Guide for Organic Livestock Producers

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Section 1: Overview of organic certification and production

CHAPTER 1
INTRODUCTION

This guide is an overview of the process of becoming certified organic. It is designed to explain the USDA organic regulations as they apply to livestock producers. If you are also producing crops, you will need the "Guide for Organic Producers" to understand the regulations pertaining to the land and to crop production. In addition to explaining the regulations, both guides give examples of the practices that are allowed for organic production.

The first four chapters of the crops guide are essentially the same as the first four of this guide; they give an introduction to the National Organic Program (NOP), the organic-certification process, the Organic System Plan (OSP), and much more. You can find the crops guide and many other helpful publications at www.attra.ncat.org. If you have already read the crops guide or if you already are familiar with the certification process, proceed to Chapter 5, "Overview of Organic Livestock Systems" in this guide.

There are four sections in this guide:

- **Section 1.** Overview of organic certification and production
- **Section 2.** Pastures and hay crops
- **Section 3.** Livestock
- **Section 4.** Handling of organic feed and livestock products

It also includes a short list of resources and brief summaries of areas of concern for poultry, swine, sheep and goats, cattle, and dairy enterprises as appendices.

Who should read this guide?

- Conventional farmers who are deciding whether they want to become certified organic
- Farmers in the process of converting to organic practices

This guide uses the term "USDA organic regulations" and "regulations" to refer to the Federal regulations that govern organic crop production, livestock production, handling, processing, and labeling. Different terminology often is used in other publications to refer to the same regulations: "National Organic Standards," "NOP Final Rule," or simply "standards," "Rules," or "requirements" are common examples. In this guide, some of the section titles in the USDA organic regulations are referred to as "standards" to correspond with the actual text—for example, "§ 2.5.204 Seeds and planting stocks standard."

The term "standard" also is commonly used in relation to the National Organic Standards Board (NOSB). The NOSB is a citizen advisory board that helps the U.S. Department of Agriculture (USDA) determine which substances and practices may be used in certified organic production and handling. The NOSB makes recommendations. However, these recommendations are not part of the USDA organic regulations until the USDA decides the appropriate regulatory direction after completing a formal review and receiving public comments.

- Farmers who are new to organic certification
- Farmers who are exempt from certification because they sell less than $5,000 worth of organic products per year
- Educators, Extension personnel, and other information providers

This guide was designed to be read before you complete an application for certification. While this is not a required document to read, it may be a helpful tool.

How to use this guide

To be certified organic by the U.S. Department of Agriculture (USDA), farms must be managed in accordance with the regulations in Title 7, Part 205, of the Code of Federal Regulations. Where the USDA logo appears, the text quotes from the regulations. The verbatim text of the regulation language follows the section and paragraph (for example, § 205.203). The verbatim text is followed by an explanation of the regulation.

The book icon indicates publications available from ATTRA - National Sustainable Agriculture Information Service. ATTRA provides farmers and educators with information about sustainable agriculture via toll-free helplines, an extensive Web site, and hundreds of publications. These publications can be downloaded from the ATTRA Web site, or call the ATTRA helpline to request a print copy. ATTRA's Web site is www.attra.ncat.org. Its English-language helpline number is 800-346-9140; the Spanish-language helpline number is 800-411-3222.

Additional useful resources can be found at the end of the book.

This icon indicates resources that are available on the Internet.

This icon precedes the questions at the end of each chapter. The questions serve as a checklist to help you evaluate your farm's eligibility for organic certification and identify areas where your practices may need to be changed.

Consider each of the questions carefully and place a check in the appropriate Yes, No, or Not Applicable box. Answers that accurately reflect your current circumstances will be the most helpful to you. Ideally, most of your checks will be in the Yes boxes. Negative answers may indicate a need to modify your farm practices to comply with the USDA organic regulations.

When you have questions about whether a particular practice or product is allowed in organic production, consult your certifier.

This icon at the end of a chapter indicates a place where you can add your own notes.

CHAPTER 2
THE HISTORY OF ORGANIC AGRICULTURE

Contemporary American organic farming has its roots in the humus-farming movements that spread across Great Britain and continental Europe from the 1920s through the 1950s. These movements evolved largely in response to the increasing use of synthetic fertilizers and pesticides. The proponents of humus farming believed that the highest quality food and the sustainability of agriculture were achieved by "feeding the soil," thereby building soil fertility. Their goal was to increase the humus—the fully decomposed organic matter that has reached a stable state in the soil. Humus farming was typified by mixed farms that included livestock, food crops, feed crops, and green manures. Humus farming made little or no use of synthetic commercial fertilizers or pesticides, in part, because healthy soil rendered them unnecessary.

The 1960s and 1970s brought more visibility to organic farming in the United States as public concern over pesticide use increased. In the minds of consumers, not using pesticides was an important part of organic agriculture. The growth of the organic industry during this era led to the establishment of standards and third-party certification. Third-party certification is an assessment process carried out to verify compliance with standards. The assessment (review of plans and on-site inspection) is carried out by an independent, objective third-party certifying agency.

As the organic industry expanded during the 1980s, different certifiers developed their own standards and certification processes. As a result, some certifiers did not accept the validity of organic certification by other certifiers. These disparities among certifier standards resulted in barriers to trade, which led many to believe that a consistent set of standards was needed: a single set of U.S. standards for organic production, labeling, and marketing. Eventually, Congress passed the Organic Foods Production Act (OFPA) of 1990. This act mandated the creation of the NOP, which is part of the U.S. Department of Agriculture (USDA). The act also created an advisory board of 15 volunteers, the National Organic Standards Board (NOSB). The NOSB includes organic producers (farmers), organic handlers (processors), a retailer, a certifying agent, environmentalists, a scientist, and consumer advocates from across the United States.

After the NOSB makes a recommendation on a new regulation or standard, there is a review and comment period. The NOP then determines the appropriate regulatory action to carry forward. In addition to the setting of standards (rulemaking), the accreditation of organic certifiers is an important task of the NOP.

Related ATTRA publications

www.attra.ncat.org

National Organic Program Compliance Checklist for Producers

Organic Standards for Livestock Production: Highlights of the USDA's National Organic Program Regulations

Organic Standards for Crop Production: Highlights of the USDA's National Organic Program Regulations

The definition of organic

With regulation came the need for more formal definitions of the term "organic." In 1995, the NOSB defined organic agriculture as "an ecological production management system that promotes and enhances biodiversity, biological cycles, and soil biological activity."

In 2002, the NOP defined organic agriculture: "Organic production (is) a production system that…respond(s) to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biological diversity" [§ 205.2].

Both definitions of organic agriculture above describe organic agriculture as a production system. This systems approach strives to understand how all the parts of the system work together. In a systems approach, the farmer will consider how soil, water, plants, animals, insects, bacteria, fungi, and all other parts of the system can interact to cause problems or prevent them.

The farmer's management toolkit combines three types of approaches:

- Cultural (e.g., raising a breed of livestock adapted to the farm's climate)
- Biological (e.g., maintaining a dense pasture to prevent weed growth and grazing cattle with sheep to reduce internal parasite problems)
- Mechanical (e.g., clipping weeds before they can go to seed in pasture)

Organic farmers combine these practices into a productive management system that minimizes the impact to the off-farm environment. All organic farmers share this approach, although their specific objectives and circumstances determine how they implement it.

Since its beginning, organic agriculture also has been based on the principle of sustainability. Sustainability can be defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs. In practice, this means that sustainable farming includes a focus on building the soil with farm-generated fertility inputs such as cover crops and manures. Many farmers who convert from conventional to organic systems find over time that as they add organic matter, populations of soil microbes and soil invertebrates will naturally increase, resulting in a rich, productive soil. This process can take several years. In time, the healthy, biologically active soil will produce healthy plants. The farmers will then need fewer off-farm inputs because their crops will be better able to resist drought, diseases, and insects.

In addition to building healthy soil, successful organic farmers focus on preventing problems rather than reacting to them. For example, organic farmers prevent insect problems by providing habitat for beneficial insects that keep populations of harmful insects in check. Livestock producers prevent illness in their animals by providing good nutrition, sanitation, and a low stress environment. This guide provides many more examples in later chapters.

The importance of soil building and the need for a systems approach to organic production are sometimes overlooked or underestimated. For example, a standard practice in conventional agriculture is to plant large acreages in a single crop, which is very attractive to insect pests. The farmer monitors insect populations and sprays insecticides when the populations get high enough to possibly damage the plants. When farmers approach organic agriculture with an "input-substitution" mentality, they react to high insect populations in the same way: search the list of allowed insecticides and choose which one to spray. This approach can be frustrating to the farmer, however. When it comes to broad-spectrum insecticides, there are fewer tools in the organic toolbox than in the conventional toolbox, and the tools approved for organic use can be more expensive. From this perspective, farmers might view organic production as a very limiting approach to farming.

Input substitution, however, is not the approach encouraged by the USDA organic regulations. This guide explains many techniques to grow healthy pastures and livestock and prevent pest outbreaks. Good animal management (including low-stress handling and good nutrition and living conditions) will promote animal health and thus prevent disease. This proactive, rather than reactive, approach will enable farmers to be more successful. As will be explained in later chapters, the regulations require farmers to employ preventive practices for animal health care before they resort to using any medicines, even those allowed for organic livestock.

Another approach to organic farming is sometimes referred to as "organic by neglect." In this approach, essentially no inputs are used. The farmer avoids the use of prohibited chemicals but also neglects the farm-management practices needed to build soil fertility and prevent pest and disease outbreaks. This often results in poor crop quality and productivity. The regulations encourage active management to maintain or build soil organic matter and enhance biodiversity.

The National Organic Program

The USDA organic regulations went into effect in October 2002. They can be found under Title 7, Part 205, of the Code of Federal Regulations. Title 7 deals with agriculture, one of 50 broad topic areas that are subject to Federal regulation. The regulations include certification requirements, which producers must meet to sell their products as organic. Organic certification is the process of verifying compliance with organic regulations. The assessment process is carried out by a third-party certifier—an independent body that is not linked to either the seller (the farmer) or the buyer. Products to be sold as organic in the United States must be certified organic according to the regulations and must be certified by a USDA-accredited certifying agency (ACA). There are about 100 such certifiers currently operating worldwide.

Many other countries have their own standards for organic products. Organic producers planning to export their products (or sell them to distributors who may export them) should ask their buyers whether they need to be certified to additional standards as well as the USDA organic regulations.

The USDA organic regulations also include accreditation regulations, which establish the requirements that certifiers must meet to issue organic certificates. The processes for farm certification and certifier accreditation are similar: an application that describes the operation's procedures, an on-site inspection, and a report that indicates any changes that must be made to comply with the regulations. This accreditation process ensures that all certifiers apply the regulations in the same way. The NOP maintains a list of ACAs on its Web site.

Organic certification

§ 205.100 What has to be certified

Under the USDA organic regulations, most operations or portions of operations that produce or handle agricultural products that are intended to be sold, labeled, or represented as organic must be certified. Producers who illegally represent their products as organic may be subject to prosecution and fines of up to $11,000.

> *During the application process, many certifiers will require farmers to sign an agreement that they will comply with the organic production and handling regulations in accordance with Title 7 Code of Federal Regulations (CFR) Part 205 National Organic Program Rule.*

§ 205.101 Exemptions and exclusions from certification

Producers who market less than $5,000 worth of organic products annually are not required to apply for organic certification. They must, however, comply with the organic production and handling requirements of the regulations, including recordkeeping (records must be kept for at least 3 years). The products from such noncertified operations cannot be used as organic ingredients in processed products produced by another operation; such noncertified products also are not allowed to display the USDA certified organic seal.

Online Resources

USDA National Organic Program, www.ams.usda.gov/nop

CHAPTER 3
THE CERTIFICATION PROCESS

Certification under the USDA organic regulations is required in order to label, represent, and market qualifying products as organic. The regulations can be found under Title 7, Part 205, of the Code of Federal Regulations. The full text of the USDA organic regulations is available on the NOP Web site, and key portions of the text are excerpted in the ATTRA publications "Organic Standards for Crop Production" and "Organic Standards for Livestock Production." The regulations are arranged in outline format, using letters, numbers, and Roman numerals to indicate the level, for example—Section § 205.203 (a)(1)(i).

This guide does not include the full text of the USDA organic regulations. Rather, it provides excerpts from the text and an interpretation of the regulations that apply to livestock operations. You will need to consult additional references, including the "Guide for Organic Crop Producers" to learn about organic crop production.

There are two categories of organic operations: producers and handlers. Organic producers may grow crops, collect plants from the wild, or raise livestock. These farming operations receive an organic-producer certificate. Organic handlers may buy food for resale or processing (slicing, freezing, drying, mixing, blending, etc.). These operations receive an organic-handler certificate.

