

Pastured Poultry in an Integrated Food Production System

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INTRODUCTION

The documented health benefits of organically or semi-organically produced poultry, and grass fed animals in general, have led to a substantial increase in consumer demand for poultry products that are raised on pasture. This increase has alerted some producers and manufacturers of poultry products to adopt alternative ways to produce poultry that is more wholesome and environmentally- friendly. Pastured poultry are one of these alternative methods of producing poultry, especially for small-scale farmers with limited resources.

Pastured poultry is a sustainable agricultural production system that includes raising chickens or other poultry on pasture, as opposed to indoor confinement. Generally, the poultry is raised in bottomless cages directly on fresh pasture and fed daily without medication or growth promoters. In this bulletin, we hope to inform the existing and the prospective small-scale farmers about the materials, the management practices, and the economic advantages of the pastured poultry system. This system would be an excellent supplementary enterprise on a diversified farm business, especially for farmers who are already marketing other farm products directly to customers.

Also, an attempt will be made to enlighten the general public about the health benefits they can receive from the consumption of pastured poultry products.



Figure 1. An example of a bottomless pen constructed with PVC pipes, poultry netting, and tarpaulin roofing.

MATERIALS

A functional pastured poultry operation includes the following materials:



Figure 2. An example of a commercially produced bottomless pen. Note the air holes in the side of the pen, which are needed for proper ventilation.

A. Bottomless pens

The pens could be built in several ways:

1. With pressure treated soft wood, poultry netting, and aluminum roofing material.
2. With PVC pipes, poultry netting, and tarpaulin roofing material (Figure 1).
3. Commercially produced stainless steel pens with holes to allow air flow can be purchased (Figure 2).

B. Brooder house

Brooder houses should be constructed according to need. There are many types and styles of brooder houses that range from being a simple cardboard box to a more sophisticated

battery brooder. However, all brooder houses should have an adequate source of heat and lighting, feed troughs, and water troughs for day-old and young chicks. Information on brooder house construction may be obtained from the county extension agent. Feed troughs can be constructed with wood, aluminum, or plastic material. Water troughs can be made with aluminum or plastic material.

C. Small processing unit

The equipment for a small processing unit may include a five-gallon propane, thermostatically controlled scalding machine and a table picker (Figure 2). With two people, this equipment can normally process 10 to 15 birds per hour.

D. Water

It is imperative to provide the chickens with a source of adequate, clean, and fresh water at all times.

E. Feed

A normal, balanced diet should be fed to the chickens. Nutritional information can be obtained from your local extension agent.

F. Pasture

There should be enough pastured land for the birds to go through the growing cycle. If well managed, as many as 1000 broilers can be raised on one acre of land.

G. Day-old chicks

The chicks should be obtained from a reputable hatchery.



Figure 3. An example of a small processing unit includes the killing cones, a propane tank, a propane-heated scalding machine, the plucker, and a table for evisceration (clockwise from back).

MANAGEMENT PRACTICES

The following tips and guidelines should be observed to properly raise poultry in a pastured poultry system.

A. Raising the birds in the brooder house

The brooder house should be cleaned and prepared before the day-old chicks arrive. Make sure the house is draft free, and pest-proof against rodents and other animals. The floor should be covered with wood shavings or saw dust. Other materials like hay straw or wood chips may be used, but note the disadvantages of these materials. Hay straw and wood chips tend to mat with poultry droppings quickly, which reduces manure penetration. This may cause a health hazard for the birds because they will rub and feed on their droppings. The temperature in the brooder house should be 90°F when the day-old chicks arrive. Continue with this temperature for one week. Then, reduce the heat by 5°F each week for the next two weeks. Keep the brooder dry and well lit. Feed the birds *ad-libitum*, which means that the birds should never be without feed. For the first few days, spread newspaper on the floor and spread some feed on it. This will enable the chicks to have easy access to feed. At about two days



Figure 4. Moving the pen to a fresh pasture. Caution should be taken to prevent crushing the birds.

old, remove the newspaper and let the chicks feed from the troughs. Provide clean and fresh water as soon as the chicks arrive. The chicks should remain in the brooder house for about three weeks. It is important that the chicks have access to feed and water on a continuous basis while they are in the brooder house. At about three weeks of age, transfer the broilers to the bottomless pens, which should

already be positioned on the first spot of the pasture that will be grazed by the birds for the next four to five weeks.

B. Raising the birds in bottomless pens (Pasture)

Stock the pens with a rate of 1 bird to 1.5 sq. ft. of space. To avoid problems that may arise from heat and overcrowding, the stocking rate could be decreased during the summer months. Feed the birds and provide adequate, clean, and fresh water throughout the period they spend on pasture. Move the pen to fresh pasture everyday (Figure 4). This allows even distribution of manure, and also keeps the birds clean and healthy (Figure 5). Continue this process until the broilers are ready for slaughter.



Figure 5. Clean and healthy birds in a bottomless pen.

