

Establishing a small-scale, sustainable, pastured poultry operation

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The word sustainable is defined as “a method of harvesting or using a resource that replaces and renews the resource, rather than depleting or permanently damaging it”. In agriculture, sustainability is achieved balancing ecological farming practices and economic profit with community support. Sustainable poultry farming integrates birds with the farm and land in a way that, with proper management, promotes the health and well-being of the birds, the land, the farm, and the farmer.

What are the benefits of raising pastured poultry?

Pastured chickens offer many benefits to the sustainable farm, supplying eggs and/or meat, enhancing soil fertility, and controlling weeds and insects. Advantages of raising poultry on pasture include:

Improved farm soil fertility and disease prevention. Poultry enhance soil fertility by working their manure into the soil, and they help manage crop pests by grazing on weeds and insects. Also, birds can be rotated into pasture following other livestock (such as cattle) to control fly and parasite problems.

Increased farm profitability with minimal capital investment. Pastured poultry enhance and diversify the farm operation, providing several income options with minimal investment for housing, equipment, and maintenance.

Better health for the chickens and consumers who eat their products. Pastured birds eat grasses and legumes that contain Vitamin A and omega-3 fatty acids, nutrients that are known to reduce cholesterol. Pastured birds also have more access to adequate space, fresh air, sunshine, and exercise, and thus maintain better physical health than confined birds (pastured birds require no hormones or antibiotics unless faced with acute illness). With more exercise, birds maintain a lower fat content, which is healthier for the bird and the consumer.

How do I raise pastured poultry?

The first priority of raising pastured poultry is providing the chickens with fresh pasture every day or every few days. Therefore, a key feature of a pastured poultry operation is a building and/or pasture design that

moves easily and allows the chickens to graze and benefit from frequent fresh pasture (these designs are sometimes called “chicken tractors”).

A “chicken tractor” is simply a term, popularized by author and producer Andy Lee, used to describe any type of mobile poultry housing that allows birds access to pasture or an area of the garden. This type of housing permits the chickens to work the soil like a tractor (by scratching and pecking), controlling weeds and insects, and, at the same time, supplying natural fertilizer with their manure. Many poultry producers have adapted this type of mobile housing/pasture model to their farming system in order to raise a significant number of birds for profit.

Steps to establish a successful pastured poultry operation.

Step 1. Assess your goals and resources. Begin your poultry operation by assessing your personal goals for the business (income, time availability, lifestyle, etc.) and listing your available business resources (your labor and that of family or employees, cash, skills, existing structures and systems, waste products that can be utilized profitably, etc.) on paper. By identifying your goals and assets right from the start, you establish a solid foundation upon which to build your operation and guide all your business decisions.

Step 2. Decide what kinds of poultry products you want to sell, and where you want to sell them. Once you have identified your goals and assets, you must answer three important questions:

1. To whom will you sell your poultry products? Your choices include the general public, restaurants, wholesalers, retailers, or a combination of outlets. As you answer this question, be certain to study your local markets to see what products exist and what new products are needed, assess demand and prices for existing products, and identify possible niche markets you might serve.
2. Where do you want to sell your poultry products? Do you want to sell directly from your farm, at some venue off the farm (like a farmers’ market), or through wholesale distributors? The answer to this question will strongly influence the size, scope, and design of your operation.
3. Do you want to sell eggs, meat, or both? The answer to this question (decided largely by the customers and markets you choose in Questions #1 and #2) will determine the chicken breeds you raise and may affect the design of your housing, pastures, and processing facilities.

Most producers will tell you that direct marketing is the most effective, profitable, and rewarding way to sell your products. By establishing direct contact with your customers on your farm and/or at farmers markets, you increase your profits by pocketing the full retail price of your product, rather than allowing the wholesaler (middleman) to keep the retail mark-up.

You can also increase your profits by processing your products to add value to them. Offer ready-made egg salad alongside your eggs, or marinated boneless skinless chicken breast next to your whole chickens. Also consider certifying your farm for organic production, because organic price premiums can double your profits.