This guide covers only the regulations for livestock producers. Producers who are selling certified organic meat will need a certified organic processor. Some conventional processors will be willing to obtain a handler certificate and process the certified organic meat as the first batch of the day, keeping organic meat segregated from noncertified meat. They will incur expenses and extra work, but the meat processing itself won't be different. To learn more about the requirements for organic processing, see Section 4 of this guide.

The certification process has several steps and often requires 3 to 6 months to complete. The farmer agrees to understand the regulations, be available for inspection, allow the certifier access to the farm, and answer all of the certifier's questions. The certifier reviews the application, assigns an inspector, reviews the inspection report, and makes the certification decision.

Before beginning the certification process, it is important to read and understand the regulations. Then consider whether your operation is eligible for organic status, as explained below.

Transitioning to organic production

A field is eligible for organic status if no prohibited materials have been applied for a period of 36 months. If, for example, a pasture had been sprayed with a synthetic herbicide for thistle control on August 1, 2010, you could apply for certification of the pasture on August 2, 2013. If the certification is approved, grazing the pasture after August 2, 2013, is considered certified organic feed, as is the hay cut from that field. Certifying the land is the first step toward producing certified organic meat, milk, and eggs. See Chapter 15, "Source of Animals" to learn more about the transition of livestock. To sell crops or livestock as organic, you must have a certificate verifying their organic status. You will need to be able to document all land use and material applications during the transitional time period. See Chapter 4, "Writing the Organic System Plan" for more information about documentation needed for new sites.

Federal laws govern the use of the word "organic" but not the use of the word "transitional." Although it is optional, applying for certification during the transition period can be an

Related ATTRA publications
www.attra.ncat.org

Organic Certification Process

Organic Standards for Crop Production: Excerpts of the USDA's National Organic Program Regulations

Organic Standards for Livestock Production: Excerpts of the USDA's National Organic Program Regulations

Organic Standards for Handling: Excerpts of USDA's National Organic Program Regulations

Organic Field Crops Documentation Forms

Organic Market Farm Documentation Forms

Preparing for an Organic Inspection: Steps and Checklists

effective way to learn about the USDA organic regulations and organic certification, establish a recordkeeping system, and ensure that the land will be eligible for organic status on a specific date.

Many of the fertilizers, insecticides, herbicides, medicines, and fungicides used by conventional farmers are prohibited in organic production. The "Guide for Organic Crop Producers" explains how to determine whether a product is allowed or prohibited in Chapter 9, "The National List of Allowed and Prohibited Substances." Certain practices, while not allowed in organic production, would not constitute an application of a prohibited material, so they would not render land ineligible for certification. Examples include the use of nonorganic seed or planting stock, application of manure to a food crop within 90 days of harvest, and cultivation of genetically modified crops.

To produce organic livestock or products such as eggs or milk, your animals must eat only organic feed. Ideally, the feed will be grown on-farm; it is required that ruminant livestock graze organic pasture. The regulations have been written in a way that allows dairy farmers making the transition to certified organic status on their whole operation—land and dairy herd together—to complete the transition in 3 years. In this way, producers may include forage or feed from land being managed organically in its third year of transition in a ration that must otherwise consist of certified organic feed. (Otherwise, it would take 4 years to achieve transition of the herd.)

Where do organic livestock come from?

§ 205.236 Origin of livestock

(a) Livestock products that are to be sold, labeled, or represented as organic must be from livestock under continuous organic management from the last third of gestation or hatching: Except, That:

(1) *Poultry.* Poultry or edible poultry products must be from poultry that has been under continuous organic management beginning no later than the second day of life;

(2) *Dairy animals.* Milk or milk products must be from animals that have been under continuous organic management beginning no later than 1 year prior to the production of the milk or milk products that are to be sold, labeled, or represented as organic, Except,

(i) That, crops and forage from land, included in the organic system plan of a dairy farm, that is in the third year of organic management may be consumed by the dairy animals of the farm during the 12-month period immediately prior to the sale of organic milk and milk products …

There will be more specifics on the origin of organic livestock in later chapters.

The certification process

If you understand the USDA organic regulations, and your operation is eligible for transitional or organic status, you're ready to begin the certification process. The steps are as follows:

1. *The farmer submits an application to a certifier*

   Producers obtain certification from State or private certifiers who are accredited by the NOP. Farmers may apply to any accredited certification agency (ACA). A list of all ACAs can be found on the NOP Web site listed above.

   The cost of organic certification is borne by the certified operations and is paid directly to the certifying agent. Certification fees may vary significantly among certifiers. Most

certifiers charge a one-time fee to new applicants to cover administrative and review costs. Annual renewal fees, usually based on the sales of organic products, are assessed each year. The NOP currently operates a cost-share program to help defray the cost of certification for organic farmers. The program is explained in "Funding opportunities" on page 11.

To allow time for the entire certification process, submit your application at least 3 to 6 months before the end of the transition period. If you need a certificate more quickly, some certifiers will expedite your application for an additional fee.

The documents sent to a certifier are often collectively called the "application," but in reality several separate documents are required:

- Application
- Organic System Plan
- Farm map
- Field histories for new fields
- Operator agreement or affirmation
- Report of organic yields and sales

The Organic System Plan (OSP) is your opportunity to describe your farm and farming operation to a person who has never seen it. Understanding what your certifier needs and why they need it will make the process easier. The next chapter will explain more about how to develop the OSP and the farm map that must accompany it.

The person who signs the operator agreement agrees to adhere to the USDA organic regulations and affirms that the information supplied to the certifier is correct. This agreement must be signed by the person who has responsibility for making decisions about the operation—typically the farm owner.

New applicants will be asked to estimate their projected organic sales. Upon renewal of certification, farmers are required to report the yield and sales of organic products. Ordinarily, the sales are reported in the calendar year during which the money is collected. For example, the income from hay harvested in June, and stored and sold the following January would be reported as income in January. There are several reasons for collecting information on yield and sales. Audits can be used to discover fraud—for example, conventional lambs sold as organic or larger quantities of hay sold as organic than were grown on the farm. Sales also are used to determine annual certification fees; typically, larger operations pay higher fees.

2. *The certifier reviews the application*

The certifier reads the farm plan and determines whether the practices are described in sufficient detail and whether the farm appears to meet organic regulations. There are cases in which applications are denied or delayed. For example, if a farmer sprayed herbicides in March 2010 and applied for certification in April 2010, the application would be denied for 2010. If there were clear documentation of organic management from that time on, the land in question could be certified organic in April 2013.

If you are purchasing or renting land that is not currently certified and you wish to document that it has not had prohibited substances applied, you must obtain verification from the previous landowner or manager. Some certifiers require documentation by the local county Agricultural Commissioner who keeps pesticide-use records in States that require 100 percent reporting of materials registered by the U.S. Environmental Protection Agency (EPA).

3. *The inspector visits the farm*

Every organic farm must be inspected each year. The individual who conducts the inspection—the organic inspector—represents the certifying agent. In addition to looking for any violations, it is the inspector's responsibility to verify that the system plan accurately reflects the operation and that the farmer is following the plan. Organic inspectors are trained to look critically at all aspects of an organic operation and to maintain strict confidentiality. Information you provide about yield, sales, or farm practices will not be shared with anyone except the certifier.

During the inspection, you must allow the inspector complete access to your operation, including all production facilities and offices. Additional inspections may be either announced or unannounced at the discretion of the certifier or the State organic program.

One of the most important responsibilities of the inspector is to examine records that document your farming practices. (See Chapter 27 for more about recordkeeping.) The records the inspector will look at include, but are not limited to, the following:

- Land
  — Invoices for material purchases
  — Records of material applications
  — Records of yield, harvest, and organic sales of crops
- Livestock
- Organic certificates for purchased livestock
  — Sales and purchase records for livestock and products
  — Inventory list showing organic or conventional status
  — Breeding, birth, and health records
- Feeding records
  — Feeding plans for all species and all classes of animals
  — Harvest and storage records for feed grown on-farm
  — Feed-purchase records (invoices, tags, labels, and organic certificates)
- For ruminant livestock
  — Grazing records (see Chapter 13)
  — Dry matter intake calculations and sources of dry matter intake values
  — Records of days on pasture, pasture management, among others

The inspector will perform several spot-check audits to assess whether your records are complete and within the realm of possibility. For example, could you actually have produced and sold that quantity of organic product? Can you easily check the status of lamb #819? Could you have grazed 100 cows on that amount of acreage? Records must be fairly well organized to make these audits as painless as possible.

ATTRA has a set of forms, the "Organic Livestock Documentation Forms," which producers can download or request by telephone. Call 800-346-9140 or visit the ATTRA Web site at www.attra.ncat.org/organic.html#overview.

The inspector can explain the regulations but is not allowed to provide advice on how to farm or how to overcome identified barriers to certification. This separation between the farmer and the certifier maintains the "independent third party" nature of the transaction. Similarly, inspectors are not allowed to accept gifts of food or other gifts because it may appear to compromise their independent status.

During the inspection, the inspector will do the following:

- Ask questions about your operation
- Visit each field, pen, and production area

- Check feed-storage areas
- Look over all the livestock to assess animal health and living conditions
- Examine records and perform audits
- Point out during an exit interview at the end of the inspection any areas where the farm may not meet regulations

After the inspection, the inspector will write a report and send it to the certification agency, typically within 2 weeks.

4. *The certifier reviews the inspection report*

The certifier reviews the inspection report and decides whether the farm meets organic regulations. The reviewer will pay particular attention to any issues mentioned in the exit interview and will decide the seriousness of those issues. If your farm is in compliance, you will receive a letter along with an organic certificate. More commonly, especially for a first inspection, there will be some issues that need to be addressed. In that case, certification will be delayed until the problems are corrected. The specific areas of concern should not be a surprise to the farmer because the inspector should have discussed them during the exit interview. One thing that often is a surprise is the formal language of the letter, which is written as a Notice of Noncompliance. Often, the specific issues are easily corrected, and you can receive organic certification once you resolve them.

There are several types of letters that new applicants may receive from their certifiers:

- *Organic Certificate.* Issued if the operation is in compliance with the regulations.
- Certificate with Conditions or requests for further information. Issued if the operation needs to provide additional information or correct minor practices.
- *Notice of Noncompliance.* Issued when there is something threatening the organic integrity of the product, but which may be correctable.
- *Notice of Denial of Certification.* Issued to new applicants if there are major noncompliance issues that cannot be corrected. For example, if a crop duster accidentally applied a synthetic fungicide to your organic field, the application for organic certification would be denied because the incident would be an application of a prohibited material.
- *Notice of Proposed Suspension.* Issued when there are major noncompliance issues during the renewal of certification. The producer is provided an opportunity to appeal. Otherwise, the organic certification is suspended.
- *Notice of Proposed Revocation*

If you receive a letter that contains technical language you do not understand, call your certifier for clarification. You may also call ATTRA for advice on how to resolve an issue and bring your operation into compliance.

5. *The certifier issues the organic certificate*

Once granted, certification remains in effect until it is surrendered by the producer or handler, suspended, or revoked. Any action to suspend or revoke certification must be handled in the manner prescribed in the USDA organic regulations in § 205.660 through § 205.664. If the status of your certification is threatened and you wish to dispute the charge, the process for seeking mediation is specifically covered under § 205.663. Further details of these provisions will not be addressed in this guide, but you should be aware that a formal grievance process exists.

Renewal

Organic operations are required to renew their certification each year or surrender it. Certification may be suspended if it is not renewed.

The renewal process comprises the following steps:

- Update the OSP
- Sign an operator agreement
- Address all issues, requests for information or documentation, or noncompliance issues that have not been resolved
- Pay the annual certification fees
- Have an annual inspection

Funding opportunities

As of this writing, there are two Federal programs that reimburse farmers for some of the costs of transitioning to organic production methods and paying certification fees. The NOP administers a cost-share program for certification assistance that is available to certified organic operators. The program reimburses farmers and handlers a percentage of their certification fees. The application process is simple. More information is available at www.ams.usda.gov/NOPCostShareProgramParticipants. Information also is available from your certifier, the NOP, or ATTRA.

In addition to the NOP, the USDA Natural Resources Conservation Service (NRCS) provides funding to farmers as they implement practices that conserve natural resources. This program, the Environmental Quality Incentives Program (EQIP), has a special section for organic farmers because many organic practices focus on soil conservation. This program offers an opportunity for organic producers to receive substantial grant funding. More information is available at www.attra.ncat.org/eqip/.