C. Processing the broilers

Processing can be done on-farm or in a mobile processing unit. Many states allow up to 1,000 birds to be processed on a farm each year and sold directly to consumers without inspection. On-farm processing can be done outdoors on a concrete slab with a shed roof. For an average producer of pastured poultry, a set up with a combination of new, used, and homemade equipment that can process 15-20 broilers per hour would be sufficient. The equipment is usually inexpensive to obtain. No matter what method of processing is adopted, it is important to have a source of water to properly clean the birds and the equipment. To reduce the cost of refrigeration, inform customers of the processing schedule and encourage them to book their orders in advance, so that the broilers can be picked up as soon as the processing is finished.

ECONOMIC ADVANTAGES TO SMALL-SCALE FARMERS

A pastured poultry (broiler) project was conducted at the Florida A&M University (FAMU) Research and Extension Center in Quincy, FL. From this project, it was concluded that a pastured poultry system could be a good supplementary business on a diversified small-scale and limited-resource farm. Pastured poultry can benefit the small-scale farmer in a variety of ways. Some are mentioned below.

A. Startup cost

The startup cost is relatively small. Brooder houses can be constructed from various materials that range from cardboard to wood, which are all relatively inexpensive to obtain. A 12 ft. X 10 ft. X 2 ft. bottomless pen will also need to be constructed. This pen size should hold about 80 broilers. Construction of the pen can be done by the producer to save on labor cost. Pressure treated soft wood, aluminum roofing, and poultry netting are probably the cheapest materials that can be used to build the pen. Collapsible wheels may be fixed to the base of the pen or a dolly can be obtained for easy movement of the pen over the pasture.

B. Feed

In the pastured poultry (broiler) project conducted at FAMU, each bird consumed 2.4 pounds in the first three weeks of age and consumed 10.24 pounds of feed for four and a half more weeks to yield 4.99 pounds of carcass weight at slaughter, which equals 12.64 pounds of feed to produce a 4.99 pound carcass. In the conventional or indoor system of production used, each broiler consumed 15.13 pounds of feed to produce a 4.74 pound carcass at slaughter. Based on carcass weight at slaughter, a producer could save about 20% on feed cost for the birds on pasture when compared to those raised in a confined environment.

C. Medication and growth enhancers

Medication and growth enhancers are not required for pastured poultry production, which will further reduce the cost of production.

D. Manure

Since the pen is moved daily, poultry manure is spread evenly across the pasture. In the FAMU project, the new growth on the areas that were previously grazed was very green and succulent (Figure 6). This suggests that nutrients from the manure were added to the soil. The pasture could then be grazed by other livestock like goats, sheep, and cattle.

E. Price per pound from sales

According to research conducted at the University of Wisconsin, consumers are willing to pay more for meat from pastured chickens. The researchers found that producers of pastured poultry received an overall average of \$2.08/lb for their chickens, which was higher than the national retail price of \$1.54/lb for chicken sold during the same period (U.S. Department of Agriculture Economic Research Service, 1998; Center for Integrated Agricultural Systems, 2003). In another research project, it was found that most producers sell pastured poultry meat for about \$2.00/lb and are able to make a net profit of \$2.00 to \$3.00 per bird (Fanatico, 2002). One reason that could explain consumers' willingness to pay more for pastured poultry is the potential health benefits derived from consuming pasture raised chicken.



Figure 6. Note the new growth on the areas that were previously grazed (the dark green squares in the top right corner of the picture). The grass in these areas is very green and succulent.

HEALTH BENEFITS TO CONSUMERS

The demand for pastured broilers has increased in recent years as consumers are becoming more aware of the health benefits that they can receive from eating pastured poultry. The carcasses of poultry raised on pasture have been found to be free of toxic residue because they are raised without antibiotics, growth hormones, or other drugs that could accumulate in the carcasses (Salatin, 1996). Therefore, the incidence of ingesting toxic material through the consumption of pastured poultry product is very limited.

Broilers raised on pasture have been found to be high in beneficial fats and other factors that lower the cholesterol levels in humans, which may decrease the risk of coronary heart disease. Researchers have found omega-3 fatty acid, vitamin A, and a significant decrease in total fat in the pastured broiler carcass. Furthermore, consumers feel that chickens raised on grass have superior taste, and therefore, are more satisfying to eat (Chicken feed: Grass-fed chickens & pastured poultry, n.d.).

CONCLUSION

There were very few problems encountered in the poultry project at Florida A&M University. The mortality rate observed in the project was below five percent, which is the acceptable mortality rate for commercial broiler production. There are, however, some considerations that should be noted. Adverse weather conditions like rain and cold could cause health issues and death among poultry while they are on the pasture. It is important to monitor weather conditions in order to properly manage the birds. They may need to be covered during adverse conditions to reduce the amount of stress that the birds experience. In addition, the birds should be handled carefully, especially when moving the bottomless pens around the pasture.

Pastured poultry would be an excellent addition to a diversified small farm business. This system requires relatively low start up cost and is easy to manage. Furthermore, pastured poultry would

attract new customers that value organically and semi-organically produced products and offer the customers that are already doing direct purchase from the farm a larger selection of products. Pastured poultry is an economically viable enterprise for the limited-resource farmer.

For more information, please contact the University extension veterinarian by phone at (850) 599-3546, by email at ray.mobley@famu.edu or visit the Herd Health Program website at <http://www.famu.edu/herds>.

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