- d) Plucking Personnel
  - 1) Responsible, in conjunction with the scalding operation, for de-feathering birds and delivering high quality without broken skin.
- e) Evisceration Personnel

Individuals at the evisceration table remove the internal organs of the poultry. Hearts, livers, gizzards, and necks may also be cleaned and packaged in evisceration. Evisceration tends to be the bottleneck of the small processing operation in terms of time and labor. It may take four efficient eviscerators to keep up with one efficient kill side operator—possibly more if the eviscerators are inexperienced. Duties at the evisceration table might include:

- 1) Slit necks, detach from crop and deposit into evisceration trough
- 2) Cut round vents and open aperture
- 3) Draw out viscera but leave it attached to the carcass
- 4) Remove liver, hearts and gizzards and place them in the appropriate giblet trays
- 5) Detach inedible offal and allow it to fall into the evisceration trough.
- 6) Inspect inside the carcass, remove remainder of lung tissue, remove head and place in evisceration trough

f) Chilling Personnel

Responsible for placing the processed poultry in the chill tank and maintaining it at a proper temperature

d) Packaging Personnel

Responsible for tying, banding, or trussing process poultry

Responsible for bagging , weighing, and sealing poultry

## **6. Marketing Plan**

The Mobile Poultry processing units are targeted towards many consumer categories like individual families, small scale farmers/producers and restaurants etc. Below is a brief snapshot of poultry consumption characteristics:

### **Chicken Consumption demographics 2012:**

- According to the United States Department of Agriculture (USDA), the established trend towards increased poultry consumption will continue, rising from 100.3 lbs. per capita in 2010 to 109.3 lbs. in 2020.

- The greatest gains will be in chicken, as the consumption of turkey is projected to remain fairly consistent, at approximately 16 to 17 lbs. per person until 2020 (USDA Agricultural Projections to 2020, 2011).

- Within chicken consumption there has been a move from fresh to more processed products. In 2000, 72% of eating occasions involved fresh chicken, as opposed to processed (15%), while in 2010, 68% of the occasions were associated with fresh as opposed to processed (22%) chicken.

As per the statistics from Symphony IRI Chicken Council Survey, the per head spent on Chicken in the US had increased from \$68.0 in 2009 to \$71.8 in 2011.

This shows that there is a trend of increasing consumption of chicken in US and a hence a clear demand.<sup>19</sup>

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<sup>19</sup>“ Spending on Chicken increases”, National Chicken Council, Retrieved on 26th Dec, <http://www.nationalchickencouncil.org/wp-content/uploads/2012/01/Blischok-Symphony-IRI-NCC-Annual-Conference-2011.pdf>

## **6.1 The Target Market for the Mobile Poultry Processing Unit**

The potential target customers of the Mobile Poultry Processing Unit are:

- 1) Small scale farmers and producers who do not have poultry processing facilities in their vicinity would be on target market. They would either purchase the unit or use it on a rental/lease basis and pay accordingly to the owner of the unit. Processing is a big barrier for many would-be small-scale poultry producers. As daunting as butchering hundreds of chickens in their kitchen might be, it's even harder to justify the expense of building dedicated processing facilities when they're just starting to enter their market.
- 2) Restaurants are the important consumers of locally processed chicken. Restaurant demand for fresh processed poultry is constantly on rise. Sustainable poultry can help restaurants to differentiate themselves from other restaurants.
- 3) Institutions: Many institutions are interested in sourcing more sustainable poultry. Institutions are often good places to send lower cost dark meat cuts.
- 4) Direct to Consumer Markets: Farmers markets, CSAs, or al-la-Carte direct to consumer markets can represent lucrative markets for an MPPU.

## **Marketing/Promotional Strategy**

Some of the promotional strategies that can be adopted for the Mobile Poultry Processing units are:

### **a) Online Website and Social Media Marketing**

A MPPU website enables one individual to successfully reach significantly more people at a lower cost than traditional forms of advertising. People could read about the mobile poultry set up, the advantages, the reduced cost of transportation, and the economic rate of the processed poultry.

**b) Holding Farmer Meetings** where new ideas and problems of small scale farmers will be heard and solutions would be discussed. Meetings and forums organized by the MPPU owner would help inform a major target market of the opportunity to participate in mobile poultry processing in their area.

### **c) Showcasing MPPU around the region**

The MPPU can itself be moved to different places where people would see the MPPU and learn about its advantages.

### **d) Word of Mouth Promotion**

For small scale MPPUs, word of mouth marketing is one of the most effective promotional techniques. Happy customers can be asked to give referrals to other growers.

## **6.2 Pricing Strategy**

**One typical example of pricing is described below (as provided by the Kentucky Mobile Processing Unit):**

Price of Services:

\$75 for first 50 chickens, \$0.75 each additional

\$75 for first 15 turkeys, \$3.50 each additional

(Cost includes gas, water, electricity, aprons, booties, cleaning).