The meaning of organic certification

Organic certification is a process claim, not a product claim, and it assures the consumer that the organic farmer followed the requirements and restrictions spelled out in the USDA organic regulations. Organic certification does not guarantee that the product is completely free of all pesticide residues or genetically modified organism (GMO) contamination.

Questions

- Do you have easy access to the USDA organic regulations? ☐ Yes ☐ No ☐ N/A
- If you are now growing feed, including pasture for grazing your organic livestock, has your land been free of prohibited substances for a minimum of 36 months prior to harvest? ☐ Yes ☐ No ☐ N/A
- Did you advise your certifier(s) of any previous applications for certification? ☐ Yes ☐ No ☐ N/A
- If you are renewing your certification, have you addressed all noncompliance issues and conditions previously noted by the certifier? ☐ Yes ☐ No ☐ N/A
- Are you documenting the harvest, yield, and sale of all organic crops and livestock? See "Recordkeeping" in Chapter 27 for details of the extensive records needed to substantiate organic claims. ☐ Yes ☐ No ☐ N/A
- Are you saving purchase receipts for all inputs? ☐ Yes ☐ No ☐ N/A
- Are you documenting the applications of fertilizers and pest-control materials? ☐ Yes ☐ No ☐ N/A

Online Resources

National Organic Program, www.ams.usda.gov/nop

Rodale Institute's "New Farm Guide to U.S. Organic Certifiers"
www.rodaleinstitute.org/certifier_directory

Notes

CHAPTER 4
WRITING THE SYSTEM PLAN

The Organic System Plan

§ 205.201 Organic production and handling system plan

Under the USDA organic regulations, each certified organic farm must have an Organic System Plan (OSP). The OSP is a detailed outline that explains how you intend to operate your farm or ranch to satisfy the requirements of the regulations.

According to § 205.201(a) of the regulations, the OSP must contain the following:

- A description of farm practices, including the frequency with which they will be performed
- A list of each substance to be used as a production input
- A description of monitoring practices, including the frequency with which they will be performed, to verify that the plan is effectively implemented
- A description of the recordkeeping system implemented to comply with the requirements established in § 205.103, § 205.236, and § 205.237 (see Chapter 27).
- A description of the management practices and physical barriers established to prevent commingling of organic and conventional products and to prevent contamination of organic products with prohibited substances
- Any additional information deemed necessary by the certifying agent to evaluate compliance with the regulations

Related ATTRA publications

www.attra.ncat.org

Organic System Plan for Crop Production

Organic System Plans: Livestock (Ruminant and Non-Ruminant Versions)

Organic System Plans: Market Farms and Greenhouses

Organic System Plans: Field and Row Crops and Pasture and Range Systems

Organic System Plan Templates for Certifiers

Developing and then maintaining the OSP is an essential part of both the initial and ongoing certification process. The OSP must be written by the producer and approved by the certifier. Taking care to write clearly and thoroughly can save time later. The OSP provides a description of your farm to a person who has never seen the farm. It must be sufficiently detailed for the certifier to get a clear picture of your farm's crops, harvest, sales, recordkeeping, soil-building practices, pest management, health care, pasture management, and any other practices related to organic production. The plan must allow the certifier to assess whether you can meet the requirements for organic certification.

Producers should use the OSP to explain the practices they use to manage their farms. It is particularly important to describe all the management practices being used to prevent problems rather than merely react to them. For example, sheep producers will need to have a plan to manage internal parasites without the routine use of dewormers. *Having these monitoring and management practices in place will enable an organic farmer to address pest pressure before an infestation becomes severe.* The time spent to ensure accuracy and completeness on your OSP is worthwhile because the OSP is vital for managing your farm and assuring compliance with the regulations.

It is standard practice for the OSP to be incorporated into the application materials that are required by certifiers. In other words, you are completing your OSP at the same time you are filling out your application for certification. There may be some instances in which plans submitted to qualify for Federal aid or assistance programs satisfy the requirement for an OSP.

The list of materials

The OSP includes a list of each substance to be used as a production input, sometimes called a Materials List. This is simply a list of composts, fertilizers, insecticides, health-care

products, feeds, or other organic compliant materials that *might* be used. Certifiers realize that farmers are not able to predict every eventuality. Unforeseen problems will occur. If there is a need to apply a pest control or other material that was not originally listed in the Materials List, contact your certifier to add it to your OSP. Should you need to deviate from the OSP that you have agreed upon with your certifier, it is imperative that the certifier be advised. Many certifiers will accept notifications by telephone, fax, or email. Do not wait until inspection to update your OSP.

There have been unfortunate instances of farmers applying a material without receiving approval from their certifier, only to discover later that the material was prohibited. If this happens, the certifier must revoke certification from the fields to which the prohibited material was applied. The land is not eligible for organic status again until 36 months from the last application of the prohibited material. If a prohibited material was used on a slaughter animal, the animal will never be eligible for organic status.

Some useful definitions

- ***Buffer zones***—the boundary between conventional crops and organic crops. Buffer zones are established to prevent organic crops from being contaminated by spray drift.
- ***Commingling***—the mixing of an organic product with a similar conventional product.
- ***Contamination***—contact with a prohibited substance (conventional pesticides, for example). This includes physical contact with conventionally grown products.
- ***Parallel production***—a subset of split production. The term is used to describe a situation in which the same crop (and often the same crop variety) is produced both organically and conventionally on the same farm operation.
- ***Split production*** *or* ***mixed operations***—those operations that produce both organic and nonorganic products. (The nonorganic category includes transitional products.)

Split operations

Operations that include both organic and conventional production are called "split" or "mixed." For split operations, many certifiers request information on conventional as well as organic crops. In parallel operations, in which the same product is produced both organically and conventionally, it is important that the OSP addresses all hazards of contamination and commingling that may arise. For split operations, an audit is usually required to ensure that the quantities of production sold as organic are realistic. This sales audit verifies the source of all products sold as organic. Producers must be able to trace all organic products back to their source.

The USDA organic regulations require that sick animals be treated with efficacious medicines even if doing so jeopardizes the animal's organic status. Livestock administered restricted medicines such as parasiticides or prohibited medicines such as antibiotics lose their organic slaughter-stock status. Organic dairy animals that are administered approved parasiticides lose their organic slaughter-stock status but maintain their organic milk status if proper withdrawal times are followed. Livestock that lose their organic status may be used as breeder stock on the farm. Treated livestock usually will not have to be segregated from organic livestock once the illness is over, unless it is necessary to ensure there is no commingling of products (as in a dairy production, for example). Records must clearly indicate the status (organic slaughter stock, organic for milk production only, transitioned dairy animal, or conventional) of all livestock on the farm. Note that this situation is not considered a split operation, but it brings the same concerns about properly tracking each animal and preventing commingling.

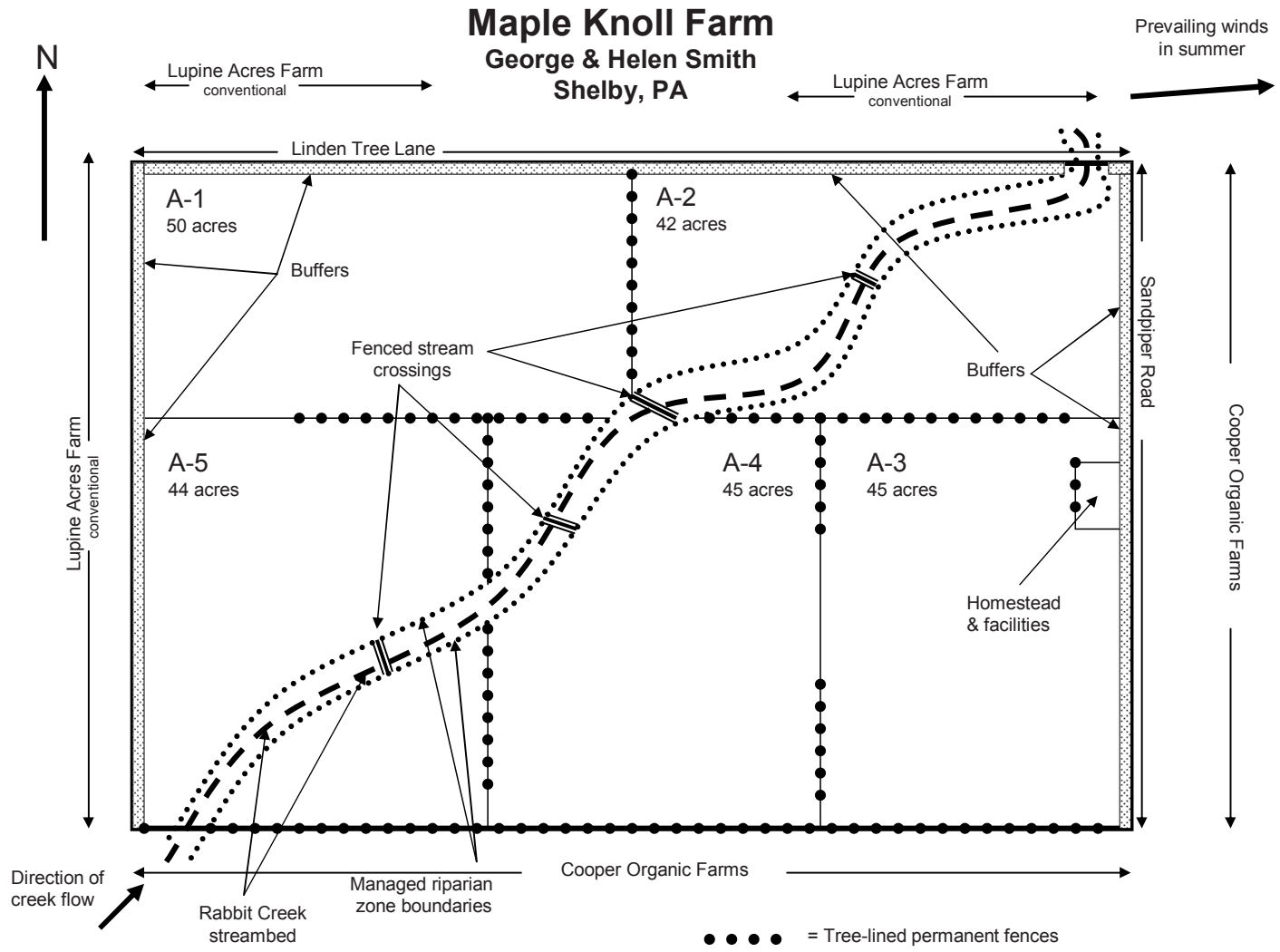
§ 205.202 Land requirements

Fields from which organic crops are harvested must have distinct, defined boundaries and buffer zones. No prohibited materials can be applied to the land for a period of 36 months prior to the harvest of the organic crop. Prohibited materials include synthetic fertilizers and seeds treated with fungicides as well as most chemical herbicides, pesticides, and fungicides.

The farm map

An accurate map of all farm acreage and production units is typically required as part of the OSP. Important map features include the following:

- Consistent scale
- Permanent field numbers or names
- Buildings, roadways, and similar features
- Hydrologic features (streams, ponds, and irrigation ditches)
- Field boundaries
- Adjoining land use (conventional, organic, or fallow)
- Buffer zones



Organic crops must be protected from contamination by prohibited substances, such as pesticides and fertilizers, used on adjoining lands. Preventing contamination usually requires a multipronged approach for organic systems. Strategies may include one or more of the following:

- *Isolation.* Fields located at substantial distances from conventional production or roadside spraying are considered to be adequately protected.
- *Barriers.* Tall plants and trees serve as barriers to airborne contaminants.
- *Buffer zones.* Buffers are used to provide separation from adjoining crops that are conventionally managed. Crops harvested from buffer zones must be sold as conventional.
- *Drainage diversion.* Water runoff from conventional fields is diverted.
- *Posting of property.* Signage reading "Organic Farm: Do Not Spray" is placed at field boundaries. You may need to assume responsibility for weed control on roadsides and post signs reading "Owner Will Maintain."
- *Formal notification.* Written notification of your organic status is provided to neighbors who manage adjoining lands. Copies of formal notification letters must be kept on file.

The regulations do not specify the required width for a buffer zone, but they state that buffers must be "sufficient to prevent contamination." It is the farmer's responsibility to assess the risks and take appropriate measures to minimize contamination. Therefore, the width (and height, in some instances) of buffers may need to be adjusted for individual circumstances. For example, a more significant buffer is needed where adjacent land is sprayed by plane or helicopter or where there are prevailing winds that blow across nonorganic fields onto the organic farm. A smaller buffer may be needed if a row of tall trees proves a barrier to drift. Regardless of the size of the buffer, any crops harvested from buffer zones must be sold as conventional. Sales must be documented, and the documentation must be available for review during inspection.

