

Education for Farmers, by Farmers



FERMENTED FEED FOR PASTURED POULTRY

Foothills Farm
Sedro Woolley, WA

Monday, July 9th, 2018

FARMWALK2018

presented collaboratively by:



Food Systems
WASHINGTON STATE UNIVERSITY

2018 Farm Walk Series - Get on the Farm!

On-Farm Conservation — Irrigation & Beneficial Pollinators *Conservación en la granja: irrigación y polinizadores beneficiosos*

Monday, Aug. 6; noon-4 p.m.
Lunes, 6 de agosto; mediodía-4 p.m.
White Bear Orchard, Quincy

**¡Un evento completamente bilingüe
con traducción al español!**

Monitoring Soil Health and Exploring Innovative Sources of Income

Monday, Aug. 27; noon-4 p.m.
Helsing Junction Farm, Rochester

Creative Farm Financing and Diversified Enterprises *Financiamiento de granjas creativas y empresas diversificadas*

Monday, Sep. 10; noon-4 p.m.
Lunes, 10 de septiembre; mediodía-4 p.m.
Mariposa Farm, Everson

**¡Un evento completamente bilingüe
con traducción al español!**

Fall Cover Crops and the Value of On-Farm Education

Monday, Sep. 24; noon-4 p.m.
Cloudview Farm, Ephrata

Recovering from a Loss & Building Up the “Community Good Will Credit Card”

Date TBA; noon-4 p.m.
Willowood Farm of Ebey’s Prairie, Coupeville

working together to build
an equitable and sustainable
local food future for all



earth

A healthy environment is the foundation for growing healthy food. We enable community members to build healthy soil, restore the environment, manage pests naturally, protect water quality and teach others.

soil and water stewardship training | Garden Hotline Master Composter | Soil Builder training | restoration projects

farm

All farmers need support to thrive. We provide Washington’s farming community with peer-to-peer education, connect them with the land they need and support their business enterprises.

farmer-to-farmer education | farm business incubator
FarmLink | Tilth Conference | Tilth Producers Quarterly

garden

People who know how to grow food have better health, a stronger connection to the land and more resilience. We teach people of all ages and incomes to grow food.

adult classes | school tours | mobile classroom
children’s camps | community learning gardens
teacher workshops | Tilth Alliance Youth Garden Works

market

Farmers need secure markets, and everyone has a right to food that is good for them and for the environment. We help consumers find local products and get produce into their hands through farmers’ markets, community supported agriculture (CSA) and subsidized access for low-income families.

Farm Guide | CSA | Good Food Bags

kitchen

People who know how to cook and understand nutrition are empowered to eat well every day. We share cooking skills, nutrition knowledge and food traditions through classes, events and youth programs.

community dinners | youth cooking clubs | senior meals

tilth

ALLIANCE

tilthalliance.org

Section 1

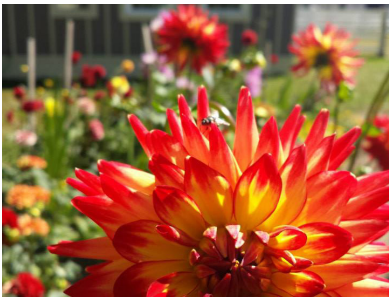
About Foothills Farm



Our host, Farmer Matt Steinman, of Foothills Farm in Sedro Woolley, WA will be sharing the logistics and efficiencies of the fermented feed system for his rotationally pastured laying flock. This includes a look into the techniques he has developed for truly mobile chicken tractors, as well as his chicken powered nutrient management strategies for building healthy and productive soil. Matt exclusively uses Organic Scratch and Peck Feed for his layer operation and they will be on-site too!

Section 2

Related Publications



Section 3

Additional Online Resources



WSU Food Systems Program and Tilth Alliance have been collaboratively presenting the FARMWALK series for 15 years! These farmer-to-farmer educational events are hosted by organic, sustainable, and innovative farms throughout Washington State. We reach over 450 attendees each year seeking education, advice, and mentorship from experienced farmers, agricultural professionals, and WSU researchers and specialists. Held throughout the growing season in geographically disperse areas of the state, the unique expertise developed by established growers and researchers is shared experientially through guided question-and-answer sessions.

Funding for this event is provided by a
USDA Risk Management Grant



FARMWALK2018



FOOTHILLS FARM

Foothills Farm, located in Sedro Woolley, is a multi-generational family owned farm practicing innovative and organic methods for growing healthy food.