Whether you sell retail or wholesale, organic or not, strive to sell all your birds up front, before you invest the time and money to produce them. Also, when setting your retail or wholesale price, be certain to calculate a price that covers all your production expenses, including labor. Many producers forget to pay themselves for labor and, thus, are unable to make a profit, support their families, and grow their businesses.

Step 3. Develop a budget. Make a list of all the items you will need for every aspect of your operation, including: chicks or pullets, brooder equipment, feed, housing, pasture, fencing, feeders and waterers, processing equipment, product transportation, farm stand fees or rent on a retail space, and labor.

Assign a dollar value to each item; the total dollar value of that list will determine the cash you need to start your operation. This budget will help you define the initial size and scope of your operation, in line with your goals and resources. The budget will also help you determine how much profit you will need to make to sustain your family and your operation. As you develop your budget, find creative ways to barter or trade for items, find them used or for free, or fashion them from fixtures that already exist on your farm. Each creative solution will reduce your start-up costs and increase your profit.

Step 4. Choose your breeds. After you determine the products you will sell and the initial size of your operation, you must choose the appropriate layer or broiler breed(s) to meet your needs. Many pastured poultry producers favor the Cornish Cross as a meat bird because they gain weight quickly and have a flavor that is familiar to customers. Hybrid cross birds tend to produce more meat and eggs than purebred breeds. However, these newer breeds are also losing positive traits, such as foraging abilities, disease resistance, and adaptability to climate change, that have been “selected out” in favor of meat and egg production. Every breed has its own unique characteristics, and your choice of breed will depend on your farm site and marketing plan.

Below are some suggested breeds, based on use. These suggestions are focused toward purebreds that were originally raised as dual purpose birds:

Broilers: *Cornish Cross (currently being bred to regain foraging characteristics) is the preferred meat bird, but other suitable purebred meat birds include the Delaware and Java (though they will not reach market weight as quickly).*

Layers: *Rhode Island Red, Leghorn, and Plymouth Rock lay a large number of eggs as well as the Ancona (beautiful colored eggs) and Minora.*

Dual Purpose: *Australorp, Barred Plymouth Rock, Delaware, Java, New Hampshire, Rhode Island Red, and White Wyandotte.*

Step 5. Design housing and pasture for your birds. Begin by selecting a site or general area where the house and chickens will reside permanently or within which they’ll be moved. When choosing a site consider:

Direction: *Orient the house toward the south in winter*

Soil drainage: *Choose high, well drained ground with a south or southeast slope if possible*

Space requirements: *Provide 2.0 - 2.5 square feet of indoor space per bird if they have outside access for free range.*

Once you choose a site, you can begin to design an appropriate pasture and housing system for your birds. Several “pre-designed” alternative housing and pasture systems are available, or you can develop your own. The system you choose or design should fit well with your farm site and operational goals.



Examples of some “pre-designed” systems include:

The Pasture Poultry Pen by Joel Salatin: A 10' x 12' x 2' floorless portable pen that is moved daily to fresh pasture. Building materials cost: \$200 per pen. Advantages: inexpensive to build and houses large number of birds (80 - 90 birds). Disadvantages: time and labor intensive, intended primarily for raising broilers.

“Net Range” (or “Day Range”) by Andy Lee: Typically, a mobile hoop house structure surrounded by poultry fencing (“poultry netting”). The housing is rotated frequently through pasture areas. Building costs are about \$1,000 per pen, including labor. Advantages: good weather and predator protection; houses a very large number of birds; sturdy. Disadvantages: requires more advanced pasture management skills.

Mini Barns for Day Range by Andy Lee: Similar to the Net Range design, with some moveable and some stationary features. Cost, advantages, and disadvantages similar to Net Range.