Water runoff from conventional farms can contaminate organic crops. If the possibility of contamination exists, a drainage ditch will be needed.

Field histories for new fields and new farms

A field history will be required the first time you request to have a field certified organic. To obtain organic certification for a field, you must be able to document all materials applied to that field for 36 months prior to the harvest of a first organic crop.

Field histories for new fields should document the following:

- Field size (you may use square footage for greenhouse and/or production beds.)
- Crops, including cover crops, for the past 36 months
- All inputs used for the past 36 months

Questions

- Have you completed your Organic System Plan (OSP)? ☐ Yes ☐ No ☐ N/A
- Is your farm map complete and accurate? ☐ Yes ☐ No ☐ N/A
- Have you completed a field history for each new field? ☐ Yes ☐ No ☐ N/A
- Are the numbers and names used on your map consistent with those used on field histories, audit documents, and other records? ☐ Yes ☐ No ☐ N/A
- Do all fields have buffers that are adequate to prevent contamination? ☐ Yes ☐ No ☐ N/A
- If there is danger of contamination from adjoining land or conventional crops, are you taking steps to minimize the risk? ☐ Yes ☐ No ☐ N/A

CHAPTER 5
OVERVIEW OF ORGANIC LIVESTOCK SYSTEMS

Traditional livestock systems

Livestock have always played a key role in resilient production systems. Ruminant livestock effectively convert forage legumes and sod-forming grasses into meat, milk, wool, and other products. Keeping cattle, sheep, or goats enabled these soil-building crops to be part of long-term crop sequences. Traditionally, livestock also would be fed culled vegetables, weather-damaged crops, crop residues, and surplus grains during times of low market prices.

Livestock also provide manure, a very important source of fertility in traditional farming systems and an excellent means of recycling nutrients within a crop rotation. By incorporating livestock into their farm, farmers not only gained sources of food and fiber, they also have a means of utilizing soil-building crops and an excellent source of renewable crop nutrients. Prior to the widespread adoption of synthetic forms of crop nutrients, the production of grains and other food crops was closely tied to a farm's livestock. Without ruminant animals to consume soil-building forages or without animal manure to enrich farm fields, soil tilth, and fertility—and ultimately crop production—inevitably declined under continuous crop cultivation.

In traditional livestock systems, ruminant livestock typically had access to pasture and were confined during winter months or other periods of seasonally inclement weather. Nonruminants such as pigs might have been pastured or used to clean up crop residues, but they were commonly kept in varying degrees of shelter using semi-confined housing systems. Poultry species often were allowed to range or were kept in netted pens or lots. In most instances, these traditional models adhere to the USDA organic regulations with little modification.

Organic systems for ruminant animals

The USDA organic regulations explicitly prohibit continuous total confinement of livestock. Management on pasture and daily grazing throughout the grazing season is required for all ruminant livestock (i.e., cattle, sheep, and goats). Temporary confinement is allowed under specific circumstances. However, for ruminant animals to be raised in compliance with the regulations, they must have nearly continuous access to the outdoors, and access to pasture during the grazing season is specifically required. There are other requirements as well, which are explained in this guide in Chapter 13, "Grazing Management and the Pasture Rule." Well-managed grazing systems generally have few problems complying with the regulations. The principal challenge for managing most species is the organic control of parasites.

When pasture is pasture … or not

The USDA organic regulations define pasture as "[l]and used for livestock grazing that is managed to provide feed value and maintain or improve soil, water, and vegetative resources" [§ 205.2]. Dry lots, which have little or no vegetation, do not meet the regulations' definition of pasture. Overgrazed pastureland also is unacceptable, according to the regulations. Since the regulations require that ruminants have access to pasture [§ 205.239(a)(2)], the definition of "pasture" above and the Pasture Practice Standard [§ 203.240] ensure that farms and ranches do not exceed the carrying capacity of their land and forage resources. It is okay to provide certified organic green chop, hay, and other feedstuffs to livestock, but this does not preclude the access-to-pasture requirement for ruminants. Certifiers and their inspector representatives are likely to question the compliance of any system that maintains more ruminant livestock than can be sustained on the available grazing acreage under typical seasonal constraints.

Related ATTRA publications
www.attra.ncat.org

Pastures: Going Organic

Pasture for Organic Ruminants: Understanding and Implementing the National Organic Program Pasture Rule

Rotational Grazing

Integrated Parasite Management for Livestock

Organic Poultry Production in the United States

Alternative Poultry Production Systems and Outdoor Access

Considerations in Organic Hog Production

Small Ruminant Sustainability Checksheet

Dairy Production on Pasture: An Introduction to Grass-Based and Seasonal Dairying

Dairy Resource List: Organic and Pasture-Based

Organic System Plans: Livestock Production

Guide to ATTRA's Livestock and Pasture Publications

Guide to ATTRA's Organic Publications

Organic systems for nonruminants

The USDA organic regulations explicitly prohibit continuous total confinement of livestock, including nonruminant animals such as pigs and poultry. Maintaining vegetation cover is a challenge for pasture-pig production. However, the regulations do not require that pigs or poultry be raised on pasture. Rather, they require, " … access to the outdoors, shade, shelter, exercise areas, fresh air, clean water for drinking, and direct sunlight, suitable to the species, its stage of life, the climate, and the environment … " [§ 205.239(1)]. Pastured poultry production is a strategy that often meets or exceeds the regulations' requirements, but keeping birds on pasture is not specifically required.

Although no pasture requirement exists for pigs or poultry, farms with little or no land base can find it challenging to manage manure nutrients and procure sufficient quantities and varieties of organic feeds and bedding. The regulations state the following:

> § 205.239(e) *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 …*

Organic livestock producers must also do the following:

> § 205.237(a) *… provide livestock with a total feed ration composed of agricultural products, including pasture and forage, that are organically produced and handled by operations certified by the NOP …*

Ideally, producers of organic poultry and hogs also will produce field crops. Livestock production systems that do not include growing crops must find alternative means of recycling crop nutrients found in animal manure. Cooperating with local organic grain farmers may be one alternative. Natural resources must be protected and crop nutrients recycled so that soil fertility is maintained or improved and water quality is protected. Acquiring sufficient quantities and varieties of organic livestock feed and bedding may be challenging for organic livestock operations without cropland. As organic production of feed grains, hay, and other feedstuffs expands nationally, this issue may be resolved. However, the issue of nutrient cycling and natural resource protection will remain.

A pattern for health and sustainability

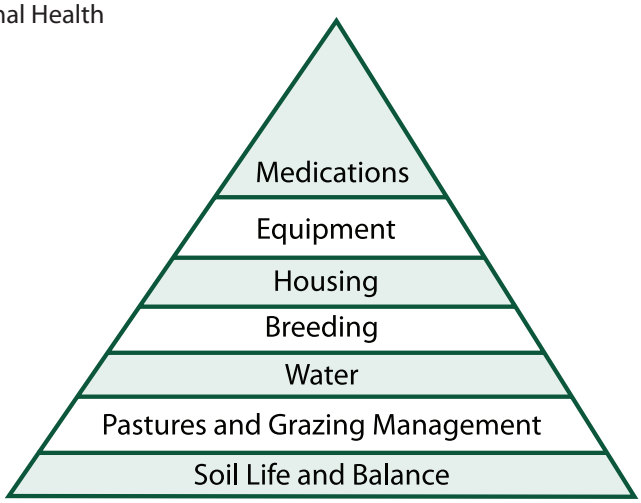
As organic agriculture moves into the mainstream of commerce and culture in the United States and a growing emphasis is placed on issues of compliance and marketing, it's often easy to lose sight of other aspects of organics that originally attracted producers seeking a more sustainable system. One of the most compelling of those aspects is system health. Health management is not only medical treatment of sick animals. It is also the creation of a whole system that optimizes livestock welfare: a system that both minimizes the hazards of disease and supports a strong natural immune response in those instances when stress and pathogens do occur.

The strategies supporting this system arise from an organic philosophy that regards soil as the foundation on which a healthy system must be built (see Figure 1). Furthermore, sustainable, organic management seeks to optimize production at a level that simultaneously promotes animal health and welfare and considers the health of the whole farm system. Traditional livestock systems—as described in the main text—reflect such strategies and philosophy. In the hands of good stewards, organic systems that integrate crops and livestock are essentially healthy, although they can always be improved upon.

Major problems in organic livestock production tend to appear when producers attempt to adapt confinement livestock production to organics by merely "tweaking" the system. These farms might meet the minimum regulatory requirements, but they will often be challenged by animal-health issues and the associated costs of treating sick livestock or sustaining high death losses.

The health of a good organic system is reflected not only in the economic sustainability of the operation but also in its environmental sustainability. This is especially true in regard to manure management and nutrient recycling. Figuring out what to do with all that manure is much less of a problem when the production system is land-based. Not only is there a place for all that waste to go, but it becomes valuable fertilizer.

Figure 1—Organic Concept of Animal Health



The Organic Concept of Animal Health through the Eyes of a Veterinarian. Adapted from Ann Wells, DVM (NCAT), 2003. Originally adapted from Johnson, in Benson & Zirkel's Organic Dairy Farming, 1995.

Questions

- Does your production system allow access to the outdoors, sunlight, fresh air, and exercise space for all your livestock? ☐ Yes ☐ No ☐ N/A
- Does your production system allow access to pasture for all ruminant livestock during the grazing season? ☐ Yes ☐ No ☐ N/A
- Does your production system handle manure in a manner that optimizes recycling of nutrients and does not contribute to contamination of crops, soil, or water by plant nutrients, heavy metals, or pathogenic organisms? ☐ Yes ☐ No ☐ N/A
- Does your production system provide all livestock with a total feed ration composed of agricultural products, including pasture and forage, which are organically produced and handled by operations certified by the USDA organic regulations? ☐ Yes ☐ No ☐ N/A

Notes

CHAPTER 6
SUPPORTING BIODIVERSITY

The USDA organic regulations define organic production as a production system that "respond(s) to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity … " [§ 205.2].

Looking at this definition a bit deeper, you may notice that the organic production system is intended to accomplish three interrelated functions: by both fostering the cycling of resources and conserving biodiversity, organic systems also will be promoting ecological balance. How this "looks" will vary by location and is not mandated by the regulations. Even so, certifying agents should be watching how organic-farm managers take care of the resources (i.e., soil, water, plants, and wildlife) and how they conserve biodiversity—in soil microorganisms as well as in plants and animals, including insects, songbirds, and other wildlife. Each of these living ecological resources depends on habitat, including shelter, nesting sites, and sources of water and food. And each performs multiple functions on a farm. Examples of these functions are listed below.

Biodiversity benefits include the following:

- Insects, which are pollinators, predators of harmful insects, and a food source for animals higher up the food chain
- Plants, which hold and build soil, provide food for some insects and grazing animals, and provide shelter for other animals
- Songbirds, which work to keep insect populations in check
- Coyotes, which eat mice and rats and keep rabbit and ground squirrel populations under control

A farm with a landscape that harbors abundant, diverse life of all types—in the soil, water, woodlands, and fields—functions in a way that maintains balance and makes use of the solar energy that falls there. That landscape will have some living thing in every niche, and there will be very little exposed soil that can erode.

First, consider soil microorganisms, such as bacteria and fungi, which work to break down material and cycle it in a usable form to plants and to larger organisms in the soil, such as earthworms. These soil organisms thrive under limited or no tillage, which means perennial pasture systems have an advantage in terms of biodiversity, as do woodlands and orchards. In a garden or field that is being tilled, adding lots of organic matter helps feed the soil organisms and thereby encourages biodiversity.

Livestock farmers may tend to think of insects as pests: mosquitoes and various flies come to mind. Yet dung beetles and other similar insects help to take manure into the soil, where it feeds the microorganisms and eventually the pasture plants. Pollinators that help the ecosystem function are beneficial to livestock, and insects are vital to the food chain. You can encourage insects by having a diversity of flowering plants and by not using broad-spectrum insecticides. To learn more about organic-approved pesticides that are not harmful to pollinators, visit www.xerces.org/organic-farms/.

Ivermectin, a dewormer that is allowed under some limited circumstances in breeding and dairy livestock, is harmful to dung beetles and perhaps to soil life, so avoiding its use is recommended. It is possible to purchase parasitic wasps to help control flies and dung beetles to repopulate your farm if they are not naturally present. Insect populations can be kept from getting out of hand by encouraging birds and bats to be farm residents as well.

