



TRANSITION TO ORGANIC COURSE

CHAPTER 4

LIVESTOCK

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Photo Credit: Jack Sherman

CHAPTER 4

LIVESTOCK

INTRODUCTION

OVERVIEW

Organic animal husbandry represents one of the strongest growth areas in agriculture today. Consumer demand for organic meat, milk and eggs continues to increase, and as a result, organic commodity buyers are actively recruiting farmers in many parts of the country.

Having animals on an organic farm fosters integrated farming systems in which nutrients are cycled through animals, and manures (composted or uncomposted) are returned to pastures and fields to maintain soil fertility. Grazing or browsing livestock can make use of marginal land not suitable for row crop production, can assist with weed management and can help distribute income and workload throughout the year. Livestock can also add flexibility to your operation, enabling you to sell crops directly or feed them through animals as market conditions or other factors shift.

This chapter explains the National Organic Program Standards as they apply to livestock production. We'll discuss the transition process, feed requirements, living conditions, health care practices and basic processing rules. At the end of this chapter, you'll have the opportunity to complete your Organic Livestock Plan using our customized online tool.

Even if you don't have livestock now, I encourage you to read through this chapter. You may choose to acquire livestock later, you may wish to sell organic livestock feed or you may rent pasture to another organic farmer. In any case, it's important to understand organic livestock regulations.

LESSON 1: BASICS

OVERVIEW

The challenges involved in transitioning to organic livestock management will depend a lot on how your current system is set up. Generally speaking, organic standards favor pasture-based systems, as they tend to be less input-intensive and place a strong emphasis on honoring the animals' natural behaviors. In fact, access to pasture is required for organic ruminants. The following steps can guide your transition to organic livestock production.

1. Study the NOP Standards as they relate to livestock. Talk to your certifier about specific requirements.
2. Research organic livestock systems for the species you're interested in. Talk to other organic producers in your area or attend field days and conferences.
3. Assess your resources, including buildings, fences, pasture and cropland, labor, expertise and breed genetics. What changes will you need to make?

GLOSSARY TERMS

Ruminant: An even-toed ungulate mammal that chews the cud regurgitated from its rumen. The ruminants comprise the cattle, sheep, antelopes, deer, giraffes, and their relatives.

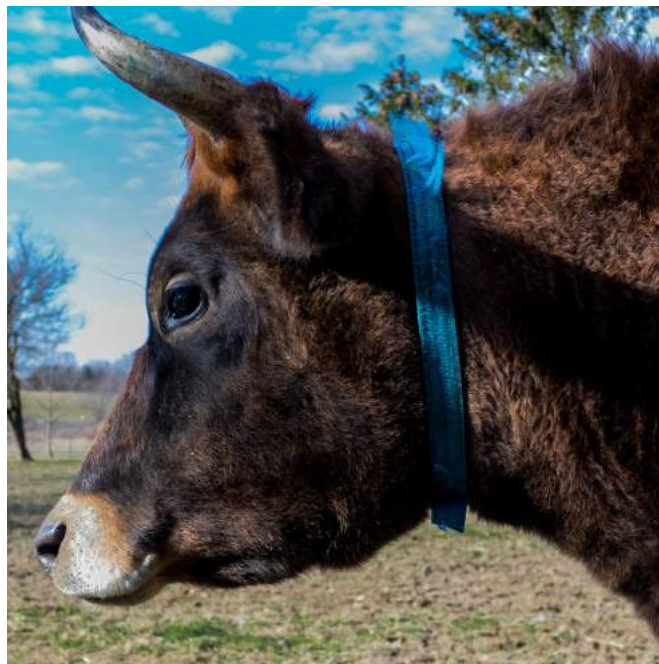


Photo Credit: Jack Sherman

4. Design your organic livestock plan. Work it out on paper first. Make low-cost alterations first, saving more-significant investments for later, after you've gained more experience.
5. Make sure you have a reliable source of organic feed. A good diet is critical to livestock health. Whether you raise your own feed or not, it's a good idea to have backup sources in case of an emergency.
6. Establish an appropriate recordkeeping system. You should be able to track each animal or flock from birth to slaughter (or sale), account for all feed produced or purchased, and document all health treatments.
7. Discontinue prohibited practices. For many farmers, transitioning involves culling animals that seem to be susceptible to health problems such as lice or parasites. But giving up conventional veterinary medicines also means figuring out how to improve living and feeding conditions to foster good health among the herd or flock.
8. Take another look at your whole system to identify possible improvements, from breeding to manure management.

WHAT THE STANDARDS SAY ABOUT THE ORIGINS OF LIVESTOCK

Section [205.236](#) of the NOP Standards states that, to be sold as organic, an animal must be managed organically for its entire life plus a third of its time in the womb. Special circumstances apply for poultry, breeder stock, and dairy animals, as follows:

- Poultry must be managed organically from the second day of life.
- Breeder stock “may be brought from a non-organic operation onto an organic operation at any time” (§205.236(a)(3)). Bulls, rams, billy goats, etc., do not need to be managed organically. Of course, if you buy a non-organic pregnant ewe and you want to sell its offspring as organic, you must bring the ewe to the farm prior to the last third of gestation, and you must manage it organically from then on.
- Dairy animals must be managed organically for a full year prior to the sale of any milk or milk products as organic. Once a farm’s entire herd has been converted to organic, all dairy animals on the farm must be managed organically from the last third of gestation. In other words, it’s not okay to move your organic heifer calves to non-organic feed for the

first part of their young lives, then shift them back to organic feed one year prior to their first lactation.

Once they’ve transitioned, some organic farmers seek to keep a closed herd in order to minimize the possibility of introducing disease organisms with new stock. Note that artificial insemination (AI) is allowed under organic standards, but the use of hormones to regulate breeding cycles is not.

WHAT THE STANDARDS SAY ABOUT FEED

The “Livestock feed” standard ([Section 205.237](#)) of the NOP Standards states that organic livestock managers must provide 100% organically produced feed, including pasture and forage.

Organic feed is expensive, so for the highest profitability, you’ll want to raise as much as possible yourself. Many organic livestock producers move toward a more forage-based system as they improve the nutrient quality of their forages and find forage-based systems more economically profitable. Obviously, some species, such as hogs and poultry, require a more grain-intensive diet than others.

NOP Standards also specifically prohibit the following feeding practices:

- Use of drugs or hormones as growth promoters
- Use of feed supplements or additives in excess of animals’ nutritional requirements
- Feeding plastic pellets for roughage
- Feeding formulas containing urea or manure
- Feeding mammalian or poultry slaughter byproducts to mammals or poultry
- Use of any feed, feed additive, or feed supplement in violation of the [Federal Food, Drug and Cosmetic Act](#).

GLOSSARY TERMS

Breeder Stock: Female livestock whose offspring may be incorporated into an organic operation at the time of their birth. (*NOP definition*)

Feed: An even-toed ungulate mammal that chews the cud regurgitated from its rumen. The ruminants comprise the cattle, sheep, antelopes, deer, giraffes, and their relatives.

Forage: An even-toed ungulate mammal that chews the cud regurgitated from its rumen. The ruminants comprise the cattle, sheep, antelopes, deer, giraffes, and their relatives.

Manure: An even-toed ungulate mammal that chews the cud regurgitated from its rumen. The ruminants comprise the cattle, sheep, antelopes, deer, giraffes, and their relatives.

FEED ADDITIVES AND SUPPLEMENTS

Section [205.603](#) of the Standards lists “synthetic substances allowed for use in organic livestock production.” Permitted feed additives include copper sulfate and magnesium sulfate used as trace minerals, and FDA-approved vitamins “for enrichment and fortification.” Vitamins and minerals approved by the [Association of American Feed Control Officials](#) (AAFCO) are also allowed in organic livestock production.



Allowed synthetic substances for organic crop and livestock production are subject to change. It's essential to keep in touch with your certifier and other organic news sources to stay informed of these new developments.

A notable permitted synthetic feed additive in poultry production is methionine, an essential amino acid that is typically lacking in standard poultry rations and is currently unavailable in a usable natural form. Researchers at the [Michael Fields Institute](#) are working to breed a high-methionine corn to help address this problem.

The use of milk replacers of any kind is disallowed for organic production. Commercial, synthetic silage preservatives are also prohibited. Only silage inoculants containing naturally occurring beneficial microbes are allowed.

FEEDING DAIRY HERDS THROUGH THE TRANSITION

A lot of debate has surrounded the question of how the NOP Standards' requirement for 100% organic feed intersects with the transition process for dairy farmers. This has been settled: they must be fed organic forage and grain throughout the transition period. This means that feed and forage cannot come from fields that are in the process of transitioning and must come from sources that are already fully organic.

FEED QUALITY IS PARAMOUNT

To be successful as an organic livestock producer, you need to do a lot more than just

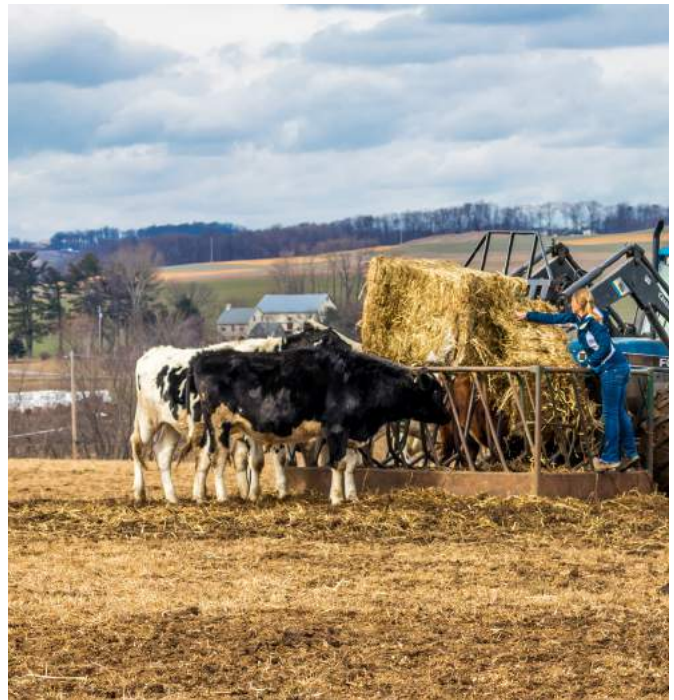


Photo Credit: Jack Sherman

provide 100% organic feed. It has to be top-quality organic feed, rich in nutrients, not just feed produced without chemicals.