Farmer Matt has focused his efforts on a closed loop farming system which uses the inherent traits of his pastured laying flock to enhance the fertility on the farm. Matt also loves to share his knowledge and enthusiasm for sustainable and innovative agriculture. He currently supplies Woolley Market with pastured eggs and attends several farmers markets in the Seattle area.



His very happy and healthy hens move frequently via chicken tractors (see photo!) on converted flatbeds to new places in the garden and grassy fields below the market garden in the summer. He is currently using hailage that he rolls out over his 1.5-acre garden plot. The chickens are out all day and scratch through the hay, eating the weed seeds and fertilizing the soil. He will also add a layer of composted soil, which is made on the farm from horse manure and peat; cover it for warmth for a few weeks. There will soon be rich vital organic soil ready for planting.



How to Feed Your Laying Hens

James Hermes

There is no magic to feeding chickens. Small-flock producers can choose from many brands of feed from several manufacturers. These manufactured feeds are computer formulated by company nutritionists to provide optimal nutrition for each particular type and age of chicken. The formulation of these feeds is similar to commercial feeds and is based on years of research on commercial chickens. Manufactured feeds are considered a complete diet, providing all of the nutrients required by chickens. In most cases, small-flock producers will not need to add supplemental nutrients if they exclusively use these feeds.

Feeds are formulated and manufactured to meet chickens' nutritional needs at specific ages and production characteristics. For example, starter feeds are fed to chicks from hatch to about 6 weeks of age. Grower and developer feeds are fed to "adolescent" or growing chickens from about 7 weeks to just before laying, around 17 weeks. Layer or breeder feeds are fed to chickens that are producing eggs, generally beginning around 18 to 20 weeks of age and lasting for several years.

These different types of feeds have similar ingredients, including common grains such as corn, barley, or wheat for carbohydrates; soybean or canola meal for protein; and other ingredients such as limestone, oil or fat, and a premix of vitamins and minerals. Based on the formulation, the proportions of these ingredients vary to provide the proper level of nutrition for particular birds. Each sack of feed is labeled with its specific use.

It is important to feed egg-producing chickens the appropriate feed from hatch through their productive years to maximize their egg production. Improper feeding at any stage can result in poor egg production throughout their productive lives.

Whether your birds are bantams or large fowl, white or brown egg layers, all chickens have similar



Photo by Lynn Ketchum, © Oregon State University.

requirements for protein, carbohydrates, fats, fiber, vitamins, and minerals. Your birds rely on you to provide proper feed. If you do, they will produce many high quality eggs for your family, friends, and neighbors. Following a few simple feeding rules results in a healthy and productive flock of chickens.

Starter feeds

Feed newly hatched chicks a starter diet until they are about 6 weeks old. Starter diets are formulated to give proper nutrition to fast-growing baby chickens. These feeds usually contain 18 to 20 percent protein.

It is not recommended to give meat-bird starter feed to young layer-type chickens. Diets formulated for young meat-type chickens are more expensive and generally higher in protein (22 percent) to maximize growth, which is neither necessary nor desirable for egg-laying chickens.

James C. Hermes, Extension poultry specialist, Oregon State University



Feeds include common grains such as corn, barley, or wheat.

Grower and developer feeds

Once the birds reach about 6 weeks of age, begin using a grower or developer feed. Grower feeds are lower in protein, about 15 or 16 percent, and are formulated to sustain good growth to maturity.

If developer feeds are available, you can substitute them for the grower feed after about 14 weeks of age. Developer feeds are lower in protein than grower feeds (14 to 15 percent) and are formulated to prepare young chickens for egg production; sometimes they contain higher calcium to aid eggshell formation of the first eggs of young layers. (Note: Grower and developer feeds are virtually interchangeable; either one can be fed to chickens between 6 weeks of age and the beginning of egg production.)

Layer feeds

Start feeding layer feeds at about 18 to 20 weeks of age or when the first egg is laid, whichever occurs first. Layer feeds are formulated for chickens that are laying eggs. Layer feeds contain about 16 percent protein and extra calcium (3 to 4 percent) so chickens will lay eggs with strong shells and not deplete the calcium in their bodies. Sometimes “breeder feeds” are available. These feeds are formulated for chickens that are producing eggs for hatching. Breeder feeds are basically layer feeds that contain slightly more protein and are fortified with extra vitamins for proper chick development and

hatching. The value of breeder feeds is somewhat questionable for the small-flock producer, since the increased cost may not be justified by the potential, slight increase in hatchability. Layer feeds will suffice for breeder chickens.