Plant diversity in landscapes—for instance, a garden that includes fruit and nut trees, blueberry and other bushes, herbs, and many kinds of vegetables and flowers—is much more resilient than, say, a field of corn. The same is true in a pasture. Rather than maintaining a field of tall fescue or another single species, consider establishing and maintaining forage diversity. This can take various forms, including mixing legumes and grasses in the same pasture, so that the legumes fix nitrogen for the grasses and help improve the diet of grazing animals. Growing warm-season grasses, cool-season grasses, warm- and cool-season legumes, some annuals, and some forbs (broad-leaved plants, such as chicory), and maintaining some brushy areas for browse will offer more stability to the system and a longer season of grazing for the animals on the farm.

While overall plant diversity is encouraged, nonnative, invasive plants have the ability to spread throughout the farm and larger landscape, and they are best controlled immediately. Prescribed burning and controlled or targeted grazing can help dissuade invasives without harming pasture plants. For more information, see the University of Idaho publication "Targeted Grazing Manual" at www.cnr.uidaho.edu/rx-grazing/Handbook.htm.

In addition to a diversity of forages, it can be beneficial to have diversity in grazing animals. For example, adding sheep or goats to a cattle operation will help keep pasture composition stable because all the plants present will be grazed. Otherwise, a plant that cattle will not graze will eventually take over the pasture, causing a loss in biodiversity and in productivity. Along with evening out grazing, adding cattle to a sheep or goat operation helps with predator management and internal-parasite control. The presence of larger animals helps deter coyotes, and cattle are a dead-end host for sheep or goat parasites. Also, cattle will graze the more mature forages that sheep tend to ignore. Poultry deserve a mention here, too. Grazing poultry along with larger livestock helps because the birds break up manure clumps and consume fly larvae.

Whatever the grazing species, a managed grazing system is helpful in preserving forage biodiversity and protecting soil cover. On range, this might mean moving water or mineral sources to encourage grazing animals to use a new area. On pastures, moving water or minerals is still helpful, but there are additional tools: using portable electric fence or some other means of rotating animals to provide enough rest before plants are regrazed is practical and a good use of time and money. Refraining from clipping or mowing until grassland birds have finished nesting and fawns are large enough to escape is another way to encourage wildlife biodiversity.

Some land is too steep to graze and is better left to the wild. In that situation, it is helpful to access USDA Conservation Reserve Program funds that pay farmers to plant species that are beneficial to wildlife. In fact, as of this writing, there are many USDA cost-share funds available to help organic farmers conserve biodiversity.

Wildlife-friendly fencing

Pastures and rangelands are much more attractive to wildlife than cropped lands, provided, that is, that the wildlife has room to roam. Farms can allow for connected habitat in various ways. For large animals such as cows, specific fence designs can help keep young animals with their mothers, lessen injuries and deaths among wildlife, and reduce fence damage and maintenance. For smaller animals, such as sheep and goats, that need fencing that is harder to get through, one of the simplest solutions is to keep gates open in unused pastures. Where possible in these situations, avoid excluding wildlife from streams, riparian zones, and established migratory corridors. For more information, see the Montana Outdoors article "A Landowner's Guide to Wildlife Friendly Fences: How to Build Fence with Wildlife in Mind" at www.fwp.mt.gov/mtoutdoors/HTML/articles/2009/fencing.htm.

Whatever the configuration of biodiversity on the farm, conserving and restoring it will pay dividends in the form of healthy soils, robust pastures, clear running streams, and a functioning ecosystem.

To help the organic community understand ways to encourage biodiversity, the National Organic Standards Board (NOSB) included biodiversity-conservation additions in its model Organic System Plan (OSP) in 1995.

For helpful resources that expand on the idea of biodiversity, see the Wild Farm Alliance materials at www.wildfarmalliance.org/resources/organic_BD.htm, and in particular see the organic farmers guide. This publication includes photos and drawings to illustrate its concepts as well as tables that discuss the types of practices that have "High Conservation Value" and "Moderate Conservation Value" or are "Inconsistent with NOP Standards." Some of the questions featured in that publication are from the "Biodiversity Conservation Amendment" to the NOSB's model OSP. These points are listed here to provide ideas on how you can improve the biodiversity of your farm. Note that these are suggestions and are not specifically mandated by the USDA organic regulations.

Suggestions to improve biodiversity

Take actions to provide habitat for pollinators, insect predators, birds, and bats:

- Bird/bat/bee boxes
- Hedgerows/windbreaks
- Maintain/provide natural roosting/nesting/foraging sites
- Other

Take actions to restore and/or protect natural areas:

- Manage for native plants/wildlife specific to the site
- Preserve/restore wildlife corridors/large blocks of habitat
- Establish legal conservation areas
- Ensure that native habitats have not been converted to farmland since certification

Control invasive plant/animal species, especially those that threaten natural areas:

- Learn about invasives and use information to battle them
- Use weed- and pest-free seed/planting stock/soil amendments/mulches
- Monitor for new introductions and control immediately
- Suppress invasives using organic methods

Schedule farm practices to benefit wildlife:

- Avoid nests during breeding season
- Stagger mowing/tilling practices
- Plan fields to leave food/cover for wildlife
- Other

Improve your rangeland or pasture:

- Prevent overgrazing
- Reseed/protect trampled or eroded areas
- Plant native pasture
- Employ ecologically sound grazing systems

- Use prescribed burning
- Other (multispecies grazing, for example)

Use wildlife-friendly practices to manage predation:

- Use guard animals
- Schedule grazing on certain fields when predation pressure is low
- House livestock overnight in protected areas
- Document circumstances of livestock death
- Other

Other helpful practices to improve biodiversity include:

- Diversifying your farm enterprises
- Limiting the use of botanicals and other broad-spectrum pesticides
- Introducing beneficial organisms
  — Soil or compost inoculants
  — Beneficial predators and parasites
  — Pollinators

Questions

- Are you taking actions to preserve or improve biodiversity on your farm? ☐ Yes ☐ No ☐ N/A

Notes

This section is a brief introduction to soil and forage management in an organic system. Questions are included for each chapter in a check-sheet format to help organic farmers get acquainted with the USDA organic regulations and the practices necessary to manage grazing animals and pasture in an organic system.

CHAPTER 7
ORGANIC SOIL MANAGEMENT FOR PASTURE AND HAY CROPS

Related ATTRA publications
www.attra.ncat.org

Pastures: Going Organic

Pasture, Rangeland, and Grazing Management

Pastures: Sustainable Management

Rotational Grazing

Pasture for Organic Ruminant Livestock: Understanding and Implementing the National Organic Program Pasture Rule

Organic agriculture is built around the notion that providing nutritious food and feed improves and sustains the health of people and livestock. The strategies that organic agriculture employs to grow nutritious food emulate nature, beginning with feeding the organisms of the soil. Soil microorganisms and macroorganisms function as a digestive system that processes organic matter, delivering a smorgasbord of minerals, vitamins, and other nutrients to the crop at a metered pace.

The food that soil organisms need to do their job comes in the form of organic matter. Composting, manuring, green manuring, and other similar techniques are consequently the standard practices of organic crop production. Rotational grazing management provides comparable humus development through the sloughing off of roots when plants are grazed or mowed; the trampling of plant matter into the soil by the animals' hooves; and the natural deposition of urine and manures. In addition, humus is encouraged to accumulate because there is little to no tillage.

The importance of humus is most evident during a drought. Soils with higher levels of organic matter retain moisture better, which allows the plants to remain green and to survive longer in the face of a drought. Increasing organic matter in soil also will improve its texture, help with aeration, reduce compaction, and improve the growth and survival of plants. Paying attention to building organic matter will result in better production in years to come. Some ways to increase organic matter in the soil are listed below:

- Using rotational grazing and other forms of good grazing management
- Using animal manures, composts, or other organic fertilizers
- Using crop rotation (in mixed crop and livestock systems)
- Using cover crops and green manures (in mixed crop and livestock systems)
- Minimizing tillage and the length of time that soil remains bare

What is humus?
Humus is decomposed organic matter in the soil that results in increased porosity and soil structure, which encourages water retention and air exchange in the soil profile.

Nitrogen is the limiting nutrient on most organic farms, and legumes provide the most economical source of nitrogen. Nitrogen is biologically "fixed" in legumes because of a symbiotic relationship between the plant and Rhizobium bacteria. Rhizobium bacteria "infect" the roots of legumes, forming nodules. Within the nodules, the bacteria then fix nitrogen from the air between the soil particles as ammonium, which is used by the legume host and adjacent plants.

In pasture-based systems, legumes are commonly interspersed with grasses to provide the grasses with nitrogen. Legumes drive the system, so many producers in humid regions

adjust liming and fertilization to meet the needs of the legumes in their forage mixes. Additional manures and other organic fertilizers may then be applied according to the need for such other nutrients as phosphate and potassium, which are especially critical for legume growth.

Legume seed may need to be inoculated with a commercial strain of Rhizobium bacteria to optimize nitrogen fixation. If you have observed good nodulation on the same legume crop for the last 3 to 5 years, re-inoculation may not be necessary. If inoculation is required, Rhizobium inoculant can be purchased for this purpose. Be certain you are requesting an inoculant that is appropriate for the kind of legume you are planting. Also be certain that you specify a Rhizobium product that does not contain genetically engineered material.

Organic farmers also have learned the value of providing additional mineral nutrition—commonly in the form of lime, gypsum, and other rock powders—where nutrient deficiencies are not fully addressed by humus-building practices. When specific micronutrient deficiencies are found, certain forms of synthetic micronutrients may be used. It is important to note, however, that the use of synthetic micronutrients, like every material input, must be documented on the Organic System Plan (OSP) and approved by the certifier. A soil test is the most common means of determining and documenting that a deficiency exists, and most certifiers would require a soil test before approving the application of synthetic micronutrients. Testing is not required to apply natural materials that are rich in a spectrum of micronutrients (e.g., glacial gravel dust, greensand, and kelp meal), although soil auditing is still advisable as an aid to guide their use.

The organic pasture management plan

The following need to be described or addressed in the Organic System Plan (OSP):

- Forage species provided in pastures to ensure that the feed requirements of the USDA organic regulations are being met
- Cultural and management practices to be used to ensure that pasture of a sufficient quality and quantity is available to be grazed throughout the grazing season
- Cultural and management practices to be used to ensure that all ruminants under the OSP, except exempted classes identified in the regulations (such as breeding males), are provided with an average of not less than 30 percent of their dry matter intake from grazing throughout the grazing season. (See Chapter 13, "Grazing Management and the Pasture Rule" for details.)
- Dates and length of the grazing season for the livestock operation's regional location
- Location and size of pastures, including maps giving each pasture its own identification
- Types of grazing methods to be used in the pasture system
- Location and types of fences, including temporary fences
- Location and source of shade and water
- Soil fertility and seeding systems
- Erosion-control practices and protection of natural wetlands and riparian areas

A degree of perspective is required when managing organic soil fertility. Many of the inputs organic-market farmers might employ (e.g., oilseed meals, kelp meal, and fish emulsion) are not likely to be economical for fertilizing most forages. New organic farmers should not fall into the "input-substitution" trap of thinking that such costly materials are necessary replacements for the inputs used in conventional agriculture. Examples of practical and cost-effective organic tools and strategies are provided in the questions that accompany this section. Still, many farm and ranch operations need or can benefit from some purchased organic fertilizers and amendments, especially during the transition to an

organic system and in response to specific deficiencies characteristic of the region and the type of operation. With time, well-designed organic systems become progressively more self-reliant by maximizing the cycling of nutrients. This is true of all organic systems, but it is especially so for livestock systems because the recycling of manure works to close the loop of nutrient supply and demand.

Take the time to learn about your soil. It is vital that you understand the soils on your farm: soil is the foundation of agriculture. Also, the regulations require managers to tend to their soil with an eye toward improving it over time and to apply inputs only in response to what the soil needs. You begin this process by testing and monitoring changes over time. There are useful assessments (your Natural Resources Conservation Service [NRCS] agent may know of a series of tests), and it can be very satisfying to observe improvement over time on your farm. See the ATTRA publication "Assessing the Pasture Soil Resource" for more on recognizing and monitoring soil characteristics. Some of the questions you may answer are listed below:

- Do you know your soil's classification(s)? (This includes soil type, pH, and profile, which includes depth.)
- Do you know your soil's organic matter percentage?
- Do you know what nutrients your soil needs for optimum production of your forage crops?
- Do you know your soil's erodability potential?
- Have you studied USDA's Natural Resources Conservation Service soil maps? http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

Use the expertise of your local NRCS agent to help you learn more about the soil and to guide you in caring for this fundamental farm resource. The following question is an indicator of success:

- Does your soil fertility support acceptable forage yield and quality?

What inputs are allowed on organic pastures and range?