Sure, you may be able to save money in the short term by feeding a cheaper, low-quality feed. However, if the feed fails to give the animals what they need nutritionally and physiologically, you'll end up paying in the long run through poor animal performance.

For stored feeds, quality depends not just on what you grow but also on how you handle and store it. Do everything you can to become a good haymaker so that you harvest the crop at its highest nutrient levels. It's worthwhile to obtain protein analyses of your different hay cuttings so you can accurately calculate rations.

It's also important to consider how your animals' nutritional needs change through different life stages. A growing calf will obviously need different feed quality and quantity than a milking cow, dry cow, or steer. We'll talk more about feed considerations for different types of livestock at the end of this chapter.

Your Organic Livestock Plan should outline backup strategies for sourcing organic feed in case of a crop failure or other emergency. For recordkeeping purposes, you must file and save all feed labels, receipts and other documentation.

WATER

Clean, plentiful water is also essential for successful organic livestock management. In most situations, this means providing access to fresh water for all animals at all times. NOP Standards stipulate free access to clean, fresh water as an aspect of humane living conditions. However, water tests are not specifically required. Tests may be required for water that's used for cleaning, however.

Watering systems should be sanitized regularly with an organic-approved sanitizer to prevent the spread of disease. Annual water testing is required for any on-farm processing and handling operations. Experienced organic dairy veterinarians say you shouldn't be offering your animals any water you wouldn't drink yourself.

The Organic Livestock Plan forms contain a number of questions related to your livestock's water resources, including:

- Sources of water for livestock use
- Contamination threats to your water source(s), e.g., [pesticide](#) or fertilizer runoff, industrial pollution, etc.
- Water testing for coliform bacteria and nitrates
- Any water additives, if you use them, such as hydrogen peroxide
- Livestock access to surface water, and, if applicable, how you prevent bank erosion and degradation of water quality

SUMMARY

Shifting to organic livestock production requires careful planning. You may need to make changes to your infrastructure, marketing strategies and recordkeeping systems as well as to your crop and livestock management methods. Talk to other producers, sustainable agriculture education groups and certification agencies before beginning your transition.

Poultry must be managed organically from day two of life to be sold as organic. Larger livestock must be managed organically from the last third of gestation. Existing dairy herds may be converted with the farm on a one-time-only basis, with a full year of organic management

elapsing prior to the sale of any organic dairy products. Male breeder stock (bulls, rams, etc.) do not need to be managed organically and/or can be transitioned at any time. Be sure to obtain necessary documentation of organic status for any organic animals you purchase.

NOP Standards require that organic livestock be fed 100% organic feed. Have a backup plan for alternate organic feed sources in case of a crop failure or other emergency. Any feed additives used must be in compliance with the Standards. Milk replacers, synthetic silage preservatives and growth-promoting hormones are all prohibited.

If you're planning on seeking certification for an organic livestock operation, now would be a great time for you to start filling out your Organic Livestock Plan using our electronic [Organic System Plan tool](#). Some certifiers combine organic crop and livestock information into a single set of forms, but many ask you to complete both forms if you intend to sell both crops and livestock products as organic.

LESSON 2: HEALTH CARE

OVERVIEW

Prevention is the key to a healthy livestock operation. I encourage you to be observant and to recognize the signs of illness and stress in animals. I think it is important to monitor each animal at least once a day. Remember, it's really important to promote health through high-quality feed, healthy pastures and low-stress living situations. Medical treatment must be utilized when needed.

Just as successful organic crops start with healthy soil, a successful organic [livestock](#) operation starts with healthy animals. This requires close and careful attention to animal condition by someone who recognizes the signs of vigor as well as the signs of stress, infection,

GLOSSARY TERMS

Pesticide: Any substance which alone, in chemical combination, or in any formulation with one or more substances is defined as a pesticide in section 2(u) of the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136(u) et seq). (*NOP definition*)

nutritional deficiencies and other problems.

Your system should be set up so that you or someone you trust sees every animal on a regular basis—usually daily, if not more often. The key to organic animal husbandry is preventive health care, and the key to preventive health care is well-informed monitoring of livestock that has been provided a supportive, healthful environment.

Animals are like people—sometimes we get a little stressed out or rundown, and that’s when we’re most susceptible to illness. If we can get some rest, relax and eat properly, usually we can fight off serious illness before it takes hold. You have to be a good enough manager to notice when an animal isn’t quite right. In organic farming, there’s no substitute for observation. Due to their many differences, each species on your farm will require a different level and type of observation.

WHAT THE STANDARDS SAY ABOUT LIVESTOCK HEALTH CARE

In keeping with the fundamental principles of organic agriculture, the NOP Standards require that livestock producers rely first and foremost on preventive methods for livestock health care, as outlined in ([§205.238](#)):

9. Selection of suitable species and breeds with strong natural resistance to common disorders
10. Offering a well-balanced ration to meet all nutritional requirements
11. Provision of appropriate housing and high-quality pasture to allow necessary exercise and relaxation
12. Good sanitation
13. Judicious and humane use of physical alteration practices
14. Use of vaccines and biologics

We’ll talk more about these methods in a moment.

When preventive practices are not enough, synthetic medications may be used, provided they are allowed under [§205.603](#). Use of hormones for growth promotion is prohibited, as is the routine use of synthetic parasiticides or any animal drug in the absence of illness.

Antibiotics are also prohibited in organic livestock production—any animal treated with antibiotics must be permanently removed from the organic herd. Necessary medical treatment should never be withheld from a sick animal in order to preserve its organic status, however.

SELECT WELL-ADAPTED SPECIES AND BREEDS

Many organic farmers report switching breeds in conjunction with transitioning to organic. Older dairy breeds such as the Dexter, Dutch Belted and Ayrshire are gaining renewed interest among organic dairy people looking for traits like longevity, hardiness, thriftiness and willingness to graze. Organic pig farmers favor breeds that show good mothering characteristics, and often choose colored breeds for pasture-based systems (since white breeds can suffer from sunburn).

Crossbreeding is also popular with organic producers, taking advantage of hybrid vigor. Many an organic herd is made up of a colorful mixture of crossbred Jersey, Brown Swiss, Guernsey and others. Some organic farmers report success importing Holstein semen from New Zealand,

GLOSSARY TERMS

Livestock: Any cattle, sheep, goat, swine, poultry, or equine animals used for food or in the production of food, fiber, feed, or other agricultural-based consumer products; wild or domesticated game; or other nonplant life, except such term shall not include aquatic animals or bees for the production of food, fiber, feed, or other agricultural-based consumer products. (*NOP definition*)

Biologics: All viruses, serums, toxins, and analogous products of natural or synthetic origin, such as diagnostics, antitoxins, vaccines, live microorganisms, killed microorganisms, and the antigenic or immunizing components of microorganisms intended for use in the diagnosis, treatment, or prevention of diseases of animals. (*NOP definition*)

Parasiticide: A substance used in medicine and veterinary medicine to kill parasites (especially those other than bacteria or fungi).

where virtually all dairies are grass-based and animals are selected for success on a grass diet.

Within most breeds, there will be individuals with the characteristics necessary for sound organic livestock production. The challenge lies in knowing what phenotypic traits to look for. Animal frame size, eating preferences and reproductive traits can all be favored through breed selection. Culling individuals with recurrent problems and selecting individuals that thrive under the conditions you wish to establish will gradually build up the genetics you need.

MINIMIZE STRESS

One of the best ways to keep your animals healthy is to keep them happy. Contented, well-cared-for animals don't get sick as often. For the most part, the organic standards' requirement to "provide living conditions in keeping with the natural behaviors of the animal and appropriate for its stage of life" implies the provision of low-stress conditions.

Reducing stress also means being aware of animals' social needs and paying attention to the dynamics of your livestock group. Most domesticated livestock species are social animals and need to establish rank and alliances within the herd. For most species, isolation of individuals can cause stress.

Stress can also come from negative interactions with people. Make sure everyone employed on your farm knows how to work with the types of animals in your operation and treats them well. Different species demand different treatment. Protecting your animals from heat and flies will also reduce stress.

For help, check out livestock specialist [Dr. Temple Grandin's website](#) for tips on low-stress animal handling and facility design.

PROVIDE PASTURE FOR RUMINANTS

The NOP Standards require that ruminants be on pasture in order to be certified. Many farmers find that pasture-based systems are well-suited to organic production, for a number of reasons. Click [here](#) to read the NOSB's recommendations on the subject.

Pasture-based systems emphasize lowering

inputs, increasing efficiency and basing the health of the whole system on the health of the soil. High organic matter and balanced soil mineral levels make for healthy pasture and, in turn, for healthy animals.

Many—although not all—organic livestock farmers practice some form of rotational or management-intensive grazing (MIG). In MIG systems, pastures are divided into several small paddocks, often using temporary electric fencing. The animals are grazed at high densities for short periods of time before being moved on to a fresh paddock. Grazed paddocks are allowed to regrow with no animal pressure until ready to be harvested by animals again.

Short-term, high-density grazing can help keep weeds from taking hold (although mowing is sometimes called for). It allows grasses and other pasture species time to regenerate between grazing events, and it gives livestock a steady supply of fresh pasture to graze. It can also be used to reduce the spread of parasites, since most parasites will die over a period of time in the absence of an animal host.

Grazing periods in MIG systems typically range from twelve hours to five or six days; rest periods can range from ten days to a year or even longer, depending on climatic conditions.

HEALTH CARE WITHOUT ANTIBIOTICS

The ban on antibiotics as a health-care tool in organic livestock production is one of the issues perceived to be most challenging by transitioning livestock farmers.

