



THE SOIL PROFILE

A newsletter providing
information on issues
relating to soils and
plant nutrition in
New Jersey

Volume 24

2019

Chickens on Pasture Moving Pens Distribute Soil Fertility

Keeping chickens on pasture has become a popular alternative to indoor confinement systems. These two contrasting systems may be referred to as “Pastured Poultry” vs “Confined Animal Feeding Operation” (CAFO).

There are certain advantages and challenges to raising poultry on pasture.

First, from an animal welfare perspective, it is often said that outside on grass allows chickens to express their natural behavior. When given the chance, chickens scratch in soil in search of bugs and worms. Chickens are not vegetarians and it is in this way they supplement their usual diet of seeds and grains. The grazing of green plant tissue accounts for a small fraction of the bird’s diet. Altogether grazing may replace about 10 to 15% of the usual requirement for purchased feed.

Second, poultry, for meat or eggs, raised outside on pasture are uniquely different foods from products coming from CAFOs. Customers trying pasture raised meat or eggs for the first time will often talk about the remarkable difference in flavor. At least for eggs produced on pasture it is visually apparent in the yolks as soon as they are cracked open.

Third, research comparing pasture raised vs confinement produced eggs has found that pastured eggs contain more of the vitamins A and E. Also accumulating evidence indicates that animal foods raised on pasture have enhanced nutritional quality with regards to fats.



Note color differences between eggs from chickens kept inside (left) vs eggs produced on pasture (right).

Forth, because of customer preference, there may be a market advantage to raising poultry on pasture. Pasture raised poultry products may sell for about 25% or more than the usual grocery store brand.



A pasture poultry coop module docked with pasture pen designed for a small flock of back yard layers. Each module is moved separately each day and reconnected.

Fifth, birds raised outside on pasture distribute manure over the land and effectively fertilize the pasture. This keeps the coop clean.

Cooperating Agencies: Rutgers, The State University of New Jersey, U.S. Department of Agriculture, and County Boards of Chosen Freeholders. The U.S. Department of Agriculture (USDA) prohibits discrimination in all programs on the basis of race, color, national origin, gender, religion, age, disability political beliefs, sexual orientation or marital or family status. (Not all prohibited bases apply to all programs) Rutgers Cooperative Research and Extension is an Equal Opportunity Program Provider and Employer.

It may also decrease the labor and cost of cleaning out poultry houses and hauling and spreading the manure over a field.

Raising poultry on pasture also comes with certain challenges. In New Jersey it is usually not practical to keep birds on pasture at times of weather extremes during the winter months. Thus, one must have a plan for housing the flock indoors at times of very cold weather, heavy snow, or high wind. Moving pastured chicken coops and pens into hoop houses in the winter is one good option.

Pasture Pen and Coop Module Design

Since 2005 I have been keeping small flocks of layers outdoors on pasture. Initially I experimented with various designs that included a coop and pen that would be moved each day as a single unit. After struggling to move such a coop/pen system with ease I came up with module system where pen and the coop are each moved separately. This allowed the daily moves to be done by hand without the need for a tractor.

First the pen is dragged over the pasture to a fresh spot (see photos). Next the coop – which is a shelter constructed on a wagon – is pushed ahead to re-dock with the pasture pen. The coop is designed with a doorway that matches up with the pasture pen.

With this system one must remember to close the doors to the coop and pen before making the move. And remember to reopen the doors so that the birds can freely move between each unit after the pen and coop are back together.

In this design the coop shelter on the wagon has a wire mesh floor such that chicken litter falls through to the ground. For this reason the pasture pen is always moved forward of the coop to fresh pasture and away from the newly manure littered plot.

The photos in the right hand column illustrate the several steps involved in moving pasture pen coop modules. Think of this docking system like NASA spaceship modules separating and rejoining in a space mission – in this case to find fresh pasture. Like any coop,

this design has nesting boxes.



Step 1: Move the pasture pen separate from the coop.



Step 2: Move the coop back into position to match up against the side the pasture pen.



Step 3: Check to see that doorway between the pen module and the coop match up. Reopen the doorway.

The coop should also carry a feeder and fresh water. In the summer months there should be fresh water available in the pasture pen close to where the birds are most of the day. The hens will naturally go inside at about sundown. Inside the coop there should be a wood framework for the birds to roost.

Because the birds roost up high, well above the mesh flooring, they are held safely away from predators. The wire mesh flooring must be strong enough to protect from break-ins by invaders.



Pasture poultry system integrated with The Family Cow dairy farm in Chambersburg, PA



Green strips exhibit increased soil fertility from previous pathways of pastured poultry.

The pasture pen and coop system is designed for small scale operations such as back yards or small farms. Besides the model pictured on the previous page, I have built coops and pens about one third that size. A toy sized wagon can be used as the under carriage for the coop. Whatever the scale used, there should be about 4 sq. ft. of space per hen.



The Great Pyrenees dog breed lives with the flock to protect the chickens from predators.

Large Scale Pasture Poultry Operations

Beyond the hobby farm, there are many ways to scale up pasture poultry production. The next set of photos will illustrate one type pasture poultry coop used for egg production on an organic dairy farm near Chambersburg, PA. On this farm the chickens are moved across the same pasture paddocks used to feed the dairy cows.



Porous floor allows litter to fall through.



Eggs from nesting boxes are collected from a conveyor belt.



Another pen design for raising broilers on pasture is show here from a farm tour at Polyface Farm in Swoope, Va. On this farm Joel Salatin hosts field days. Made famous in the Omnivores Dilemma book by Michael Pollan, Polyface Farm has been a leader in the pasture poultry production model.



Organic farmer Edwin Shank explaining how the system works during a farm tour.



Movable pasture poultry pens are also used to raise broilers. This design is used at The Family Cow dairy farm.

References:

Heckman, J.R. 2015. The Role of Trees and Pastures in Organic Agriculture. Sustainable Agriculture Research. 4:47-55. <http://www.ccsenet.org/journal/index.php/sar/article/view/50105>

The Small-Scale Poultry Flock: An All-Natural Approach to Raising Chickens and Other Fowl for Home and Market Growers by Harvey Ussery

American Pasture Poultry Producers Association <https://www.appa.org/>

The Soil Profile newsletter 2011. <https://njaes.rutgers.edu/soil-profile/pdfs/sp-v19.pdf>

The Soil Profile Newsletter

Rutgers Cooperative Extension
 Plant Biology and Pathology Department
 Rutgers, The State University of New Jersey
 59 Dudley Road
 New Brunswick, NJ 08901-8520
 Email: heckman@aesop.rutgers.edu

Joseph R. Heckman, Ph.D.
 Specialist in Soil Fertility

"To simplify information in this newsletter, trade names of some products are used. No endorsement is intended nor is criticism implied of similar products not named."
 Copy write by Rutgers Cooperative Extension, New Jersey Agricultural Experiment Station, Rutgers, The state University of New Jersey. This material may be copied for educational purposes only by not-for-profit accredited educational institutions.