One of the greater difficulties that organic producers face on a regular basis is determining whether a particular product or material may be used in organic production. Virtually all natural or nonsynthetic materials can be assumed to be acceptable in organic production. There are a few exceptions, however, so be sure to check with your certifier or the National List.

It is important that a grower considering a commercial product be aware of all of its ingredients and determine that none are prohibited. If the label does not include a full disclosure of the product's ingredients, the grower should obtain details about them from the distributor or manufacturer and keep files of the information. Note that such details should extend to inert ingredients. When in doubt about the acceptability of any material or product for certified organic production, contact your certifier.

Organic Materials Review Institute

The Organic Materials Review Institute (OMRI) is an important organization for organic producers to know about. OMRI is a nonprofit organization that evaluates products for suitability in organic production and processing. OMRI does not have status as a regulatory body. However, its decisions with regard to the acceptability of commercial products are highly respected and accepted by most certifiers. Products listed by OMRI can be purchased and used with a high degree of confidence. Producers should be aware, however, that there are many acceptable products in the marketplace that have not been evaluated by OMRI and do not carry the "OMRI Listed" seal. Again, it is important to contact your certifier to verify whether a particular product or material can be used. OMRI's website is www.omri.org.

Soil compaction

Compaction can occur both on the soil surface and as a subsurface problem often called a plow pan. In cropping systems, compaction is usually a symptom of excessive tillage or of field operations that were done when the soil was too wet. In pastures, compaction also can be caused by grazing when the soil is too wet. It is appropriate for graziers to temporarily confine livestock, provided outdoor access is available, when pasturing the animals can lead to excessive soil compaction. Another option for a grazier is to establish "sacrifice areas" or pastures on which animals can be moved during periods of wet weather.

Grazing as solar agriculture

All agriculture ultimately runs on the energy of the sun. It may be the sunlight captured today in a growing crop through photosynthesis. Or it may be the sunlight captured eons ago by primitive plants and stored as oil, coal, or natural gas—eventually to be converted to nitrogen fertilizer, pesticides, and tractor fuel.

In comparison to systems that rely primarily on grain and mechanically harvested forages, pasture-based production is more solar-driven. Far less fuel is consumed by letting animals do their own harvesting, and less fertilizer is required as animals do their own manure spreading.

The challenge for the grazier is to optimize the capture of solar energy. This is exemplified through management strategies that support densely growing forage, which in turn maximizes the capture of sunlight. It involves management practices that keep pastures green for as long as possible throughout the year, such as selecting appropriate forage species and developing a rotational grazing system. It also involves, as a means of reducing outside fertilizer needs, optimizing the use of legumes to fix nitrogen and deep-rooted broadleaf plants to extract subsoil minerals.

For more guidance on appropriate forage species, see the ATTRA publications listed at the beginning of this section. Also see "Extending grazing and reducing stored feed needs" at www.agry.purdue.edu/Ext/forages/pdf/ExtendingGrazing-Auburn.pdf. This publication includes a wealth of information that can help graziers lower costs, fill forage gaps, meet animal needs, and manage their pastures more effectively. Although it is not written for organic producers, most of the information is highly relevant.

Your local NRCS agent or Cooperative Extension agent is a great source of information and assistance when you need advice about planning and establishing pastures. They will know what forage species can do well on your soils and in your climate. Be sure to keep in mind the USDA organic regulations regarding sourcing seed and planting material (see Chapter 10).

Making the best use of solar energy

The following techniques optimize the capture of solar energy and are allowed but not required. This is not a comprehensive list, but it provides ideas to help managers do a better job of pasture management:

- Interseeding/overseeding annual forages
- Leaving enough forage height for rapid regrowth
- Selecting the forage varieties that are best adapted to your region
- Maintaining a diversity of forages (e.g., warm- and cool-season grasses, legumes, and forbs)
- Silvopasturing

Questions

Managing soil and fertility in organic pasture systems

- Have you identified what type of soil-monitoring practices you will use, and how often? ☐ Yes ☐ No ☐ N/A
- Do you keep your current and past soil-test results on file and use them to monitor the effects of your farming practices? ☐ Yes ☐ No ☐ N/A
- Do you make fertility-management decisions based on soil-test, tissue-test, or other nutrient-test results? Remember, application of concentrated micronutrients (e.g., sulfates and chelates) may be made only if the need is documented by soil or tissue tests. ☐ Yes ☐ No ☐ N/A
- Do you use approved cultural practices and materials to maintain or improve soil organic-matter/humus content? Allowed practices and materials typically include, but are not limited to, the following: ☐ Yes ☐ No ☐ N/A
  - — Rotational grazing and other forms of good grazing management
  - — Animal manures, composts, or other organic fertilizers
  - — Crop rotation (in mixed crop and livestock systems)
  - — Cover crops and green manures (in mixed crop and livestock systems)
  - — Minimizing tillage and the length of time that soil remains bare
- Do you use approved cultural practices and materials to manage soil fertility and crop nutrition? Allowed practices and materials typically include, but are not limited to, the following: ☐ Yes ☐ No ☐ N/A
  - — Use of deep-rooted forage species to capture nutrients from the subsoil
  - — Use of catch crops in mixed crop and livestock systems to scavenge nutrients
  - — Use of legumes in pastures to supply nitrogen fertility to forages
  - — Use of rock mineral fertilizers and amendments
  - — Use of mineral-rich organic fertilizers, manures, and/or composts
- Do you use approved cultural practices and materials to provide nitrogen to your forages? Allowed practices and materials typically include, but are not limited to, the following: ☐ Yes ☐ No ☐ N/A
  - — Forage legumes in hay/pasture
  - — Rhizobial inoculation of legume seed
  - — Legumes in rotation in mixed crop and livestock systems
  - — Livestock manures or composts
  - — Nitrogen-rich organic fertilizers
- Do you use approved cultural practices and materials to conserve soil and water? Allowed practices and materials typically include, but are not limited to, the following: ☐ Yes ☐ No ☐ N/A
  - — Avoiding overgrazing and undergrazing
  - — Controlling livestock access to water and riparian areas
  - — Appropriate conservation structures, such as buffers, grass waterways, and terraces
  - — Contour cultivation and strip cropping in mixed crop and livestock systems
  - — Cover crops and conservation tillage in mixed crop and livestock systems

- Do you use only allowed fertilizers and soil amendments? For example, potassium chloride (muriate of potash) is allowed only if it is derived from a mined source and is applied in a manner that precludes a buildup of chlorides in the soil. Note that most commercial sources of potassium chloride are synthetic and are not allowed in organic production. Allowed fertilizers and amendments typically include, but are not limited to, the following:
  - Rock dusts including most mined minerals, such as aglime
  - Livestock manures
  - Composts
  - Plant materials and extracts
  - Marine products and byproducts
  - Microbial inoculants and enzymes
  - Natural soluble fertilizers with restrictions

  Prohibited fertilizers and amendments include, but are not limited to, the following:
  - Most synthetic or "artificial" commercial fertilizers, such as anhydrous ammonia, urea, ammonium nitrate, superphosphate, ammoniated phosphates, and calcium nitrate
  - Biosolids, also known as municipal waste and sewage sludge
  - Most industrial byproducts, especially if they are contaminated with heavy metals or ash from manure burning

  ☐ Yes ☐ No ☐ N/A

- Do you keep records of all fertilizer and amendment purchases, along with product labels and organic certificates?

  ☐ Yes ☐ No ☐ N/A

- If you are applying manure, compost, or other acceptable fertilizers or amendments, are you taking care to avoid the contamination of surface water and ground water?

  ☐ Yes ☐ No ☐ N/A

Managing pasture as a crop

Pasture must be managed as a crop in full compliance with the USDA organic regulations.

- Have you applied only approved materials to your pastures?

  ☐ Yes ☐ No ☐ N/A

- Do you have distinct, defined boundaries and buffer zones such as runoff diversions to prevent the unintended application of a prohibited substance to the crop or prevent contact with the crop by a prohibited substance applied to adjoining land that is not under organic management?

  ☐ Yes ☐ No ☐ N/A

- Do you manage nutrients in accordance with the "Managing soil and fertility in organic pasture systems" information above?

  ☐ Yes ☐ No ☐ N/A

- Do you use organically grown seed? Do you document seed purchases and seek at least three organic sources before using nonorganic, non-GMO, or treated seeds?

  ☐ Yes ☐ No ☐ N/A

- Do you use mechanical, biological, or cultural practices to control weeds, insects, and disease? Approved chemical treatments can be used only when mechanical, biological, or cultural practices are insufficient to prevent or control crop pests, weeds, and diseases?

  ☐ Yes ☐ No ☐ N/A

- Do you have a pasture-management plan?

  ☐ Yes ☐ No ☐ N/A

CHAPTER 8
WEED MANAGEMENT IN PASTURE AND HAY CROPS

Weeds are generally considered the greatest challenge to growing organic crops, whether those crops are vegetables, grains, orchard trees, or pastures. Organic farmers do not have the option of spraying synthetic herbicides, and most organic herbicides are not affordable or suitable for pasture applications. However, when good grazing practices are used, along with good soil-fertility management, weeds become a minor issue. Bare ground provides an opportunity for weeds to become established. On the other hand, when they are well managed, dense forage stands gradually crowd out most weeds. With enough grazing pressure, any remaining weeds will be "grazed off" with more desirable plants, especially if multispecies grazing is used. For example, buttercups are a problem in some cattle pastures in Arkansas, but sheep relish the plant and in a short time will eliminate it from the pasture.

Techniques to reduce weed problems in pastures include the following:

- Reduce bare ground
  - — Avoid overgrazing
  - — Avoid undergrazing (letting plants get too mature)
  - — Incorporate legumes to help fill spaces
  - — Maintain a dense stand of vegetative plants
  - — Use cover and nurse crops for rotations
- Avoid letting weeds go to seed
  - — Use proper grazing pressure
  - — Use multispecies grazing
  - — Clip as needed
  - — Use hand cutting or flame weeding
- Care for the soil
  - — Use proper liming
  - — Compost manures if possible before applying to fields
- Pay attention to sanitation
  - — Clean harvest and mowing equipment between fields
  - — Scout areas near the fields (ditch banks, for instance) and clip if needed

The USDA organic regulations encourage a reliance on whole-system effects before specific practices or materials are employed. (See "Managing pests, weeds, and disease" below for details on how weed-control decisions must be made.)

Managing pests, weeds, and disease

The "Crop Pest, Weed, and Disease Management" practice standard of the USDA organic regulations requires that producers use a three-level hierarchical approach in deciding how to deal with these problems. This can be explained by designating these levels A, B, and C.

Level A

The first line of defense in managing weed, insect, and disease pests generally comprises the most sustainable and systems-based practices. It emphasizes the fact that a well-designed and healthy organic system will naturally have fewer pest problems.

Level A practices specifically include the following:

- Crop rotation and nutrient management

(Continued on next page)

(Continued from page 30)

- Sanitation measures to remove disease vectors, weed seeds, etc.
- Cultural practices such as resistant or tolerant varieties, timing of planting, etc.

Level B

The second line of defense is to be chosen if the basic systemic practices of level A are not sufficient to control the weed, insect, or disease problem. Level B practices generally include mechanical and physical practices that are traditional in organics and the use of nonsynthetic or "natural" materials.

Level B weed-control options include the following:

- Mulching with fully biodegradable materials
- Mowing
- Grazing
- Cultivation and hand weeding
- Flame, heat, or electrical weeding
- Plastic mulches
- Level B insect- and/or animal-pest control options include the following:
  - — Introducing or augmenting predators and parasites
  - — Developing habitat for beneficial predators and parasites
  - — Using nonsynthetic lures, traps, and repellents

Level B crop-disease control options include the following:

- Management practices (e.g., fire and flooding)
- Application of nonsynthetic biological, botanical, or mineral inputs

Level C

The third line of defense is to be chosen if the level of pest control required is not achieved after Level A and Level B control options are applied. In such instances, you are allowed the wider use of biologicals and botanicals to control pests. You also have the option to use those materials included on the "National List" under the "Synthetic Substances Allowed for Use in Organic Crop Production" section of the regulations.

If you anticipate the need for Level C control measures, be sure your Organic System Plan (OSP) indicates and documents the Level A and B practices you used prior to using Level C practices. Be specific about the control materials you might be using. Outline the indicators or thresholds you monitor that will trigger the use of those materials.