Just as in organic crop systems, where pest pressures diminish as organic systems mature, experienced organic livestock farmers have found that herd health improves once they implement organic practices. Herd health is based on building immune-system function and allowing the

GLOSSARY TERMS

Phenotypic: The expressed traits of an individual plant, animal or other organism; the net result of its genetics and its environment.

Paddock: A small field or enclosure where pasture animals are kept or exercised.

animals' own bodies do the healing. Successful organic farmers base their health management on the prevention of problems, rather than on treatments. Many find that health situations traditionally treated with antibiotics in a non-organic system rarely occur once the organic system has stabilized.

We will discuss here several treatment alternatives. As you successfully transition to organic, your herd health will improve and you'll see lower demand for health intervention.

It is essential that the restriction on antibiotic use not interfere with humane management. If you need to use an antibiotic to save an animal's life, do so, document the use, and remove the animal from your organic herd. Try to figure out what led to the problem so you can keep it from happening again.

SANITATION

Sanitation and good hygiene practices are a centerpiece of organic livestock health care. Sanitation encompasses a wide range of practices, from quarantining new animals brought onto the farm and requesting that visitors wear disposable boot covers or sanitize their shoes, to keeping barns clean, rotating pastures and dealing with manure promptly. Clean, dry, comfortable animals will have stronger immune systems and be more resilient.

Sanitation is particularly important for pig and poultry operations. Many organic pig farmers advocate an "all-in/all-out" rule for raising groups of pigs, to prevent the transfer of pathogens from one group to the next. Facilities are cleaned out and allowed to "rest" in between groups, almost the way a fallow period can break disease cycles in a crop rotation. Of course, it's not possible to prevent all exposure to disease organisms—and many producers argue that animals need some exposure in order to develop strong immune systems. The goal is to protect vulnerable animals (such as newborns) and then control their

exposure as much as possible later on.

Trucks and other equipment can bring disease organisms onto a farm just like dirty boots can. Be aware of where your boots and clothing go off-farm as well. Hose down sows before transferring them into farrowing facilities. Know where your bedding materials come from. If possible, consider prevailing winds and neighboring livestock operations when locating your facilities. These and other measures can help you prevent diseases, so you won't have to treat them later on.

ALTERNATIVE TREATMENTS

In the absence of antibiotics and other "standard" veterinary treatments, organic farmers and vets have developed a growing list of traditional and alternative remedies useful for treating common livestock ailments. Examples include:

- Tincture of garlic (used in place of antibiotics)
- A drench of vinegar, kelp, dolomite, molasses and garlic
- Arnica (good for bruising, and also used after difficult births)
- Comfrey (used topically to accelerate healing of bone fractures and other hard tissue injuries)
- A mixture of copper sulfate and gentle iodine (used topically for foot and hoof problems and minor infections; also effective for early intervention against pinkeye)
- Goldenseal, St. John's wort and aloe vera

Currently, the only non-synthetic (or "natural") substance prohibited for organic livestock production is strychnine. The list of allowed synthetic substances (§[205.603](#)) is considerably longer. Some of the more commonly used items include:

- Ethanol and isopropanol as disinfectants
- Aspirin as an anti-inflammatory

"THE SUN IS YOUR FRIEND"

—*Managing for Herd Health in Alternative Swine Systems*

(Practical Farmers of Iowa, 2007)

- Glucose and electrolytes (without antibiotics) for energy boost and hydration

Be sure that any synthetic substance used does not contain prohibited additives such as preservatives. Check with your certification agency if you have any questions about a particular product.

HOMEOPATHY

Homeopathy is a health tool that many new organic farmers find easy to use with good success. Homeopathy “kits” are available from various sources. These kits offer a diverse array of homeopathic treatments that are generally labeled by the problem they are most effective in solving, making them easy to reach for when a health problem is discovered.

The basis of homeopathy is that a plant or other material is formulated so that the “energy” of that item is extracted and put into tiny pills. Extracts are made from materials as diverse as nettle leaves and bee venom.

Homeopathic remedies are based on the concept of “like curing like.” It has been found that an application of something that causes swelling, such as bee venom, will help to reduce swelling from any cause. Thus an “Apis mel” homeopathic treatment is indicated for the treatment of swelling associated with mastitis in dairy animals.

Homeopathic remedies typically come in the form of small pills or tablets. Depending on the size of the animal being treated, several to many of these small pills are inserted where they will have good contact with mucus membranes. Acute conditions are often treated several times a day for one to several days. Homeopathic kits come with recommendations on dosage and which remedy is indicated for which application. When treating a very sick animal, the remedy indicated for the most extreme condition should be given first. Generally remedies are not used in combination, although they are frequently used in combination with other types of treatments, such as tinctures or herbs.

As with almost all natural treatments, patience is required. Homeopathy has been

found to be very effective in treating many health situations, but will take time as the animal regains its natural resistance and its system strengthens. For more information, contact one of the numerous homeopathy books available, such as Edgar Sheaffer’s Homeopathy for the Herd (Acres USA, 2003).

INTERNAL PARASITES

Keeping internal parasites below damaging levels without the use of commercial parasiticides can be a challenge in organic livestock production. For dairy and breeder stock, the NOP Standards allow use of the parasiticide Ivermectin in emergency situations only; its use is prohibited entirely for organic slaughter stock. Milk and milk products from treated animals may not be sold as organic for 90 days after the use of Ivermectin, and the parasiticide cannot be used on organic breeder stock during lactation or in the last third of gestation if the offspring are to qualify as organic.

A variety of natural, plant-based vermicides and vermifuges have been investigated for use in organic systems, with varying success. For sheep and goats, parasite-load monitoring methodologies such as FAMACHA are recommended.

As mentioned earlier, management-intensive grazing systems can minimize potential problems with intestinal parasites. To manage parasites effectively, one must learn the life cycles of common parasite pests and rotate animals accordingly. Rotational grazing of several species of livestock, either together (e.g. beef and poultry) or in a leader-follower system (e.g. sheep and beef) can further minimize parasite populations.

EXTERNAL PARASITES

External parasites such as lice and ticks can be managed by external applications of diatomaceous earth, and by providing dust baths for chickens. Flies and mosquitoes can be reduced

GLOSSARY TERMS

Slaughter Stock: Any animal that is intended to be slaughtered for consumption by humans or other animals. (*NOP definition*)

with the use of fans, sticky tape, bug zappers and screens, and by encouraging beneficial predators like purple martins and bats.

Cleanliness and prompt removal of manure in and around lots and buildings is essential to controlling fly populations. Prompt removal of standing water helps reduce mosquito populations. Many organic farmers follow grazing cattle with poultry groups to scratch up manure piles and eat fly eggs; another strategy is to drag pastures after grazing to distribute manure.

Preventive measures and the use of various approved treatments for parasite control are the subject of lively dialogue among organic farmers, veterinarians and researchers. Final decisions should always be made in consultation with your certifier.



Photo Credit: Jack Sherman

Follow grazing ruminants with chickens to reduce fly larvae.

PREDATOR MANAGEMENT

Predator management is another, occasionally critical, aspect of herd and flock health. Most animal operations will have predator issues of one kind or another, especially when young stock are on the farm.

Guard animals such as dogs, llamas and donkeys occupy an important place within organic systems. Any of these are most effective if introduced to the flock or herd at a young age and left to live amongst the animals for the majority of their lives.

Other acceptable ways of limiting predation include shutting up animals at night; hunting (in keeping with state and local regulations); mechanical traps, protective fencing, noisemakers or visual deterrents; and properly disposing of dead animals and processing waste. Keep in mind that some predator animals are protected from harm by law—check with your local department of natural resources before attempting any predator eradication program.

Alternatively, you may be able to develop your predator management strategies into an additional selling point for your products. A growing number of farmers and ranchers throughout the United States participate in voluntary “predator-friendly” certification programs designed to protect livestock while also safeguarding wild creatures. These programs should be compatible with organic certification.

PHYSICAL ALTERATIONS

The NOP Standards allow physical alterations (docking, castration, etc.) “as needed to promote the animal’s welfare” and “in a manner that minimizes pain and stress” (§[205.238](#)). This is pretty open-ended, and there’s been considerable debate among organic producers and animal-welfare advocates as to what it should mean.



Photo Credit: Julie Anne Workman

Tail docking of sheep is usually allowed under organic certification, but you should always check with your certifier before planning any such physical alterations.

Individual certifiers may vary somewhat in their interpretation of this rule, based on regional practices and conditions. Ear notching or tagging is generally allowed for most species. Tail docking of cows and pigs is generally prohibited, but tail docking of sheep is usually allowed. Castration and dehorning are usually allowed but should be done as early in the animal's life as possible.

Check with your certifier regarding what physical alterations you plan to make, and be sure you specify in your Organic Livestock Plan when, why and how you plan to make them.

All medical treatments or procedures, including physical alterations—whether administered by you or by the vet—are considered “health events” that must be recorded. Treatments to poultry may be recorded by group; each animal does not have to be individually identified.

SUMMARY

The NOP Standards for health care practices cause concern among many producers as they first consider the organic transition. Organic standards require antibiotics to be used if necessary, but stipulate that any animal so treated be permanently removed from the organic herd or flock. Many other conventional veterinary treatments are also prohibited under organic rules. Synthetic medications must be used in compliance with [§205.603](#) of the Standards.

Organic health care practices focus on promoting animal health, rather than on treating disease. Choosing well-adapted breeds and individuals, practicing good sanitation, offering high-quality feed and forage, and providing clean and appropriate housing are all required elements of an organic livestock health care plan. Use of vaccines and other immune-building practices (such as feeding colostrum to calves) are also invaluable.

Limiting internal and external parasites is a key challenge of organic livestock management. Careful pasture rotations, diatomaceous earth, permitted dewormers and close observation are all important methods.

You may wish to do some more work on your Organic Livestock Plan while the health care standards are fresh in your mind. In the next

lesson, we'll talk about organic requirements for livestock living conditions.