Yarding (for example, Label Rouge Production in France): Stationary housing with access to outdoor yards or pasture during the day. Building costs vary depending on the complexity of the structure, or the reuse of existing structures. Advantages: little labor. Disadvantages: if you do not subdivide and rotate through paddocks, the birds will eventually deplete the forage and create a high concentration of manure that increases the possibly of nutrient and pathogen build-up.

The Chicken Tractor by Andy Lee: A 4' x 10' moveable floorless pen that holds 20 broilers or 10 layers. Building costs are \$75 per pen, including labor. Advantages: inexpensive, and can be developed to integrate with vegetable production systems and/or improve soil fertility in gardens. Disadvantages: time and labor intensive, poor weather and predator protection.

Free Range (for example, “Skid Housing” by Herman Beck-Chenoweth or “Egg Mobiles” by Joel Salatin): Mobile housing is moved regularly to encourage birds to range particular areas of pasture. Skid housing is built on runners. Egg mobiles (12' x 20') are designed for layers (portable housing with nests), built on trailer hitch and pulled with a tractor. Building costs vary by design complexity and size. Advantages: more space for birds, less labor required, flexibility to produce more or fewer birds as demand requires. Disadvantages: unless fencing is used, these systems offer no predator protection. Also, significant acreage is needed so birds can be continually rotated to fresh pasture.

Brooder: Usually a barn or barn-like structure that houses chicks until they grow feathers and can be moved outdoors (at about 3 weeks): Some designs create outdoor housing that is brooder accessible so that chicks do not have to be moved twice. Basic brooder equipment costs about \$100, and can hold about 250 chicks at a time.

No matter which system you choose, you will need to include the following features in your housing design:

- Ventilation
- Insulation (not always necessary, but usually required in temperate climates)
- Walls
- Roof (needs to be waterproof and include an overhang for passive temperature regulation)
- Nests (only needed for layers: 1 square foot of area with 1 foot of head room)
- Roosts (2" x 2" stock, rounded or beveled, spaced 12 - 15 inches apart: should not be more than 2 feet off floor).

Step 6. Nutrition. Like all living creatures, chickens require a balanced diet of proteins, carbohydrates, minerals and vitamins. Protein requirements vary from 16-20% of the total feed weight, depending on the chickens' stage of development and output. Most feeds consist of corn, soybeans, and wheat, as well as vitamin and mineral supplements. Since chickens do not have teeth, they also need some form of grit (tiny stones or oyster shells) to aid the gizzard (an organ located before the small intestine) in digestion.

Pastured poultry ingest many vital nutrients from grazing weeds, weed seeds, legumes, grasses and bugs. There is some debate as to how much pasture-based nutrition the birds can actually digest and assimilate. Unlike ruminants, chickens lack a multi-compartmented stomach and cannot efficiently digest cellulose. Therefore, chickens cannot live on pasture alone. None the less, birds benefit greatly from grazing pasture. Studies have found significantly more vitamins and omega-3 fatty acids, as well as lower fat content, in free range birds.

Livestock nutritionists can help you develop an appropriate ration for your poultry, and many of these nutritionists are also organic feed suppliers. Feed costs (especially organic feed) can be fairly high. Therefore, if you are raising a significant number of birds, you may want to consider growing some or all of your own feed. Growing feed can reduce your expenses and make your operation more self-sufficient and sustainable.

Step 7. Maintain your flock and keep them healthy. Pastured poultry are generally resilient to diseases and infections. The most common health and management challenges are weather and predators. Adequate shelter is vital in most climates to shield your birds from cold, rain, severe wind, and heat. Predator protection, such as portable electric poultry fencing, is also important in most areas. Daily maintenance tasks include checking the birds for health, replenishing their feed and water supply, and cleaning their housing and pen areas. Be sure to keep detailed health records for your birds, including: age, vaccinations, egg production, etc., as this information is helpful in tracking and resolving potential health issues, assessing production costs, and gaining organic certification.