Questions

- Does your production system keep weeds at manageable levels? ☐ Yes ☐ No ☐ N/A
- Do you use approved practices or materials to control weeds? Allowed practices and materials typically include, but are not limited to, the following: ☐ Yes ☐ No ☐ N/A
  - — Using rotational grazing
  - — Leaving adequate leaf residue
  - — Allowing adequate pasture rest for regrowth
  - — Using multispecies grazing

— Using competitive forage types and varieties
— Monitoring and adjusting soil fertility, pH, etc.
— Interseeding/overseeding forages for sequential grazing
— Using higher seeding rates
— Mowing
— Using allowed herbicides
— Using flame weeding
— Using hand weeding or chopping
— Practicing machinery sanitation to prevent the spread of weed seed and rhizomes
— Releasing biological control agents
— Using crop rotation, nurse crops, smother crops, and cultivation in mixed-forage and row-crop production systems

Prohibited materials typically include, but are not limited to, the following:

— Most synthetic herbicides
— Heavy-metal herbicides
— Soap-based herbicides. These may be used only in noncrop areas of an organic farm.
— Micronutrient-based herbicides

Notes

CHAPTER 9
PEST AND DISEASE MANAGEMENT IN PASTURE AND HAY CROPS

Pests and diseases play a vital role in natural selection by removing sick and unthrifty plants. Organic proponents argue that sickness in plants can be traced largely to poor nutrition and other stresses that result from poor crop and soil management. Organic producers also maintain that organic soil-building practices will produce crops that are properly nourished and therefore less susceptible to attack by pests and diseases. Furthermore, organic producers and ecologists agree that natural, biological pest control arises in a healthy organic system in the form of an active complex of natural predators and parasites that suppress pest populations.

In actual practice, most managers of pasture and range rarely take additional action to control insect and disease pests. Where organic forages are concerned, maintaining a biologically diverse ecosystem and using good fertility and cultural practices naturally keep pests and diseases from becoming a management problem. Pests are not eliminated in such systems, but damage levels are low enough to be tolerated.

There are exceptions, of course: grasshopper plagues in the West and armyworm invasions in humid climates are good examples of circumstances that may require more pest control. High-value organic hay crops also can have special pest problems. Alfalfa weevil is a good example of a pest that may well require additional attention. Pest management for insects and disease is addressed in considerable detail in the ATTRA publication "Guide for Organic Crop Producers." It contains information that is not duplicated here.

The USDA organic regulations require that pest-management decisions be made in a hierarchical fashion. (See "Managing pests, weeds, and disease" in Chapter 8 of this guide for details on how pest- and disease-control decisions must be made in organic systems.) Always check with your certifier before trying a pest-management technique that is not listed as approved. For example, some organic farmers have used car exhaust in an attempt to deal with burrowing pests, such as ground hogs. This is not allowed and could result in loss of certification for that field for 3 years. If your pest-management practice is not listed on your Organic System Plan (OSP) and approved by your certifier, you should call and ask before you take action that might jeopardize your status.

Questions

- Does your production system keep disease and insect pests at manageable levels? ☐ Yes ☐ No ☐ N/A
- Do you use approved practices to control plant disease and insect pests? Allowed practices typically include, but are not limited to the following: ☐ Yes ☐ No ☐ N/A
  - — Integrated Pest Management monitoring
  - — Animal predators (e.g., birds, bats, ducks, and guinea fowl)
  - — Establishment and maintenance of beneficial insect and wildlife habitats
  - — Resistant and tolerant crop varieties
  - — Sanitation
  - — Burning
  - — Crop rotation
  - — Flaming

— Mass trapping of insect pests
— Release of beneficial insects
— Application of allowed pesticides

- Have you listed all techniques and materials to be used to control pests and diseases on your OSP? Do not vary from your OSP without checking with your certifier first. ☐ Yes ☐ No ☐ N/A
- Do you use allowed insect-pest- and disease-control materials to manage forage pests? Allowed inputs typically include, but are not limited to, the following: ☐ Yes ☐ No ☐ N/A
  — Beneficial insects and other organisms
  — Biological pesticides
  — Botanical pesticides
  — Insecticidal soaps
  — Mineral-based pesticides
  — Pheromones

  Prohibited pest- and disease-control materials include, but are not limited to, the following:
  — Most synthetic insecticides, fungicides, miticides, etc.
  — Heavymetal-based pesticides
  — Synthetic wetting agents
  — Nicotine sulfate and other tobacco products
  — Strychnine
- Do you keep records of all pest- and disease-control materials used, along with the product labels and organic certificates? ☐ Yes ☐ No ☐ N/A
- If you apply natural pesticides, do you do so in a manner that minimizes risk to nontarget organisms and aquatic systems? ☐ Yes ☐ No ☐ N/A

Notes

CHAPTER 10
SEEDS AND PLANTING STOCK

An entire section of the USDA organic regulations addresses seeds and planting stock in organic production. This section is as applicable to hay and pasture crops as it is to vegetables and row crops. The first basic rule is this: organic production must use organic seeds and planting stock. When an equivalent organic crop variety is not commercially available, untreated conventionally grown seeds and planting stock may be used. (See "About planting stock" below for an explanation of planting stock. Also see "Equivalency and commercial availability of seeds and planting stock.")

The other basic rule to keep in mind is this: seeds, annual seedlings, and planting stock used in organic production may not be treated with prohibited substances. There is only one exception: treatment with prohibited substances is allowed when the application of those substances is a requirement of Federal or State phytosanitary regulations (e.g., the interstate shipping of agricultural products).

Conventional seed treatments are usually fungicidal, and most fungicides used for this purpose are prohibited in organic production. Allowed treatments include natural materials, such as biological inoculants, and synthetic substances that are on the NOP's National List of Allowed and Prohibited Substances, such as seaweed extracts. Inoculating legume seeds with *Rhizobium* bacteria is the most commonly used example of an allowed seed treatment.

Since some *Rhizobium* products are genetically engineered (GE) or may contain GE ingredients, it is important to make that determination in advance and obtain an allowed product. Organic growers must make certain that the seeds, transplants, and planting stock they use are not genetically engineered. Purchasing these items from a certified organic producer should guarantee that the propagation materials are not genetically modified and have a minimal degree of genetically modified pollen contamination. There is a particular provision in the "Seeds and Planting Stock" standard of the regulations that may be relevant, especially if you establish or interplant any of your fields with perennial planting stock.

Examples of perennial planting stock include grass sprigs, root pieces, and tree seedlings. The regulations require planting stock (used to produce a perennial crop) that is not organically produced to be maintained under a system of organic management for at least 1 year before the crop can be sold, labeled, or represented as being organically produced. The popular interpretation of this provision has been that perennial planting stock may be obtained from non-organic sources, but it must be under organic management for 12 months before the first harvest of an organic crop.

This interpretation is consistent with many organic-certifier standards that were used prior to the USDA organic regulations being established. However, it could suggest an alternative interpretation: the 12-month requirement applies to the sale of perennial planting stock, not to its use once it has been placed in production. In other words, it is possible that this provision is pertinent to nursery production and not to the production of fruits, nuts, produce, or forage.

The way your certifier chooses to interpret this section of the regulations can have implications for your operation. Some examples could include establishing a Bermuda grass pasture from sprigs; interplanting comfrey as a forage plant; or establishing an agroforestry system, especially one with forage trees such as locust. In many of these examples, there is a lag time of 1 year or more to allow for establishment, which removes much of the concern. However, the question of whether you need to seek an organic source for perennial planting stock and document that search still remains. Be certain to contact your certifier to learn in full detail what your constraints might be before you purchase perennial planting stock.

About planting stock

The regulations lump plant-propagation materials appropriate for forages into two basic categories: seeds and planting stock. The term "seeds" is self-explanatory. "Planting stock" is defined as any plant or plant tissue other than annual seedlings—but including rhizomes, shoots, leaf or stem cuttings, roots, or tubers—used in plant production or propagation. Sprigs are the most likely example of planting stock you might use in pasture or hay production. Sprigs are clumps of stolons or rhizomes, which are used to propagate certain grasses—especially some warm-season species like hybrid Bermuda grass.

Equivalency and commercial availability of seeds and planting stock

"Equivalent variety" is generally understood to mean a cultivar of the same type and with similar plant characteristics as the original, preferred variety. For these purposes, "type" refers to the basic plant type. For example, there is a type of soybean, called a haybean, that is harvested as forage. This is different from the standard "food type" and "feed type" of soybean that most farmers are familiar with, so they would not be considered equivalent varieties. "Characteristics" refers to such factors as color, pest resistance, and maturation.

According to the regulations, an equivalent variety of seed or planting stock would be considered commercially unavailable if you could not locate an organic supplier. It might also be considered commercially unavailable if the organic supplier could not provide you with the quantity of seed you need or if the available seed quality were substandard. Factors that might make seed quality substandard include, among others, the presence of seed-borne disease, very low germination percentages, and high noxious-weed-seed content. The higher cost of organic seed and propagation materials is not considered an acceptable reason for using nonorganic seed or planting stock.

Ultimately, the certifier must decide whether the use of nonorganic seed or planting stock is justified. You will need to present ample documentation to support any use of nonorganic seed, including a record of your attempts to locate organic seed sources. This usually entails keeping a record of phone calls, letters, or emails to and from seed suppliers to document your attempts to find an organic source. Most certifiers want a clear indication that you have contacted at least three suitable suppliers.

Questions

- Is all seed being used one of the following? ☐ Yes ☐ No ☐ N/A
  - — Organically produced
  - — Conventionally produced, non-genetically modified seeds that have not been treated with prohibited substances, where no organically produced seeds are available?
- Are only non-genetically engineered seeds, planting stock, and inoculants used? ☐ Yes ☐ No ☐ N/A
- If seeds and sprigs are produced on-farm, are they grown using organic methods and approved inputs? ☐ Yes ☐ No ☐ N/A
- Where pasture is being established using perennial planting stock, such as sprigs, have you determined what your certifier requires with regard to sourcing? ☐ Yes ☐ No ☐ N/A
- Do you retain documentation of all seeds, seed treatments (including rhizobial inoculants), and planting-stock purchases? ☐ Yes ☐ No ☐ N/A

- Do you keep seed tags and empty packets on file? ☐ Yes ☐ No ☐ N/A
- If seed or plant treatments are used, have you determined that they are allowed and not genetically modified? It is advisable to retain all documentation that proves a substance is allowable in organic production. ☐ Yes ☐ No ☐ N/A

Notes

CHAPTER 11
FIELD EQUIPMENT

Equipment used for pasture management and for hay production and hauling must not be a source of contamination or a means by which organic and conventional products are commingled. Therefore, equipment that is used both for organic and conventional field work (planting or hay harvesting) will need special care. This means that attention must be paid to cleaning equipment by purging (putting organic crop through the machine and then discarding the crop or disposing of it through conventional channels), washing, or other means. Descriptions of clean-out protocols will need to be included in the Organic System Plan (OSP), and documentation of procedures will need to be kept as part of the recordkeeping system.

If you hire a custom harvester who is not also certified organic, your OSP must list the person and include a description of the clean-out procedures used to ensure there is no contamination or commingling risk. If your handler is certified organic, the handler's organic certificate and name and address will be sufficient documentation (See Chapter 29 for more details on this subject.)

All equipment must be maintained in a way that does not contaminate the land. For example, leaky hoses spilling fluids on organic ground or a tractor that leaks oil would be problems that must be fixed. When you are fixing equipment, pay attention to protecting the environment (soil and water). Finally, store the needed supplies (coolant, oil, lubricants) in an area that does not contact organic product (feed, for example). See the following questions for more examples of areas of concern with field equipment.

Questions

- Are clean-out protocols established and clean-out logs maintained if harvesting, hauling, and crop handling equipment also is used for conventional crops? ☐ Yes ☐ No ☐ N/A
- If split or parallel organic/conventional production is being done, is separate spraying equipment designated and clearly marked? ☐ Yes ☐ No ☐ N/A
- If sprayers, planters, or dry-material applicators also are used to apply prohibited materials for conventional production, are clean-out protocols clearly established and clean-out logs maintained? When seed planters are equipped with insecticide or fertilizer boxes and tanks that are not used for organic production, many certifiers prefer that these be removed or that the drive chains be disconnected when operating on organic acreage. ☐ Yes ☐ No ☐ N/A
- Are your sprayers, applicators, and spreaders properly calibrated to ensure precise application of materials? ☐ Yes ☐ No ☐ N/A
- Are your tractors, trucks, and other equipment free of fuel, coolant, and lubricant leaks? ☐ Yes ☐ No ☐ N/A
- Is routine engine cleaning and maintenance of equipment done where it cannot contaminate production fields, harvested crops, or feeds? ☐ Yes ☐ No ☐ N/A
- Are fuels, lubricants, paints, coolants, and the empty containers that held these fluids stored where they cannot contaminate harvested crops? ☐ Yes ☐ No ☐ N/A
- Do you avoid field operations when soils are wet to prevent excess compaction and damage to soil structure? ☐ Yes ☐ No ☐ N/A

CHAPTER 12
HAY, SILAGE, AND HAYLAGE HARVEST

Conventional hay and silage harvesting sometimes makes use of materials that might not be accepted in organic production. Some hay, haylage, or silage preservatives, mold inhibitors, or inoculants, for example, may be prohibited in organic production. Individual products should be checked to determine whether they are natural (non-synthetic) or are listed as an allowed synthetic input in the USDA organic regulations. The use of fungicide-treated twine might be prohibited—check with your certifier.