LESSON 3: LIVING CONDITIONS

OVERVIEW

As we saw in the previous lesson, provision of appropriate living conditions is an essential part of a successful organic health care plan. What's appropriate will depend on the type of animals in question, their stage of life and the local climatic conditions. NOP Standards set rules for outdoor access by livestock and poultry as well as for buildings and other facilities.

Livestock facilities can represent a major financial investment for many farms, so you should carefully consider how your existing setup matches the Standards as you begin to plan your transition to organic. You may need to make major changes, or you may be able to make a few inexpensive modifications. Whether you're planning new construction or purchasing used equipment from another producer, consult your certifier to make sure materials are in compliance and that the new facilities will offer you the flexibility you need to meet organic requirements.

The organic living conditions standard also covers responsible manure management to protect crops, soils and water resources from contamination with nutrients, heavy metals and pathogenic organisms.

A final question to consider is whether your shift to organic suggests an alteration in the number of animals you plan to manage or raise each year. The higher price premiums often available for organic products may mean you can scale back or diversify your operation while achieving greater profitability and quality of life.

WHAT THE STANDARDS SAY ABOUT LIVING CONDITIONS

NOP Standards require producers to “establish and maintain livestock living conditions which accommodate the health and natural behavior of the animals” ([§205.239](#)). Specific requirements stipulate that:

- All animals must have “access to the outdoors, shade, shelter, exercise

areas, fresh air, and direct sunlight” as appropriate for “the species, its stage of production, the climate and the environment.” Confinement of animals is allowed only on a temporary basis based on weather conditions, health or the animal’s stage of production.

- Ruminants must have access to pasture.
- Bedding must be kept clean and dry. If livestock typically eat the bedding, it must be organically produced, like any other part of their feed.

Livestock housing or shelter must be designed to give animals:

- Room for exercise and other natural behaviors such as grooming and lying down
- Protection from extreme temperatures
- Ventilation and fresh air
- Protection from injury

DEFINING “ACCESS TO PASTURE”

The National Organic Standards Board issued official guidance language for the access-to-pasture requirement, stating that “ruminant livestock should graze pasture during the months of the year when pasture can provide edible forage” except during climatic events such as drought or flood, and that “the Organic System Plan should have the goal of providing a significant portion of the total feed requirements as grazed feed...not less than 30% dry matter intake on an average daily basis during the growing season [and] not less than 120 days per year.”

The [NOSB](#) guidance document suggests that the following information be included in the Organic Livestock Plan to verify compliance with the pasture requirement:

- Amount of pasture provided per animal
- Average amount of time animals are grazed on a daily basis
- Portion of total feed requirement provided from pasture
- Circumstances under which animals will be temporarily confined

- Records maintained to demonstrate compliance with pasture requirements
- Outline of plans to improve and optimize pasture access over time

ACCESS TO PASTURE IN PRACTICE

The ability of organic producers to offer pasture to ruminants obviously varies greatly depending on the local climate. In the humid East and grass-generous Midwest, pasture can be provided almost year-round, even in more northerly areas, where producers are getting more and more skilled at “stockpiling” grass for grazing after the growing season is over. Weather protection mechanisms such as shelterbelts allow cattle to be comfortable outdoors even in the winter.

In the dry parts of the West, pasture is naturally limited by rainfall and irrigation. The “Regional Natural Resources Conservation Service Conservation Practice Standards for Prescribed Grazing” ([Code 528](#)) can be used to help farmers and certifiers agree on appropriate pasture conditions for a given number of animals in a given area. Contact your certifier for the latest protocols.

GRAZING SUCCESS

Farmers’ investment in pasture-based livestock management has been significant in the past two decades. Their work and collaboration has created an active body of regionally adapted resources and many farmer-based organizations, such as the [American Pastured Poultry Producers Association](#) (APPPA). “Grazing networks”—groups of farmers or ranchers who come together to exchange ideas about pasture management and

GLOSSARY TERMS

Records: Any information in written, visual, or electronic form that documents the activities undertaken by a producer, handler, or certifying agent to comply with the Act and regulations in this part. (*NOP definition*)

Shelterbelt: A line of trees or shrubs planted to protect an area, especially a farm field, from strong winds and the erosion they cause.

other aspects of grass-based production systems—are another innovation pioneered in New Zealand that has become increasingly popular in the United States.

Successful grazing involves making regular management decisions. Many farmers realize they can best learn how to manage pastures from other successful graziers. Experienced organic farmers must consider not only the mix of species in the pasture, or the height of the green growth, but also the nutritional analysis of the forage, including the protein-to-energy ratios, and relative levels of macronutrients and trace minerals. Working with a nutritionist and studying your soil tests can offer insight into the connections between your soil profile and the health of your herd or flocks.

SHELTER AND HOUSING

The state of your existing livestock housing facilities can have a big impact on the feasibility and ease of your transition to organic. If you’ve recently made a major investment in an expensive confinement facility, you may find it more difficult financially to justify the move to an organic system. Older dairy barns and other facilities can also sometimes be more of a liability than an asset. Some experienced “grass farmers” argue that the fewer buildings you have on a farm, the better—buildings require maintenance, and they by no means always improve the health of the animals.

Low-cost hoophouse systems combined with rotational grazing are becoming popular for all types of livestock. These newer types of structures are cost-effective and make it easier to maintain temperature level, ventilation, air circulation, comfort behaviors, opportunity to exercise and protection from injury for many species.

Livestock housing and pasture systems need to be constructed in such a way as to prevent any contact with prohibited materials. This includes arsenate-treated wood and lead paint. For existing setups being transitioned, it’s sometimes possible to grandfather in treated wood if the inspector and certifier agree that the risk of contamination is small. For new construction, treated wood will generally be allowed only in areas where animals will not come in direct contact with it. Using naturally rot-resistant woods like Osage orange,



Photo Credit: Jack Sherman

Hoophouses offer a low-cost, low-maintenance option for rotationally grazed livestock.

black locust or red cedar is preferable. Fiberglass or plastic posts are another option. Again, check with your certifier before you make an investment.

HOW MUCH SPACE?

Although the NOP Standards don’t provide specific space requirements for different types of livestock, other groups have issued guidelines that may help you in designing your system. The [Certified Organic Associations of British Columbia](#) offer the following minimum space requirements, for example:

In pens

Livestock	Space requirements
Calves under 400 lbs.	80 feet ² per head
Farrowing sows	50 feet ² per head
Layers	2.5 feet ² per head
Broilers	.36 feet ² per pound of bird

In paddocks

Livestock	Space requirements
Cattle	800 feet ² per head
Sheep	400 feet ² per head
Sows with litters	10 head per acre
Sows without litters	15 head per acre
Layers	1,000 birds per acre

DEFINING “TEMPORARY CONFINEMENT”

NOP Standards allow for temporary confinement of livestock, based on the following specific conditions (quoting from §205.239):

- Inclement weather
- The animal’s stage of production
- Conditions under which the health, safety or well-being of the animal could be jeopardized
- Risk to soil or water quality

As you might expect, defining some of these terms and interpreting their application across a variety of regions and production systems has been a challenge. In its guidance document on access to pasture for ruminants, the NOSB suggests that confinement in the case of severe weather should be limited to periods of a few days during each grazing season and states that “in no case should temporary confinement be allowed as a continuous production system.”

It’s best to learn about the appropriate use of temporary confinement by consulting with established certified producers in your area, particularly those who use the same certifier you have chosen. To make sure the housing and management system you have in mind will conform to organic regulations, talk over your plan with your certifier as you begin your application and before you invest money in new facilities.

As always, your certifier is your best link to possible changes in interpretation of the Standards on this point.

MANURE HANDLING

A final clause of the living-conditions standard relates to responsible manure management: “The producer of an organic livestock operation must manage manure in a manner that does not contribute to contamination of crops, soil, or water by plant nutrients, heavy metals, or pathogenic organisms and optimizes recycling of nutrients” (§205.239c).

The use of manure in the production of human food crops is very closely regulated by the NOP. Be sure to understand the rules before you

spread manure on any crops grown for human consumption.

On-farm composting is an effective way to manage livestock wastes while promoting soil health. Manures can be mixed with carbon-rich materials and allowed to heat and decay. Farm-based carbon sources might include bedding or waste hay; off-farm carbon sources could be municipal leaves or wood chips. For more details on compost production and use, see the Composts lesson within the Soils chapter.



Photo Credit: Rodale Institute

On-farm composting of manure is a cost-effective way to keep valuable nutrients on your farm.

PEST MANAGEMENT

Improperly managed manure can increase the risk of E. coli, other pathogenic bacteria, intestinal worms and insect pests.

Keeping flies’ numbers reduced is an important part of providing comfortable living conditions for your animals. Flies will congregate when manure is present. Fly-control strategies approved for organic management include releasing natural enemies like hister beetles and predatory wasps, keeping barns clean and dry, and using various non-synthetic traps. Many dairy farmers use sticky tape to catch flies in the milking parlor or install walk-through flytraps for the cows to move through on their way into the

barn. Bug zappers and jar traps are also permitted, although some farmers (and entomologists) disapprove of bug zappers, since they tend to kill many beneficial insects along with troublesome ones.

There are also some organically approved fly sprays on the market, for example Ecto-phyte by [Agri-Dynamics](#) and No Fly by [Crystal Creek](#).

SUMMARY

Providing appropriate, healthy indoor and outdoor living conditions is required by National Organic Program Standards and is fundamental to maintaining a profitable, thriving livestock operation. Organic rules require access to the outdoors for all livestock and access to pasture for ruminants. If you have cows, sheep or goats, developing expert pasture-management skills will be critical to your organic success.

Organic poultry and pig management are dynamic sectors with many recent innovations based on new and appropriate technology, such as hoopouses, lightweight electric fencing and movable hutches or creepers. Consult the resources at the end of this chapter or contact other growers in your area for more details on building or modifying these systems.

If you're ready, take some time now to visit your Organic Livestock Plan and fill out the sections relating to livestock living conditions. In the last lesson of this chapter, we'll cover basic organic handling and processing regulations as they apply to animal products.