You also may give laying and breeding chickens ground oyster shell. Some high-producing laying birds may require the extra calcium provided by oyster shell even though the prepared diet is a complete feed. You can determine the need to feed oyster shell by examining shell quality. If eggs are laid with thin shells that crack easily or shells that are rough with almost a sandpaper feel, oyster shell may help increase shell strength and quality. When feeding oyster shell, provide a separate feeder to allow for free-choice feeding (the hen decides if she needs calcium) on oyster shell.

All-purpose feeds are formulated as the sole ration for chickens of all ages, from hatch through egg laying. These feeds are formulated to provide adequate protein for young chicks and layers alike. However, read the label carefully. Laying chickens that are fed all-purpose feed will generally not receive enough calcium for proper eggshell formation, so supplemental oyster shell (free-choice feeding) is required for maximum or even adequate egg production.

Medicated feeds

Some starter diets available at local feed stores are medicated to prevent coccidiosis, a common yet serious disease in young chickens. Medications are typically absent in grower or layer diets. Feeds that contain medications are labeled as such.

Check the label for warnings concerning the medication used in feeds. Withdrawal dates will be indicated on the label if there is a risk of the medication’s presence in the eggs. Feed medications are highly researched and regulated, so you can be confident that the eggs are safe to eat if you follow the label instructions.

Non-medicated feeds are commonly available or can be ordered. In some cases, mortality levels, especially in young chicks, may rise to unacceptable levels if non-medicated feeds are fed. You must decide whether the use of non-medicated feeds in the early stages of a bird’s life is justifiable in your situation.

Water

Water is the single most important nutrient that chickens consume. Therefore, it is necessary to provide adequate amounts of clean, fresh water on a daily basis during growth and egg production. Chickens will drink between two to three times as much water by weight as they eat in feed. Their consumption of water increases in warm weather. Clean water is essential for healthy birds!

Scratch (grains)

Chickens love to scratch. They use their feet to disturb the litter or ground to find various seeds, greens, grit, or insects to eat. Feeding scratch grains can promote this behavior, which gives the birds exercise and keeps them busy. Feeding scratch to chickens is not necessary when they receive a complete diet.

Scratch feeds usually consist of a mixture of cracked, rolled, or whole grains such as corn, barley, oats, or wheat, which are relatively low in protein and high in energy or fiber, depending on which grains are used. When fed in concert with prepared feeds, they tend to dilute nutrient levels in carefully formulated diets. Therefore, you should provide scratch sparingly. A general rule of thumb is to feed only as much scratch as the chickens can consume in about 20 minutes, or about 10 to 15 percent of their total daily food consumption.



Photo by Lynn Ketchum, © Oregon State University.

Daily access to green grass can be a beneficial supplement to a feed ration but is not a substitute for feed grains.

When feeding scratch, also provide an insoluble grit so the birds can grind and digest the grains properly. If the birds have access to the ground, they can usually find enough grit in the form of small rocks or pebbles. Otherwise, you can purchase grit at your local feedstore. Oyster shell cannot be substituted for grit because it is too soft to aid in grinding.

Table scraps and greens

Chickens, like other family pets, enjoy many of the same foods their owners do. However, feeding your chickens an excessive amount of table scraps and greens is not beneficial to the birds or their productivity. Some supplementation is fine—in fact, greens help to keep egg yolks a deep orange color—but, as with scratch, these foods should be limited. The same rule for scratch applies to table scraps and greens: the total supplementation should be no more than the chickens can clean up in about 20 minutes.

Pasture

There has been a great deal of interest in recent years in “pasturing” chickens to allow them daily access to green grass. While pasturing can be a beneficial supplement to a feed ration, it is not a substitute for the various feeds noted above. Chickens with daily access to pasture consume significant amounts of insects and seeds when available. They also consume small amounts of grass but do not have the ability to properly digest it.

When considering pasture for chickens, the greatest feed value is during the spring and summer when the insect activity and seed production is highest. During the late fall and winter, there is little feed value in the pasture for chickens.