The unit has a vacuum packaging machine-

Bags are \$0.22 each.

\$75 for the first 2 years of training, \$50 after that (every user, every two years)

There is a flat \$75 fee to rent the unit for aquaculture processing.<sup>20</sup>

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<sup>20</sup> “ Kentucky Mobile Processing Unit”, Extension.org, Retrieved on 26<sup>th</sup> Dec 2013,  
<http://www.extension.org/pages/16092/kentucky-mobile-poultry-processing-unit>

## 7. Financial Feasibility

Financial Feasibility helps the project owners to decide if the project is financially viable. The operational budgets were calculated based on the samples provided by MPPU units in the US.

An important component of the financial feasibility is the fixed costs\* involved with the unit. The following table shows these fixed expenses on both a total and per bird basis. The per-bird units were calculated using an annual production rate of 5,000 birds. Depreciation on the mobile processing unit was the most expensive fixed cost at just over \$11,000 annually. Interest was second most costly expense at over \$5,000. Total annual fixed costs came in at over \$18,000. Table 8 outlines the fixed costs associated with the mobile Poultry Processing units:

**Table 10: Fixed Costs associated with MPPU**

MPPU Fixed Costs		
MPU Fixed Expenses (Assuming 5,000 Birds)	Expense Per Bird in \$	Total Expense in \$
Taxes & Insurance	0.19	950
Depreciation – Plant Equipment	2.2	11,000
Interest on Investment –	1.0	5,000
Health Department Fee (to be enquired)	0.24	1,200
<b>Total</b>	<b>3.63</b>	<b>18,150</b>

*Source: The Financial Feasibility of a Mobile Processing Unit in Hancock County, Georgia.*

\*Fixed costs are the costs that remained the same irrespective of the output level, sales revenue etc.

### **Table 9 shows the direct labor costs associated with the Mobile processing unit**

Labor cost is one of the most expensive direct costs associated with using this MPPU. If the MPPU is handled by the family members and minimal members are employed at the MPPU, then this expense can be brought down drastically.<sup>21</sup> Table below shows the total labor cost for processing 5,000 birds

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<sup>21</sup>"Cost Estimates for the Mobile and Stationary Units", extension.org, Retrieved on 23<sup>rd</sup> Dec 2013, <http://www.extension.org/pages/19182/cost-estimates-for-the-mobile-units-stationary-fabrication-facility>



**Table 11: Direct Labor costs associated with MPPU**

<b>MPPU Direct labor Expenses</b>	
Labor Cost	Annual salary
Staff at the killing section	\$27,056
Evisceration	\$20,000
plant HACCP coordinator	\$40,000
Taxes & benefits (15% of total salaries)	\$13,058.40
<b>Total direct costs as Salary</b>	<b>\$100,114</b>

*Source: Cost estimates for the mobile units*

Apart from the costs discussed, there are other direct costs associated with the processing unit. These costs vary with the usage of electricity, natural gas, water in the processing of the unit.

Table 10 shows these costs which include LP gas, electricity, water for processing, septic tank disposal, and miscellaneous supplies. Repairs and maintenance were estimated to be three percent of the cost of the MPU, ranged between \$900 and \$1,800 depending on the type of MPPU (Open Air or enclosed mobile Poultry processing Unit) chosen.<sup>22</sup>

**Table 12: Other Direct costs associated with MPPU**

Electricity	\$4,000
LP Gas	\$1,000
Water	\$2,000
Miscellaneous Supplies	\$6,000
Septic Disposal	\$300
Repairs & Maintenance (3% of Equipment cost) Open Air	\$878.52
Repairs & Maintenance (3% of the Equipment Cost) Enclosed MPPU	\$1,800
Total of Other Direct Costs (if An Open Air 29,284 budget)	\$14,179
Total of Other Direct Costs (if Enclosed MPPU 60,000 budget)	\$15,100

*Source: The Financial Feasibility of a Mobile Processing Unit in Hancock County, Georgia*

<sup>22</sup> The Financial Feasibility of a Mobile Processing Unit in Hancock County, Georgia" caes.uga.edu retrieved on 30th Dec, 2013, <http://www.caes.uga.edu/topics/sustainag/documents/MobilePoultryProcessor.pdf>

The next two tables shows the total costs of the equipment/units for the Mobile processing units for both open Air and enclosed Poultry Processing Unit.