LESSON 4: PROCESSING

OVERVIEW

So far in this chapter, we've discussed origin-of-livestock requirements, feed rules, living conditions, and health care practices for organic livestock production. In this lesson, we'll discuss options for on-farm and off-farm processing and packaging of meat, milk, eggs, and other livestock products.

You have an opportunity to enhance farm income by choosing to process your animal products yourself, or you may contract with local processing facilities for slaughtering, butchering

and other services. This decision will depend on your markets as well as on your farm facilities and labor resources. Many organic farmers find that marketing processed products versus live animals can greatly enhance their total income without requiring expansion of their production capacity.

Most organic livestock producers make use of USDA or state-inspected processing facilities for slaughtering and packing. A growing number of meat processors have experience with organic handling in accordance with NOP Standards. Contact your state department of agriculture, extension offices, and producers' organizations to locate facilities in your area.

For the direct marketing of livestock products, some level of processing is almost essential. For the purposes of organic certification, processing generally entails additional recordkeeping requirements, the creation of an Organic Handling Plan, and additional certification fees. You will also have to abide by any applicable local, state, and federal regulations for food safety, waste management, public health, etc. The markets you sell to (e.g. farmers markets, retail stores, wholesale, home delivery) will dictate the kind of processing facility you must use. Check with the marketer or your state department of agriculture to find out any specifications.

WHAT THE STANDARDS SAY ABOUT LIVESTOCK PROCESSING

Organic processing and handling requirements are discussed at more length in the Certification chapter of this course. Basically, to be certified as an organic processor or handler, you need to:

- Make sure any and all ingredients and processing aids meet the appropriate organic label definitions (i.e. "100% organic," "organic," or "made with organic ingredients")
- Establish a good recordkeeping system, including the maintenance of an audit trail to track saleable products back to the fields, locations or groups of origin

- Show that facilities are cleaned with approved cleaning materials with no risk of contamination to the organic food item
- Maintain a facility pest-management plan in keeping with organic regulations (§205.271)
- Ensure separation of organic and non-organic ingredients and final products

Before launching a processing enterprise, do lots of research—talk to your public health officials, your local extension service and any other farmers you can find who are engaged in similar projects. Rules governing processing vary widely by state and municipality.

ON-FARM MEAT PROCESSING

Small to medium-size organic poultry producers may want to consider on-farm slaughtering and butchering as part of a direct-marketing effort. Poultry processors are often eligible for small-scale exemptions not available for other types of meat processing. Most states set their own limits for on-farm poultry processing. Check with your state department of agriculture to find out about the regulations for your state.

A number of community agricultural development centers and other groups have designed and built self-contained, mobile poultry-processing facilities that can be driven or towed to individual farms for occasional use. Systems like these can reduce costs for small-scale producers, facilitate adherence to regulations and let you test specific types of equipment before making a major investment of your own.

You'll also want to consider your marketing strategies and how they might affect your processing choices. Some farmers encounter problems obtaining permission to sell fresh meat or even eggs at farmers markets, for instance. Talk to market managers well ahead of time to find out what the requirements are in your area. ATTRA (the National Sustainable Agriculture Information

Service) has a detailed guide, "[Small-Scale Poultry Processing](#)," describing several different systems.

Remember, if you process livestock on your property, you still need to comply with state and local food-safety regulations as well as federal inspection requirements if you sell across state lines. This includes mail order and Internet sales.

OFF-FARM MEAT PROCESSING

Like other kinds of organic processing, certified organic slaughtering and butchering require that systems be in place to prevent commingling and contamination. If a facility is used for both non-organic and organic processing, organic animals have to be kept separate from other incoming animals, in a clearly designated area protected from contamination with prohibited materials.

If you maintain a split operation with both organic and non-organic production and/or processing on the same farm or in the same off-farm facility, additional procedures and greater vigilance will be required to make sure that organic and non-organic products stay separate and readily identifiable at all times.

Usually, the organic animals are processed at the beginning of the day or shift, following a complete cleanup of the facility, to prevent contamination from non-organic animals or meat. Carcasses should be labeled as organic.

LOW-STRESS ANIMAL HANDLING METHODS

Whether you're slaughtering on-farm or delivering your animals to a certified processing facility, remember that low-stress animal handling methods are an important element of humane livestock management. Animals that are visited regularly during rearing will be easier to handle and transport when the time comes for processing.

Working animals intelligently, gently and with respect reduces the risk of injuries for everyone involved. Humane handling also contributes to improved meat quality and, ultimately, better sale prices. Trucks and trailers should be kept in good repair, have non-slip floors, be suitable for the animals being transported, and be driven cautiously to avoid falls and bruising. Be

GLOSSARY TERMS

Split operation: An operation that produces or handles both organic and nonorganic agricultural products. (*NOP definition*)

aware of temperature and weather conditions, and never overload a livestock transport unit. Gates, fences and chutes should have smooth edges to prevent cuts and bruises.

Low-stress animal handling is appropriate for all livestock production systems and is implied by the NOP Standards' emphasis on animal welfare. It's also well suited to high-value, high-quality organic marketing.

HACCP

Slaughterhouses inspected by the USDA are required to have Hazard Analysis Critical Control Points (HACCP, pronounced "HASS-ip") plans. HACCP is a methodology for assessing the whole manufacturing or processing facility, identifying the points at which contamination or other hazards can occur and then instituting monitoring procedures at those points.

HACCP is a useful analytical tool and can be an excellent starting point for creating an Organic Handling Plan, even if your facility is not federally inspected and thus not required to use HACCP. Recordkeeping should be sufficient to allow tracking of each individual animal through the facility.

Organic inspectors are trained to use HACCP as a way to identify potential threats to organic integrity. With a little background, you too can use it to troubleshoot your on-farm facility, evaluate a processor's facility and better understand the certification process. The USDA's [Food Safety and Inspection Service](#) has more information about HACCP and its application to different types of situations.

DAIRY PROCESSING

For dairy products, as with other organic foods, maintaining quality is of foremost importance. This is true whether you're selling your organic milk in bulk or processing it into yogurt or cheese on-farm. Most organic milk buyers require lower somatic cell count thresholds than conventional milk buyers do. It's always important to guard against the contamination of milk with off flavors from garlic or other pasture weeds, but this will be even more critical if you're direct-marketing your milk.

As with poultry processing, different states have widely varying regulations and licensing requirements for on-farm dairy processing. Check with your state department of agriculture for regulations relevant to your location. The necessary infrastructure investment required for small-scale on-farm cheese making, for instance, is minimal in some states and cost-prohibitive in others.

Labor resources are another key factor to consider when exploring on-farm dairy processing options. Jack Lazor, who with his wife, Anne, has been making and selling Butterworks Farm organic yogurt on their Vermont farm since the late 1970s, cautions that "milk processing is [a] serious, time-consuming business" that is often challenging to balance with regular farm chores. Other points to consider:

- Experiment extensively in the kitchen before investing in commercial-scale equipment. Attend field days and workshops. Visit other dairies and small-scale processors.
- Think about facility requirements when choosing your product. Raw-milk cheeses are simplest because they don't require pasteurization, but they're subject to additional regulation and can require more aging-room space.
- Yogurt provides good returns but requires a large initial investment due to the cost of cup-filler machines.
- Now that the organic market is so large, you'll be competing with national brand competitors. How are you going to distinguish yourself? What will be your niche-within-a-niche?

GLOSSARY TERMS

Somatic cell count: A measure of milk quality based on the level of white blood cells present in the milk. A high SCC (generally expressed in 100,000s of cells per milliliter) can indicate mastitis.

EGG HANDLING AND PACKING

The NOP Standards do not spell out specific rules for the washing and packing of organic eggs. In keeping with general processing standards, however, organic eggs must be kept clearly separated from non-organic eggs and protected from contamination with prohibited substances. Consult the Resources section at the end of this chapter for more information.

The best way to keep eggs clean is to provide plenty of clean, fresh bedding for laying boxes, collect eggs regularly and make sure you have enough boxes for the number of hens. Egg washing practices are essentially the same for organic and non-organic handlers, with the important caveat that any washing or defoaming agents must be approved for organic use. Contact your certifier for allowed products and brands.

Be aware, too, that most states have regulations pertaining to the sale and handling of eggs. Check with your local authorities to make sure you're in compliance.

ANIMAL FIBERS

Although the NOP has no published standards for organic wool production, the [Organic Trade Association](#) (OTA) and other industry leaders got together in 2004 to publish their own set of organic fiber standards. These cover wool, cashmere and other exotic animal fibers as well as crop-based fibers. OTA's Fiber Standards may be viewed online free of charge after registering with the site.

In principle, organic wool must come from certified organic animals grazing on organically managed land. Wool storage, washing and other processing should be done without use of prohibited materials for cleaning, dyeing or the prevention of pest damage. Some organic wool producers use all-natural, plant-based dyes as more in keeping with organic principles. Markets

for organic wool are increasing at both the retail (home spinners and knitters) and wholesale (blankets and clothing) levels.

DOCUMENTATION AND LABELING

NOP Standards require that all animals be individually identified and traceable through every phase of on-farm production. For poultry, records may be kept by flock; for bees, by hive. Recordkeeping requirements for organic livestock operations are discussed in more detail in the Certification chapter of this course.

As with crops, NOP Standards allow the use of other, so-called complementary label claims so long as they are truthful and accurate. Some of these have their own certification and authentication systems, such as kosher and certified humane. Others, like "local" or "natural," currently do not.

Meat labels must meet state requirements. Organic labeling must meet NOP requirements. See the Certification chapter for details on organic labeling.

SUMMARY

Organic processing and handling regulations for livestock products are identical to those governing non-livestock organic products. In most cases, how you set up your on-farm processing facilities will depend more on local, state and federal food-safety and other regulations than on organic requirements. Organic products must be kept separate from non-organic products and protected from contact with prohibited materials. Cleaning products, additives and all ingredients must be used in accordance with the NOP Standards.