Organic feeds

In recent years, organic poultry feeds have become more readily available. These feeds are formulated to meet the same nutritional requirements as traditional feeds; however, the ingredients are from organic sources and do not include certain additives. Organic grains are typically produced without the aid of commercial fertilizers or pesticides. In addition, the seed stock for organic grain comes from sources that are not genetically modified (GM). As commercially available sources of non-GM feedstuffs become more limited, alternative grains are used in formulating diets.

In addition, certain additives (for example, medications, and animal production and synthetic nutrients, such as supplemental amino acids) are not allowed in organic feeds. (Note: Currently the amino acid methionine is allowed at no more than 2 pounds per ton of feed; this variance to the organic rules may change in the future.) The exception is the vitamin and mineral premix, which is allowed even though these are from primarily synthetic sources.

With the above constraints, organic feeds are more difficult to formulate and often contain ingredients that are imported from other parts of the world, which can significantly increase the feed cost while providing less than optimal nutrition for laying chickens. Careful shopping from reputable sources is the best way to ensure the best nutrition from organic feeds.

Feed and water management

The mechanics of feeding are nearly as important as the feed itself. Supply enough feeder space so that all the birds can eat at the same time. Start with at least 1 linear inch per bird for chicks and increase to at least 4 linear inches for adults. When space is limited, some birds don't get enough to eat. Make sure feed is always available for the birds; meal feeding (giving a limited amount of feed several times each day) can reduce productivity if not managed carefully.

Place feeders and drinkers so the troughs are at the level of the birds' backs. This reduces spillage (which discourages rodents) and saves money by not wasting feed. If bantams and large fowl are feeding and drinking from the same equipment, adjust it to the bantams. For best drinker management, invest in a nipple drinker system. These systems keep the water cleaner and reduce spills that can encourage



Photo by Lynn Ketchum, © Oregon State University.

It is necessary to provide chickens with adequate amounts of clean, fresh water.

certain disease organisms. When managing these systems, it is important to:

- Adjust nipples so that the birds have to raise their heads and look up to reach the nipples.
- Raise drinkers a slight amount during the fast growth period (at least weekly) until the birds are fully grown at about 15 weeks of age.

If the drinkers are too low, the birds will bump into them and spill water, resulting in wet litter. If the drinkers are too high, some birds will not be able to access adequate water.

Store feed for a maximum of 2 months and keep it in a cool, dry place. Some molds that grow in damp feeds are dangerous for chickens, and old feeds can lose some of their nutritional value. Store feed in enclosed solid containers, such as a covered trash can, to reduce its availability to rodents that can eat a great deal of feed and potentially spread disease.

Conclusion

Feeding the proper feeds at the proper times, and managing feed and water delivery will go a long way to ensure a healthy, productive laying flock.

Agricultural Risk Management

June 2018

Risk Management Planning

Due to the inherently risky nature of agriculture, it is important for producers to manage risks from five primary sources.

1. **Production:** weather, pests, diseases, and other factors affecting quantity and quality
2. **Financial:** debt repayment, restricted credit availability, and rising interest rates
3. **Marketing:** price variability, cost of inputs, and limited market outlets
4. **Human Resources:** business disruptions by health, accident, death or other personal problems
5. **Legal:** government changing laws, regulations, and support payment policies

A checklist to assess risk exposure in these areas is available here:

https://www.rma.usda.gov/pubs/2011/risk_management_checklist.pdf

USDA Tools for Farmers

Risk management involves choosing among alternatives that reduce financial effects that can result from uncertainties. The USDA has tools to help farmers in these risk planning endeavors, such as:

- **Crop Insurance:** through the Federal Crop Insurance Corporation, USDA and participating Approved Insurance Providers offer crop insurance to American farmers and ranchers to help them manage risks on their farms and ranches
- **Marketing Assistance:** USDA's FSA can provide assistance managing the market risks, including price loss and disparities faced by geographically-disadvantaged producers
- **Disaster Assistance:** USDA's FSA and Natural Resources Conservation Service (NRCS) can provide assistance for losses resulting from natural disasters such as drought, flood, fire, freeze, tornadoes, pest infestation, and other calamities
- **Risk-Management Education:** USDA provides funds to provide risk education and tools tailored for different regions of the country and types of farming operations

More information is available here: <https://newfarmers.usda.gov/risk-management>