Step 8. Manage your pastures effectively. Chickens will graze any type of pasture, and while they prefer legumes over grasses, they will eventually consume the entire pasture. As you plan your pastures, begin by utilizing pre-existing pastures, especially if you already keep pastured ruminants. However, if you must replant or create new pasture areas, plant a diverse mix of forages that mature at different times of the year to improve soil quality and provide grazing variety for the birds. As you choose forages to plant, be certain to consider your site factors (such as soil type, rainfall, etc.) and production plans (such as replanting the area in vegetable crop or using it for other livestock to graze). Joel Salatin, author of *Pastured Poultry Profits*, grows what he calls a “permanent polyculture” which is a mix of “grasses and clovers, including native grasses, broadleaves, clovers, chicories, oats, and rye”. Salatin also suggests keeping grass short (a few inches) because it helps the birds to ingest more food.

Fencing is another significant and beneficial component of your poultry pasture. Though fencing is not essential, it offers protection from most predators (except avian predators such as hawks), while enabling the birds to access adequate range space. Fencing also helps you better manage and/or rotate areas where the flock grazes. Portable poultry fencing, also called “poultry netting”, is a reasonable investment. Most small scale producers use only a few 165 foot rolls of poultry netting and one battery charger to pasture an entire flock. Andy Lee offers helpful advice on working with poultry netting in his book *Day Range Poultry*. Birds raised outdoors on pasture (especially free range) are susceptible to attacks from predators such as foxes, raccoons, coyotes, skunks, weasels, hawks and dogs. Once you have identified the predators most prevalent in your area, poultry producer Brian Moyer offers the following suggestion to prevent losses:

1. Place the birds’ pens and housing well inside existing pastures, rather than along wooded fence lines, because predators are reluctant to travel across open fields.
2. Install electric fencing whenever possible.
3. Play music day and night to ward off some predators such as hawks.
4. Check on your birds frequently.

Step 9. Plan for economic and environmental sustainability. Before, during, and after you’ve designed and established your poultry operation, you must regularly evaluate its ecological and economical sustainability. Recycling resources within your farm is the key to both; it reduces the number of inputs that must be purchased from off the farm and replaces many of the resources that are lost through off-farm exports.



For example, some or all of your chickens' water requirements can be met by an on-site rain water catchment system, and their grain feed needs can be met with a minimal investment of land. Approximately 3 acres is required to grow feed for about 1000 broilers per year, and as Andy Lee notes, the manure from that number of birds is sufficient to fertilize the land to grow their feed. If feed is grown on the farm and manure is recycled as fertilizer for the feed crops (via pasture and composting), it is then easy to replace the nitrogen exported off the farm via eggs and meat by growing leguminous cover crops and forage. Recent research determined that 0.02 acres of alfalfa can replace the nitrogen lost from 19 layers and 20 3.5 lb. broilers per year, which multiplies to about one acre of alfalfa for 1000 layers and broilers.

Clearly, poultry can enhance and benefit the farm, but is small scale poultry farming economically viable? Producers Joel Salatin and Andy Lee agree that pastured poultry farming is easy to start on a small scale, with little initial capital investment, and often provides a quick return on investment. As with all farming endeavors, preliminary market research is the key to success: you'll only make money if the market is there! Diversity is also vital. Pastured poultry is an excellent, low cost way to diversify your farm and increase your income.

One of the greatest advantages of raising poultry is that, once a management routine is established, time and labor requirements can be flexible. Some poultry producers start out with some other off-farm income and then gradually grow into a full-time farming enterprise. Joel Salatin, for example, has perfected raising poultry for profit. According to Salatin, raising poultry on pasture, even for part of the year, can be lucrative. Salatin raises 10,000 birds on 20 acres during a six-month season and nets \$25,000. If you want to raise poultry with the goal of a full time income, like Salatin, you will probably need to raise thousands of broilers and layers. However, with a well-designed, ecologically sound operation, either a few hundred or a few thousand birds can improve your income and operational diversity with a minimal outlay of money and time.