If your livestock products are to be sold as certified organic, any off-farm processing must likewise conform to organic standards for processing, handling and labeling. Small and medium-size livestock processors are sometimes able to accommodate organic producers by running the organic animals first thing in the morning, on a clean line, to prevent contamination or commingling with non-organic product.

Standards for organic recordkeeping, facility pest management and processing are covered in

GLOSSARY TERMS

Prohibited substances: A substance the use of which in any aspect of organic production or handling is prohibited or not provided for in the Act or the regulations of this part. (*NOP definition*)

more detail in the Certification chapter.

Take a moment now to complete more of your Organic Livestock Plan. Coming up next is a special section covering more specifics about organic management of dairy cows, beef cattle, sheep and goats, hogs, poultry and honeybees.

LESSON 5: SPECIES INFO

DAIRY COWS

Organic dairying is challenging but highly rewarding. Organic milk is among the strongest and fastest-growing sectors of the organic marketplace, attracting many farmers with a diversity of operations. Keep in mind that it is a dynamic marketplace and the balancing of organic supply and demand is expected to continue in the years ahead. In this environment, it's important to consider all your marketing options before signing on with a particular group.

If you have the facilities, you may want to consider marketing directly to the public. This option will require a large investment in infrastructure, but if well managed, can also bring high returns. If you're farther from a consumer population or you're not interested in the marketing end of things, talk to other organic dairy farmers about their experiences before committing to a buyer. Having a positive marketing relationship is probably more important in the long run than securing a few more pennies per hundredweight of milk.

Successful organic dairy farmers recommend rotational grazing, high-forage diets and open housing to keep dairy cows healthy and comfortable without the use of veterinary interventions. Many also change their genetics, moving from purebred to mixed-breed herds, sometimes importing semen from countries such as New Zealand, where grazing has remained a priority. These producers focus on managing for lifetime per-cow milk production or milk production per pound of body weight rather than milk production per lactation.

As you make the change to organic, you may also find that your balance of cows to acres and of farm-raised grains to farm-raised forages changes.



Photo Credit: Thinkstock

A cow in a milking facility

DAIRY NUTRITION

As discussed above in the section on feed, providing a high-quality, appropriate diet is the cornerstone of organic dairy management. The best base for that diet is well-managed pasture. Many organic farmers work with a nutritionist to help evaluate and balance the ration they offer their cows.

Gary Zimmer, of Midwestern Bio-Ag, suggests that a good target for a milking cow is a 16 to 18% protein ration made up of 60 to 75% forages on a dry-matter basis. Usually, this includes a combination of hay, haylage, corn silage, dry corn and roasted soybeans. Some farmers don't like corn silage; others find it's useful in small amounts. The components of your ration will depend on many factors, including your available land, equipment and expertise. But remember: make your cows' health your first priority. Productivity and profitability follow from there.

Organic dairy nutritionists and veterinarians place a great deal of emphasis on mineral balancing and how cows' mineral needs change through different stages of production. Offering free-choice minerals is a good insurance policy in case your nutritional analysis and ration planning

fall short. But your underlying goal should be to achieve the right mineral balance in the ration itself. Healthy soils are better able to produce forage and grain crops that provide the right balance of minerals in the first place.

DAIRY HEALTH CARE

Not being able to use antibiotics for dry-cow treatment causes a good deal of concern for dairy farmers transitioning to organic. Most experienced organic dairy people find those fears understandable but largely unfounded once an effective organic herd health plan is working.

For dry-cow management, Dr. Paul Dettloff recommends bringing the potassium-to-calcium ratio as close to 1:1 as possible and being sensitive to two natural dips in the strength of the cow's immune system. The first dip is about a week long, right after dry-off; the second is a 4- to 6-week period around calving.

During these two periods, avoid activities that challenge a cow's immune system, such as administering vaccines. Instead, take steps to boost immune-system functioning by feeding aloe vera pellets and/or kelp.

Read more: [The fundamentals of dry-cow management](#)



Subject to revisions. A number of materials included on the original 2001 National List of approved and prohibited materials were subject to a 5-year "sunset" provision unless re-approved. In March of 2006, the NOSB issued final recommendations to allow continued emergency use of oxytocin and Ivermectin. Use of Ivermectin is allowed in dairy animals and breeder animals only, not slaughter stock, and subject to specific restrictions. For example, milk from treated animals must be withheld for 90 days.

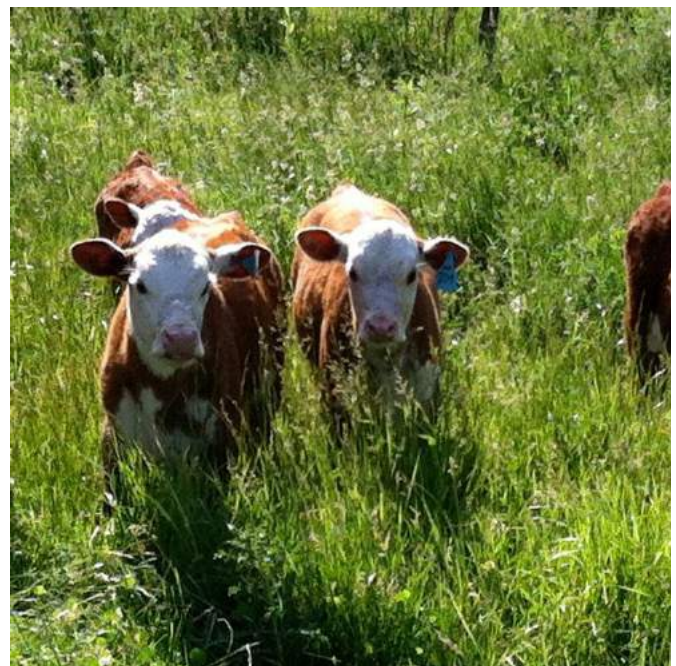
CALF MANAGEMENT

For standard calf management off the mother, experts like Dan Leiterman, of Crystal Creek, a Wisconsin-based organic dairy nutritional consultancy, emphasize the importance

of providing a dry, comfortable environment and being aware of calves' changing nutritional requirements. "Ask yourself, would you put your children in the calf pens? ... Get on your hands and knees and take three deep breaths," Leiterman advises. If your knees get wet and you're choking on ammonia, you need to make some changes.

Calves should get a gallon of first-milk colostrum within their first 8 to 12 hours of life. For calves less than three weeks old, consider feeding more than the standard one to two quarts of milk twice a day. "Calf weight gain directly correlates to calf survival and disease resistance," Leiterman points out. Calves eating lots of calf feed or hay when they're less than 21 days old are trying to tell you they're not getting enough milk.

Some organic dairy farmers advocate letting the calves stay with their mothers until weaning or putting them with an older nurse cow. These practices produce stronger, bigger calves, save an hour or so a day of calf chores, and (some people feel) lower the stress levels of the entire herd. On the other hand, the calves will consume milk you could otherwise sell, and there is some risk of disease transfer from cow to calf via suckling.



Calves on grass

Photo Credit: Jay Bohnsack

BEEF CATTLE

Raising organic beef cattle is generally less management-intensive than organic dairying. Here, the main challenge frequently lies in the marketing end of things. To get the best price, you need to market directly to the consumer, but this takes work—advertising, communicating with customers, figuring out what to charge, predicting demand, and balancing what your customers want with what you can reasonably produce. In many areas, it's hard to find federally inspected slaughtering facilities willing to handle small numbers of animals, not to mention being ready to get certified for organic handling.

The development of markets for organic meat is several years behind organic produce and grain markets because of the lag in labeling for organic meats. This allowed other alternative labels to gain market share, including “natural,” “antibiotic- and hormone-free,” “grass-fed” and “humanely raised.” But organic beef is a fast-growing industry.

In 2016, the USDA Agricultural Marketing Service [withdrew its grass-fed standard](#) and stated that it would no longer be verifying applicants to the Standard.

The other challenge with organic beef is deciding whether to go entirely grass-fed or to select a combination of pasturing and grain finishing. Cattle don't need grain—they can get everything they need from well-managed pasture, supplemented with a few minerals—but for marketing reasons, you may decide that some grain feeding is valuable. Not only are most customers used to the way grain-fed beef looks and tastes, but the USDA grading scale was designed to favor the fat marbling characteristics of grain-fed meat. Without exceptional grass-based genetics, pasture and management, it's difficult to produce beef that will grade as “choice” without feeding some grain.

GRAZING FOR BEEF

Grass-fed beef takes longer to finish than grain-fed beef. You must consider production time and costs carefully when projecting your cash flow. Average daily gain on good-quality pasture can reach 2 to 2.4 pounds. Most graziers recommend keeping cattle on pasture until they

reach at least 800 to 900 pounds. After that, they might get 8 to 10 pounds of grain per day, gradually increasing to 12 to 14 pounds per day for finishing.

As with dairy cattle, moving to organic beef production may cause you to rethink your breed choices. Organic farmers report that smaller breeds with good mothering traits, such as Red Angus, work best in pasture systems. For calves, the rule of thumb is “castrate early, wean late” to put minimal stress on the animals.

FARMER-TO-FARMER

“The organic graziers in New Zealand have a theory that it takes five days for the worm eggs to hatch and become strongly infective, so if you keep your cattle moving every five days or less, you can reduce the impact of parasites.”

—Dan Specht
Clayton County, IA

Herd health management strategies for organic beef are similar to those for organic dairy, although generally simpler. Many organic producers use diatomaceous earth (DE) for internal as well as external parasites, although its internal effectiveness is a matter of debate. DE can be offered free-choice two or three times a year, on its own or mixed with ground corn, minerals, kelp, or salt. Another reported treatment for external parasites is a mixture of Vaseline and sulfur applied to posts or stationary brushes for cattle to rub against.

Kelp is also used as a mineral supplement to treat conditions such as hoof-rot and pinkeye. Calves can be given *Lactobacillus acidophilus* as a probiotic, particularly if they have trouble with scours.

Among the best strategies for solving herd health issues is to cull and select rigorously, getting rid of animals that seem to be most susceptible to problems and retaining the offspring of those that do best.