Costs Involved in an Open Air Poultry Processing Unit:<sup>23</sup>

**Table 13: Costs of the Equipments and units associated with the Open Air MPPU**

<b>Budget Summary of an open Air MPPU</b>	
Utility trailer, composite decking & stabilizer legs	\$6,140
Killing cabinet & turkey cone	\$1,045
Poultryman rotary scalders	\$2,495
Poultryman plucker	\$1,795
2 eviscerating tables	\$910
4 trigger nozzle flush valves with lung scrapers	\$250
2 pedal-operated hand sinks	\$595
4 double-wall chill tanks with covers	\$1,846
10-gallon hot water heater	\$450
Propane tank rack & changeover valve	\$78
Double check backflow preventer	\$119
Water meter	\$250
Pintle hook	\$85
Work area barrier	\$40
Food grade hose (4 50'; 2 25')	\$160
Custom fabrication & construction services & supplies	\$10,000
Sub Total	\$26,258
<b>Other Units Cost</b>	
Knase electric stunner unit	\$2,150
Work table	\$38
Sump pump & hose	\$250

<sup>23</sup> "Budget Summary for Open Air Poultry Processing Unit", smallfarm.org, retrieved on 26<sup>th</sup> Dec, <http://www.smallfarm.org/uploads/uploads/Files/as%20built%20final.pdf>

Turkey cooker	\$70
Propane torch	\$78
2 cargo boxes	\$90
2 tarps	\$70
Miscellaneous supplies	\$280
Cost	\$3,026
Total Costs of all The units required in the processing	\$29,284

**Source:** Budget Summary for Open Air Poultry Processing Unit

Costs involved with the enclosed Mobile Poultry Processing Unit<sup>24</sup>

**Table 14: Costs of the Equipments and units associated with the Enclosed MPPU**

Killing (cones)	Featherman/Cornerstone stainless steel Broiler/Roaster cones (8 @ \$47/ea.) + turkey cones (2 @ \$52/ea.) + game bird cones (8 @ \$30/ea.)	\$720	Allows 4 birds to be "on deck" in the cones; equipped for turkeys, game birds, and spent laying hens
Killing (rack/trough)	Ashley wall mount and catch basin (stainless)	\$2,220	Fits 8 broiler cones in a row, with rack for extra cones; stainless steel wall and trough contain blood and make cleanup easier
Killing (stun knife)	Knase SKVS electric stunning knife	\$1,995	
Scalding	Ashley SureScald, 30" (galvanized)	\$5,170	Up to 12 chickens; 6 broilers comfortably; 2 turkeys
Plucking	Ashley SP30 (galvanized, 30")	\$6,900	4-6 broilers, 1-2 turkeys; motor next to drum (not under) for easier feather cleanup
Evisceration	Ashley four-person stainless steel table	\$2,495	Fits four eviscerators working at once
Chilling	Bonar PB30 Cooler (2 @ \$550)	\$1,100	224 gal. (about 145 chickens maximum) each - can fit close to 300 chickens; insulated
	<b>Total equipment cost</b>	<b>\$20,600</b>	
	<b>Remaining (for trailer and miscellaneous expenses)</b>	<b>\$39,400</b>	

<sup>24</sup> "Building an on Farm Poultry Processing Facility". Retrieved on 28th November 2013. [www.nesare.org](http://www.nesare.org)  
[http://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCgQFjAA&url=http%3A%2F%2Fwww.nesare.org%2Fcontent%2Fdownload%2F67272%2F952270%2Ffile%2FMPPU%2520Replication%2520Guide.pdf&ei=N RmcUui2KcH\\_rQfGvIHodg&usg=AFQjCNEBFxsRf48RKtCkDSxwYkEt3saiVw&bvm=bv.57155469,d.bmk&cad=rja](http://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCgQFjAA&url=http%3A%2F%2Fwww.nesare.org%2Fcontent%2Fdownload%2F67272%2F952270%2Ffile%2FMPPU%2520Replication%2520Guide.pdf&ei=N RmcUui2KcH_rQfGvIHodg&usg=AFQjCNEBFxsRf48RKtCkDSxwYkEt3saiVw&bvm=bv.57155469,d.bmk&cad=rja)

**Table 15: Additional Operational costs**

<b>Additional Operational one time costs</b>	
Trailer hitch for HPI Truck to haul	\$450
Docking station for Trailer	\$2,000.00
Legal fees and Insurance	\$3,500.00
Tags & License	\$300
Total Additional Operational One Time Costs	\$6,250.00

**Table 16: Total cost of the Equipments and Operations in MPPU<sup>25</sup>**

Equipment Listing and Cost (taking open Air MPPU into consideration)	\$29,284.00
Additional Operational One Time Costs	\$6,250.00
Equipment Subtotal	\$35,534.00
Sales Tax 7%	\$2,487.38
<b>Grand Total for Equipment</b>	<b>\$38,021.38</b>

**Table 17: Total direct and fixed costs for operating an MPPU**

Total Direct Labor Expense	\$100,114
Total Other Direct Costs	\$15,100
Total Fixed Costs	\$18,150
<b>Total MPU Costs</b>	<b>\$133,364</b>

So, the total costs of setting up a prospective MPPU could be **\$171,385.38** in this sample.

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<sup>25</sup> The Financial Feasibility of a Mobile Processing Unit in Hancock County, Georgia