Examples of Government Risk Management Programs

- **Federal Crop Insurance:** pays when weather or other natural causes adversely affect yield or crop value below a specified level
- **Supplemental Coverage Option:** additional insurance coverage for a portion of your underlying crop insurance policy deductible
- **Noninsured Crop Disaster Assistance Program:** provides financial assistance to producers of non-insurable crops when low yields, loss of inventory, or prevented planting occur due to natural disasters
- **Agricultural Risk Coverage Plan:** pays when county crop, or individual farm, revenue for covered commodities falls below 86% of benchmark revenue

- **Emergency Loans and Feed Assistance Programs:** disaster assistance packages, such as supply of pasture or hay for livestock producers when feed is limited due to drought or other adverse conditions

More information about these programs, and more, is available here:

<https://www.rma.usda.gov/>

<https://www.fsa.usda.gov/>

Whole-Farm Revenue Protection

Whole-Farm Revenue Protection (WFRP) provides a risk management safety net for all commodities on the farm under one insurance policy. This insurance plan is tailored for any farm with up to \$8.5 million in insured revenue, including farms with specialty or organic commodities (both crops and livestock), or those marketing to local, regional, farm-identity preserved, specialty, or direct markets.

Why is WFRP important?

WFRP provides protection against the loss of insured revenue due to an unavoidable natural cause of loss which occurs during the insurance period and will also provide carryover loss coverage if you are insured the following year.

More information is available here: <https://www.rma.usda.gov/policies/wfrp.html>

Evaluation of Risk Management

Examining the effectiveness of a risk management plan is important to improve the success of your farm and mitigate more risks. A mechanism such as a checklist can be very useful in this evaluation:

- ✓ *Have the primary sources of risk been identified and classified?*
- ✓ *Have the risk outcomes and their likelihood or probability of occurring been estimated?*
- ✓ *Has the financial capacity of the business or ability to bear risk been evaluated?*
- ✓ *Have the risk tolerances of the business operators been considered?*
- ✓ *Are risk goals written and are they specific, measurable, attainable, relevant, and timed?*
- ✓ *Have the goals been shared with everyone involved in the business?*
- ✓ *Have risk tools and strategies been identified to help manage risks which could prevent achieving established goals?*
- ✓ *Has a confident relationship been established with a team of risk management advisors, so they can help assess and manage business and personal risk exposure?*

ADDITIONAL RESOURCES...

Online Resources:

- How-To for Fermenting Chicken Feed

<https://www.scratchandpeck.com/feed-and-fines-maximizing-the-value-with-fermented-feed/>

- “Effects of Bacillus subtilis var. natto and Saccharomyces cerevisiae mixed fermented feed on the enhanced growth performance of broilers”

<https://academic.oup.com/ps/article/88/2/309/1562930>

- “Nutrient Management Plan for Organic Systems—Western State Implementation Guide”

<https://tilth.org/app/uploads/2015/03/Nutrient-Management-in-Organic-Systems-Western-States-Implementation-Guide.pdf>

- “Fermented Feed” Scratch Cradle

<https://tilth.org/app/uploads/2015/03/Nutrient-Management-in-Organic-Systemshttps://scratchcradle.wordpress.com/2012/06/08/fermented-feed/>

Suggested Reading:

Storey’s Guide to Raising Chickens, 4th Edition: Breed Selection, Facilities, Feeding, Health Care, Managing Layers & Meat Birds

Want to Search for More?

WSU Publications: <https://pubs.wsu.edu>

WSU Extension: <https://extension.wsu.edu>

The Cascadia Grains Conference is presented by WSU Food Systems

Working to bring together farmers, bakers, brewers, distillers, brokers, investors, researchers and others in an effort to enhance the local food economy by sharing the latest science, techniques, and developments for niche-grains in the Cascadia region. Holding a space for new business, policy, and research relationships to form and existing ones to be strengthened.

Revitalizing a local grain economy in the Cascadia Region

Cascadia grains conference



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Food Systems

WASHINGTON STATE UNIVERSITY



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Supporting thriving Washington farms, ecosystems, and food economies to provide communities with equitable access to healthy, sustainable, and regionally produced foods.



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THE FOOD SYSTEMS TEAM:
Is a committed group of WSU faculty, staff, and partners. Together we promote research, implement change, and provide unparalleled educational opportunities for farmers, communities, and consumers.

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