SHEEP AND GOATS

The biggest challenge in organic management of sheep and goats is dealing with internal parasites. The goal is not total elimination of parasites, but keeping their populations to low levels. Factors affecting parasite buildup include animal nutrition, stress, pasture rotations, genetic resistance, the lambing calendar, and the use of natural vermicides made from plant-based materials such as conifers, lamb's-quarter, wormwood, and trefoil.

Some organic sheep producers advocate shifting the breeding calendar in order to lamb on pasture in late spring instead of in the barns in winter. As with other livestock, getting young on pasture in warmer weather lowers disease pressures, gives the mothers access to high-quality fresh grass, and can reduce the need for expensive infrastructure construction and maintenance. With sheep, added benefits of spring lambing include the increased fertility of ewes around the shortest days of winter, reduced winter feed costs, and the fact that ewes can be shorn before lambing without depriving them of their winter coats.

SHEEP AND PASTURE

Sheep are well suited to mixed-species livestock rotational grazing systems, which can help extend the grazing season while limiting parasite populations. Some people advocate following sheep with cattle because, in tall grass, sheep are less likely to graze low to the ground, where they can ingest parasite larvae. Others prefer to graze cattle first, since sheep are better grazers of short grass.

Ideally, sheep should not graze an individual paddock more than once a year. Some organic sheep farmers alternate grazing ground with haying ground in a two-year rotation to further limit the possibility of infection. Grazing sheep on turnips as part of a crop rotation is another option to extend grazing land.

A good deal of research has been done in New Zealand on breeding for parasite resistance. Using resistant rams can produce lambs with dramatically lower fecal egg counts. Even just a percentage of resistant lambs in a flock can improve performance of all flock members by



Photo Credit: Rodale Institute

Goats browsing

reducing the total number of parasite eggs present in the pasture.

In most areas, sheep need shade and clean water available at all times and five- or six-strand electrified fencing to keep sheep in and predators out. Some producers use dogs, llamas or donkeys as guard animals.

GOATS AND BROWSE

Goats prefer browsing to grazing and have higher mineral requirements than sheep or cows. They are also highly social. To respect these natural behaviors, organic goat management should include access to woody plants, shrubs and/or rough grazing, and plenty of room for running and jumping.

Goats can play a useful role on a diversified farm, keeping brush down or reclaiming pastures that have been let go. In some parts of the country, goat rental agencies are used as chemical-free shrub control for parks and other open areas. If grazing areas don't include rocks or boulders, the goats' hooves will require regular trimming to prevent foot rot and other infections.

Raising meat goats is an increasingly popular niche market opportunity, particularly in locations with access to ethnic populations that prize goat

meat for everyday eating or for specific holidays. Offering kosher or halal slaughtering options can be a good idea.

Rules for organic goat meat production are the same as those for organic beef production; requirements for organic goat milk production are the same as those for organic cow dairy management.

HOGS

Successful methods of raising hogs organically are being worked out by a handful of experienced hog farmers across the country. Researchers at institutions like Iowa State University and the University of Minnesota have begun to examine the production and economic profiles of these systems.

Alternative swine production methods such as the Swedish deep-bedding system were developed and gained popularity prior to implementation of the NOP Standards. Now, we know methods to raise good quality pork, but the meat processors have been slow to transition. Until more slaughterhouses transition to using organic methods, it will be difficult to market certified organic pork on a larger scale. Certifiers and the NOP are figuring out what's optimal and reasonable for organic management of sows and pigs.

There are two aspects of pig nature that make it difficult to develop ideal systems. The first is the need to balance the benefits of pasture and the pigs' need for exercise with the need to protect the animals from extreme heat and cold.

The second challenge is the need to balance pigs' highly social nature with the sows' desire to be separated from the group during farrowing and the little pigs' need for protection from being crushed by their mothers in their first few days of life.

HOGS ON PASTURE

There are two basic alternatives to the non-organic industry standard of total farrow-to-finish confinement for hogs: pastured systems with individual farrowing huts, or hoop house systems with deep bedding.

Pastured systems work great in milder

climates or in the warmer parts of the year. Pigs vary by age and breed in their ability to utilize forages and will usually require additional grain and mineral supplements. Experienced producers have developed ways to integrate sows and pigs into their crop rotations, running them not just on pasture but also on turnips, brassicas, field peas, soybeans or standing corn.

Hogs' natural rooting behavior can be used to "till" ground or to renovate pasture (spreading seed a couple of weeks before hogs are taken off allows them to tread it in), although they can also destroy pasture if not managed correctly. Well-drained, high-legume pastures work best. Producers recommend placing huts at least 50 feet apart. Care should also be taken to eliminate plants like jimsonweed and nightshade, which are poisonous to hogs.



Hogs on pasture

DEEP-BEDDED HOOPHOUSES

Deep-bedded hoop house systems were pioneered in Sweden following a ban on antibiotic use for livestock in 1986 and gained popularity among small-scale producers in the U.S. Midwest in the 1990s. Typically, they involve an inexpensive hoop structure, perhaps 35 by 80 feet, covered with reinforced plastic tarp material

and open at both ends. Up to a third of the area underneath is given a concrete floor and outfitted with feeders and waterers. The rear two-thirds has a dirt floor covered thickly with straw or other bedding material.

Big, round bales of straw, cornstalks, or waste hay are added periodically, which the pigs tear apart and distribute, building nests to stay warm. The pigs' rooting helps compost the manure pack, generating additional heat. The building is cleaned out between groups; the accumulated bedding and manure can be composted further in windrows before being spread on the fields.

The advantages of hoophouse systems are that they are relatively inexpensive, versatile, and effective. They can be used for gestating sows or young pigs. Some producers modify them for farrowing purposes as well.

Hoophouse systems can generally meet production requirements for premium pork markets like Niman Ranch or other buyers adhering to Animal Welfare Institute or American Humane Association standards. Talk to your organic certification agency about whether the system you're planning to use will meet organic standards for winter production.

Remember, too, that organic standards prohibit the use of arsenate-treated lumber where animals can come in direct contact with it.

FARMER-TO-FARMER

"For 13 years, I struggled with countless animal health problems associated with slat floors. Early one September morning, I opened the door of my grower barn, and one of the pens was covered with fresh blood. The pigs' level of stress was so high they had become violently aggressive.

"Plans were set to build three hoophouses where straw-bedded pens replace metal crates and slatted floors. One hundred and sixty pigs were released into their new home. The next morning, as I walked up to the door, it was quiet, very quiet. I peeked into the hoophouse to see 160 pigs in one massive straw nest, snoring with great content! I laughed until I cried. Their stress was gone, and so was mine."

—Tom Frantzen
New Hampton, IA

LET PIGS BE PIGS

The key to keeping pigs healthy is to keep their stress levels low, which means accommodating their natural behaviors as much as possible. For pigs, this means rooting, nesting, wallowing, and foraging.

Studies show that if left to their own devices, pigs will spend about half their time rooting. If they can't root, destructive behaviors are likely to appear. Wallowing is important for temperature regulation in the summer and to eliminate external parasites. Some producers offer on-demand showers or timed sprinklers instead of muddy areas to minimize the risk of disease transfer between groups. Most producers use feeders with flaps or other devices to keep the pigs occupied and to limit the rate at which they can feed.



Photo Credit: Jack Sherman

The most important traits to select for in your hogs are good mothering characteristics.

Pigs are highly social, and good managers will take note of dominance relationships within groups. Groups of 8 to 12 sows are thought to be the most stable. Try to avoid mixing strange groups of pigs. Visit your animals daily, and never run or shout when moving and handling them.

As with cattle, castrate as early and wean as late as possible. Some organic farmers prefer to

provide an iron boost to winter litters by cutting squares of sod before the ground freezes and giving them, dirt side up, to the young pigs.

Other health-management strategies for organic pork production were touched on in the health care section above. Most organic pig farmers regard vaccination and rigorous attention to sanitation procedures as absolutely essential. Pastured pigs are generally healthier, although internal parasites may become a problem. Rotating pastures and feeding diatomaceous earth are the two most common remedies.

Colored breeds generally do better outdoors than white breeds because they're less sensitive to sunburn. Medium-framed breeds with good lung capacity are best suited to organic management overall. Perhaps the most important genetic traits to select for are good mothering characteristics.

ORGANIC EGG PRODUCTION

Many organic egg producers raise their own pullets, since organic standards require organic management—including 100% organic feed—from day one of the birds' life. Conceivably, specialized organic pullet growing operations may appear eventually.

Birds given access to forage from a young age will make better foragers as adults. Foraging can also be encouraged by letting feed run out for a few hours each day before replenishing. Lazier meat birds can be encouraged to go outside by using outdoor feeders and providing shade.

The Organic Livestock Handbook (published by Canadian Organic Growers) offers the following sample ration for a large-scale organic layer operation growing most of its own feed and milling and mixing on-farm (quantities are converted from kilograms):

- 661 to 881 lb. corn
- 440 to 660 lb. mixed small grains
- 440 to 551 lb. soy meal
- 110 to 331 lb. peas
- 220 to 331 lb. mineral mix, alfalfa, flax, and kelp

This provides a 16% protein ration. In winter, it can be adjusted to provide more calories and

less protein by substituting roasted soybeans for soy meal and more corn for some of the small grains.

Some producers say it's better to offer minerals, oyster shell and grit free-choice, separately, so birds don't overeat while trying to satisfy specific deficiencies.

POULTRY HEALTH ISSUES

There are many breeds of laying hens suitable for organic systems, with smaller-scale producers especially favoring the more colorful heritage breeds.

The identification and development of better chicken breeds for organic meat production is an ongoing challenge, since the dominant commercial hybrids have been bred for confinement and tend to develop weak legs. This problem can be reduced by limiting feed somewhat in the first three weeks of life, and being sure that rations are well-balanced with necessary minerals.

Health management practices for poultry include the provision of dust baths to limit external parasites and keep feathers healthy. Following an all-in/all-out system and thoroughly cleaning facilities in between groups can help limit the spread of disease.



Chickens

Photo Credit: Jack Sherman

Alternatives to antibiotics for chicks include apple cider vinegar and/or probiotics in drinking water to combat coccidiosis. Vaccines for coccidiosis are used by larger organic producers. Producers may also use homeopathic remedies.

In its “Draft Recommendation on Access to the Outdoors for Poultry,” dated December 2001, the NOSB observed that “The requirement for access to outdoors is not based on the nutritional needs of poultry but rather on humane consideration[s] and consumer perception.”

In other words, poultry are not really designed to eat a lot of forage—they’re designed to eat insects, seeds and some green stuff. They generally enjoy being outside in the sunshine, where they can forage. There is currently debate as to the exact extent or quality parameters that “outdoor access” for poultry must follow. Grain feeding is imperative for production, whether for meat or eggs, and care must be taken that birds get all the essential amino acids.



Photo Credit: Jack Sherman

Rodale Institute’s tractor-pulled chicken house

STRUCTURES FOR ORGANIC POULTRY

Structures for organic poultry production can be divided into two categories: mobile and stationary. A variety of designs for mobile chicken

houses have been popularized, from Andy Lee’s “chicken tractor” to Joel Salatin’s “pastured poultry profits” system. Houses can be built on two- or four-wheeled trailers or on skids; the smaller and lighter they are, obviously, the easier they are to move.

In milder climates, wheeled chicken houses can be built with screened floors so litter falls through to the ground, making cleanout easier, but in colder climates this may not offer enough winter protection. Houses not placed directly on the ground can be used in conjunction with portable electrified chicken netting to provide protection from predators.

Stationary houses are typically designed with separate access to two or more outdoor runs that can be rotated to manage pests and disease organisms and to allow for regrowth of vegetation. Runs should be seeded to a legume/grass mix, and if possible grazed before vegetation gets too tall, since chickens will graze shorter pasture more efficiently.

It’s a good idea to put down straw or other bedding material in heavily trafficked areas immediately outside the house, so litter can be removed and composted to reduce the reproduction of pest organisms. Flocks should be rotated before they completely denude the vegetation.

Whichever housing style you choose, chickens should be given a minimum of eight linear inches of roosting space per bird, with one nesting box for every four to six laying hens. Clean, fresh water is essential. A covered porch area is also a good idea.

ORGANIC BROILERS

Chickens raised for meat require slightly different management than those raised for eggs. Meat chickens are generally only seven to nine weeks of age when butchered. Most producers use the same genetics for organic production as the conventional confinement industry does, a Cornish-cross bird that has been bred to grow very quickly while consuming large amounts of food. Some producers have been experimenting with heritage breeds or new genetic crosses of birds that have been bred to grow slower, developing a

richer taste, or those that have been bred to thrive on pasture.

Some basic management guidelines:

- All-organic feed and management is required from day-old chicks. Chicks need not be purchased from organic stock. Feed ration should be 19% protein for the entire growth cycle.
- Raise in brooders with heat for three weeks. The best bedding is wood chips or sphagnum moss (low dust). Cleanliness is key to organic success.
- Organic poultry must have access to the outdoors as seasonally appropriate. The outdoor area need not have green vegetation; however, grass-fed poultry can be a selling factor in some markets and is claimed by some to produce healthier birds and better-tasting poultry products. Any land the birds have access to must be certified organic.
- Either a day-range or outdoor pen system may be used. Day-range provides birds with a shelter they can access, but also a free-range area that they can run around in, with food and water. Free-range areas are protected by electric net fencing and may be moved weekly or less often to keep pasture fresh. A pen system has birds in a variety of movable pen styles with food and water. Pens are moved daily to access fresh pasture.
- Health care is the same as for pullets.
- Processing can be on-farm or at an organic plant; state laws stipulate maximums for on- or off-farm sales.

ORGANIC TURKEYS

There is a strong demand in many parts of the country for pasture-raised, organic turkeys for holiday meals. Turkey production is much the same as organic broiler production, but with a few significant differences.

As with broilers, turkey poults can be purchased from any source but must be managed organically from the first day of life. Turkey poults will also be started in a brooder, but should stay

in this more regulated environment longer (four to five weeks). Turkeys also require more protein than broilers, with 24 to 28% protein for the first five to six weeks. After this, they can be moved to a lower-protein ration, such as the 19% protein that the broilers eat. Turkeys generally take four to five months to reach market weight.

Turkeys are strong foragers and appreciate room to move around. However, it can be challenging to train them to respect fences. Most organic producers will raise turkeys outside in pens after the first month, taking advantage of the benefits foraged greens and insects add to the birds' diet and the health benefits of fresh air and sunshine.

Many organic producers raise traditional white or bronze turkeys, using the same genetic strains conventional farmers rely on. A new market trend has started to support production of heirloom turkey varieties, such as Bourbon Red and Narragansett. These heirloom varieties will produce smaller finished birds over a longer period. Being strong foragers with lighter body weights, these birds can be more difficult to manage, as they tend to fly over fences and so on, but they're reported to produce extremely fine-tasting meat that can garner a significant price premium in specialized markets.

ORGANIC BEEKEEPING

When the U.S. National Organic Program Standards were finalized in 2002, they lacked specific guidelines for organic apiculture. Draft organic apiculture standards were put forward by an NOSB Apiculture Task Force in September 2001, but have yet to be officially approved. Instead, the NOP issued a policy statement in May 2002 saying that honey could be certified under the existing standards. Essentially, this has left it up to individual certifying agencies to decide what's reasonable for organic beekeeping practices and organic honey production.

The draft standards propose a 270-day transition period, creation of an Organic Apiculture Plan (along the lines of the Organic System Plan, and including a forage map) and a four-mile radius from the hives within which no prohibited materials are in use. Hives should be

made of natural materials and painted with non-lead-based paints. Plastic foundation is permitted if dipped in organic wax and mounted in a wooden frame. Any supplemental honey or sugar syrup fed to the bees should be from organic sources.

Use of genetic modification technologies is considered an “excluded practice” in organics—all organic producers are required to take steps to prevent contamination of their products with GM traits. Bees are generally believed to travel as far as three miles from the hive, so, ideally, hives should be placed at the center of a circle at least six miles across with no GM crops within the circle.



Photo Credit: Jack Sherman

Paul, a beekeeper at Rodale Institute

HIVE MANAGEMENT

Hive management should emphasize preventive health care, with a goal of building strong colonies naturally resistant to disease and pest organisms. To suppress tracheal mites, organic beekeepers use vegetable shortening, lactic acid, and essential oils such as menthol, cinnamon, eucalyptus, spearmint, wintergreen, thyme and camphor. Some progress has been reported in selecting queens for resistance to varroa and tracheal mites.

Other organic management practices

include basic good beekeeping strategies, such as maintaining hives in good order with no cracks or holes, placing hives so they have access to plentiful forage through the seasons and being careful not to let hives become overcrowded. Individual hives in a bee yard should be three to four feet apart. Providing good protection from the cold in winter also helps colonies stay healthy.

For organic honey production, beekeepers must follow organic handling and processing regulations as outlined in the NOP Standards. They should keep bees and provide bee forage on organically managed land, and they should adhere to the materials restrictions contained in the National List of approved and prohibited materials.

In terms of using bees for pollination, the decline in honeybee populations resulting from disease and other pressures has led agronomists and entomologists to think about ways to protect and promote native bee populations as alternate pollinators. Such recommendations fit well with organic farming, which seeks to encourage beneficial insects for a wide range of ecosystem services.

CONCLUSION

This concludes the Livestock chapter. We’ve covered a lot of information about why livestock can be advantageous in organic farming systems and how organic livestock management differs from non-organic management. It’s important to select healthy animals to begin with and have a knowledgeable person to care for them and keep them healthy. Animals need the correct nutrition, fresh water and healthy living conditions and pastures. Most producers find that once they have their systems set up right, major health problems generally don’t arise, making the NOP restrictions on synthetic medicines relatively easy to follow.

The Resources section at the end of this chapter can point you toward more information specific to your particular needs. Many certifiers and organic producers’ groups maintain lists of approved materials and practices for organic dairy management and other systems.

If you’re planning on transitioning to organic

livestock production, make sure your Organic Livestock Plan is complete using our interactive online tool.

In the next chapter, we'll talk about marketing strategies, farm business management and the many opportunities that exist in today's organic sector. See you there!

RESOURCES

Resources are free online unless otherwise noted.

GENERAL

[NCAT's Organic Livestock Workbook](#)

(ATTRA, 2004)

A step-by-step guide to meeting NOP Standards. 92 pp.

PASTURE

[Eat Wild—Grass-fed Food and Facts](#)

[Grazing Networks for Livestock Producers](#)

Paul Williams and Alice Beetz

(ATTRA, 2002)

How to begin, join or maintain a grazing network.

12 pp.

[Pastures: Going Organic](#)

George Kuepper and Alice Beetz

(ATTRA, 2006) 20 pp.

University of Wisconsin Extension Forage Resources

DAIRY

[Northeast Organic Dairy Producers Alliance](#)

A rich website including news, classifieds, policy discussions and links to additional resources for transitioning.

[Organic Dairy Farming: A Resource for Farmers](#)

Jody Padgham, ed.

(Community Conservation, 2006)

An up-to-date resource collecting expertise from nutritionists, veterinarians, farmers, certifiers and researchers. \$19, 192 pp.

SHEEP AND GOATS

[Dairy Sheep](#)

Margo Hale and Linda Coffey

(ATTRA, 2006)

Covers marketing, breed selection and management. 15 pp.

[Managing Internal Parasites in Sheep and Goats](#)

Margo Hale

(ATTRA, 2006)

Overview and guidelines for organic and sustainable production. 8 pp.

[National Goat Handbook](#)

(University of Maryland)

A comprehensive resource, although not specific to organics. 412 pp.

[Sheep and Goat Marketing Info](#)

PIGS

[Considerations in Organic Hog Production](#)

(ATTRA, 2001)

[Profitable Pork: Strategies for Hog Producers](#)

(SAN, 2003)

16 pp.