Harvest your forages at an optimum stage to ensure high feed quality and continued viability of the stand. This applies to good overall management and is not related only to organic certification. Many producers sacrifice forage quality for quantity by harvesting when the crop is too mature. Many producers also cut hay too low, resulting in mower blight, which reduces stand viability.

Questions

- If harvest-aid products, preservatives, or inoculants are used, are they approved for organic production? Do you maintain labels and tags in your records? ☐ Yes ☐ No ☐ N/A
- Do you keep harvest records and track production of each field? ☐ Yes ☐ No ☐ N/A

Notes

CHAPTER 13
GRAZING MANAGEMENT AND THE PASTURE RULE

The most important components of the Access to Pasture Rule concern the requirement that ruminant animals graze pasture during the entire grazing season, which must total at least 120 days per year. Due to weather, season, and/or climate, the grazing season may or may not be continuous. Over the course of the grazing season, the animals must obtain an average of at least 30 percent of their dry matter intake (DMI) by grazing. In addition, animals must have year-round access to the outdoors, and roughages used for bedding must be certified organic.

"Dry-matter fed" is calculated as an average over the entire grazing season for each type and class of animal.

Confining the animals is allowed for some environmental conditions, health-care procedures, and other management situations. Lactation is not considered an acceptable reason for confinement.

Related ATTRA publications

www.attra.ncat.org

The ATTRA publication "Pasture for Organic Ruminant Livestock: Understanding and Implementing the National Organic Program (NOP) Access to Pasture Rule" has detailed instructions and worksheets for calculating dry matter intake on pasture for ruminant animals. It also has detailed instructions and worksheets for calculating forage availability and matching it to daily livestock intake. This publication also is helpful for designing rotational grazing systems, including determining paddock size and determining the length of the grazing period.

The Organic System Plan

The following practices must be addressed in the Organic System Plan (OSP):

- The grazing season must total a minimum of 120 days per year. The grazing season need not be continuous—breaks from grazing are permitted during the grazing season.
- At least 30 percent of the animal's dry matter intake during the grazing season must come from residual pasture or vegetation rooted in pasture.
- During the finishing period, ruminant slaughter stock must be maintained on pasture during the grazing season but are exempt from the minimum 30 percent DMI requirement from grazing. Feeding areas must allow for feeding of all stock without crowding and without competition. The finishing period shall not exceed one-fifth of the animal's total life or 120 days, whichever is shorter.
- Pasture must be managed to provide sufficient quality and quantity for the animals to graze throughout the grazing season.
- A description must be kept of all feeds (including pasture) and supplements for each type and class of animal—including source, percentage and amounts fed, and changes to rations.
- A method must be provided for calculating dry matter demand and dry matter intake for feeds and pasture.
- The sources of values for dry matter demand and feed dry matter percentage composition must be provided. Examples include Extension publications, National Research Council (NRC) nutritional-requirement tables, and recommendations from a nutritionist or feed/forage consultant.

Decision-making for grazing management

The NOP Pasture Access Rule requires graziers to provide pasture of a sufficient quality and quantity for animals to graze throughout the grazing season. Maintaining adequate forage quantity and quality is best achieved through a managed grazing system. Details on designing and implementing a grazing system are covered in the ATTRA publication "Rotational Grazing."

Questions

- Is your total grazing-season length no less than 120 days of the year? The grazing season need not be continuous. ☐ Yes ☐ No ☐ N/A
- Do you provide not more than an average of 70 percent of a ruminant's dry matter demand from "dry matter fed" (nonpasture feed sources)? (Dry matter feed does not include dry matter grazed from residual forage or vegetation rooted in pasture but does include hay, haylage, or silage.) ☐ Yes ☐ No ☐ N/A
- Do you provide all ruminants with an average of not less than 30 percent of their dry matter intake from grazing throughout the grazing season? ☐ Yes ☐ No ☐ N/A
- Do you maintain ruminant livestock that are finished for slaughter on pasture during the grazing season, even though they are exempt from the requirement of 30 percent dry matter intake from grazing? Is your finishing period no more than 120 days in length, or one-fifth of the animal's life, whichever is shorter? ☐ Yes ☐ No ☐ N/A
- Have you established, and do you maintain, year-round living conditions that accommodate the health and natural behavior of animals, including year-round access to the outdoors for all ruminant animals? ☐ Yes ☐ No ☐ N/A
- Have you described the total feed ration for each type and class of animal on your OSP? ☐ Yes ☐ No ☐ N/A
- Do you document all feed produced on-farm? ☐ Yes ☐ No ☐ N/A
- Do you document all feed purchased from off-farm sources? ☐ Yes ☐ No ☐ N/A
- Do you document the amount of each type of feed that is actually fed to each type and class of animal and calculate the percentage of each feed type, including pasture, in the total ration? ☐ Yes ☐ No ☐ N/A
- Do you document changes that are made to all rations throughout the year in response to seasonal grazing changes? Dry matter demand and intake values should be recalculated whenever there is a change in ration. ☐ Yes ☐ No ☐ N/A
- Do you list all feed supplements and additives on your OSP? ☐ Yes ☐ No ☐ N/A
- Do you provide a method for calculating dry matter demand and dry matter intake on your OSP? ☐ Yes ☐ No ☐ N/A
- Have you developed a grazing system that effectively apportions available forage to ruminant animals based on the animals' dry matter demand? ☐ Yes ☐ No ☐ N/A
- Have you determined the daily dry matter intake values for each species, type, and class of animal on the farm? ☐ Yes ☐ No ☐ N/A
- Have you asked your certifier about the preferred method for determining forage yield or finding daily dry matter intake? ☐ Yes ☐ No ☐ N/A

CHAPTER 14
MONITORING YOUR PASTURE'S PERFORMANCE

Pastures under organic management should be continuously improving in structure, organic-matter content, and species diversity. These factors allow pastures to provide adequate quantities of high-quality forage to meet the nutritional needs of grazing animals. The choice of grazing system and forage-plant diversity are tools to aid in developing resilient pastures. Monitoring pasture and range condition and then responding through good grazing practices is a fundamental part of managing for continuous improvement.

The USDA Natural Resources Conservation Service (NRCS) publication "Guide to Pasture Condition Scoring" lists several key indicators for assessing pasture health and resiliency:

- Percent desirable plants
- Plant cover
- Plant residue
- Plant diversity
- Plant vigor
- Soil fertility
- Severity of use
- Site adaptation of desired species
- Climatic stresses
- Soil pH
- Insect and disease pressure
- Uniformity of use
- Erosion
- Percent legumes
- Soil compaction

The "Guide to Pasture Condition Scoring" has an accompanying score card that farmers can use to evaluate their pastures. These materials are available from your local NRCS Service Center or can be downloaded from the NRCS Web site at www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044239.pdf.

The following indicators can help you determine how well your organic management system is functioning. The indicators can be reviewed annually and used to monitor your progress. These indicators are not themselves compliance issues for the NOP. However, if you can answer most of these indicators positively, you also will be meeting NOP regulations. Questions about compliance issues follow the indicators.

Indicators of pasture health

- Pasture consists predominantly of desirable, well-adapted legumes, forbs, and grasses.
- Forages are usually at or near their optimum quality when you graze or harvest them. It is undesirable—and unprofitable—for pasture species to become overly mature. Overly mature plants are not only low-quality livestock feed,but they also tend to shade out new seedlings, particularly clover, ultimately leading to bare ground between plants.

- Pastures are generally free of subsurface compaction. Unless the pasture is located in a natural wetland, standing water often is an indicator of subsurface compaction.
- Organic-matter/humus levels are stable or increasing.
- If they are used, tillage operations are becoming easier under organic management from year to year.
- Earthworms and earthworm burrows are evident in the soil. There are some circumstances under which earthworms will not be found, even in well-managed soils. Soils that routinely flood in spring, very arid soils, and some heavily glaciated soils in the northern tier of States may not have earthworms.
- Soil emits a rich, earthy smell when tilled or dug.
- Dung beetle activity is evident. Dung beetle activity should be vigorous on well-managed, organic permanent pastures and range. Less activity will be seen on pastures that are part of a mixed-crop rotation because tillage disrupts the life cycle of this insect. However, dung beetles are mobile and should still be active on rotation pasture. The synthetic worming agent ivermectin—allowed in organic production on a limited and emergency basis—is especially harmful to dung beetles.
- Forages are free of nutrient deficiencies under average conditions. Symptoms of nutrient deficiencies include chlorosis (yellowing), other discolorations of the leaves and stems, stunted growth, and consistently low yields.
- Livestock are free of disease conditions caused by excess soil nitrogen. Problems that may be caused or worsened by excessive nitrogen fertilization include grass tetany, prussic acid poisoning, nitrate toxicity, and fescue toxicity in high-endophyte fescue.
- Livestock are free of disease conditions caused by deficiencies or imbalances of mineral nutrients. Some problems that may occur include grass tetany, which can be brought on by imbalances of magnesium and potassium as well as by excess nitrogen.
- There is an abundance of beneficial predatory and parasitic insects (e.g., ladybugs, lacewings, mantids, and small wasps) under normal conditions.
- Erosion is controlled on all fields, paddocks, and access lanes.
- Riparian areas (stream banks) on your farm or ranch are stabilized and protected.
- Natural wetlands on your farm or ranch are protected.
- Waterways on your farm or ranch are protected from livestock and livestock wastes. It is a good idea to use fencing and water tanks to restrict stock from fouling natural streams.

Questions

- Are you managing your pastures as a crop? ☐ Yes ☐ No ☐ N/A
- Are you managing your pastures to meet your livestock's needs? ☐ Yes ☐ No ☐ N/A
- Are you managing your pastures in a way that improves natural resources and enhances biodiversity? ☐ Yes ☐ No ☐ N/A

Section 3: Livestock

This section includes information essential to the raising of organic livestock, including rules about the origin of livestock, health care, feeding, living conditions, and manure management.

As we begin this section, let's revisit the USDA organic regulations' definition of "organic."

Organic production [is] a production system that…respond[s] to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biological diversity [§ 205.2].

As mentioned earlier, livestock have an important part to play in this. Animals foster cycling of resources by consuming forages and other feeds and contributing manure to help feed the soil organisms. They can promote ecological balance by keeping the landscape stable, particularly when producers incorporate multispecies grazing. Some growers are conserving biological diversity by their choices of breeds, raising heritage breeds or lines of animals that do well on pasture.

Depending on the practices previously used for health care and feeding, livestock producers may find that the conversion to organic livestock production may be more or less of an adjustment. It is helpful as you learn about the regulations to remember the overall goal contained in the definition. The rules are written to help accomplish that goal as well as to assure consumers about organic products.

Organic systems, to be successful, must foster health. This section of the guide will focus on strategies for accomplishing that while complying with the USDA organic regulations. The sections of the regulations referred to here are in Subpart C—§ 205.236 (Origin of livestock); § 205.237 (Livestock feed); § 205.238 (Livestock health care practice standard); and § 205.239 (Livestock living conditions).

Throughout this section you will see references to records you need. Recordkeeping is mentioned frequently to reinforce the point that you will need to keep and organize lots of records—and maintain them for 5 years—so that products may be traced back to their source and their organic status verified.

The chapters in this section give further details about managing livestock organically. First is a discussion of the origin of livestock because that is the fundamental first step. Organic animal health will be addressed in general terms and then followed by a discussion of the topics of treatment of sick or injured livestock, internal and external parasite management, predator management, and physical alterations. Rules about organic feed and feed storage and livestock living conditions will be discussed, along with handling manure and animal mortalities. This section ends with a list of indicators to help managers evaluate the health and vitality of livestock. This list can help managers see important indicators that will assist them in assessing the outcomes of the animal-husbandry practices that are being used. Finally, in appendices at the end of this guide, there are species-specific summaries to help point out some of the major

Organic livestock requirements include the following:

- Feed that contains 100-percent organic agricultural products
- Organic health care, which focuses on prevention of illness
- Living conditions that accommodate the health and natural behavior of the animals
- Access to outdoors, direct sunlight, fresh air, and room to exercise

For ruminant livestock, the requirements also include the following:

- Access to pasture during the grazing season—at least 120 days of the year
- Significant (not less than an average of 30 percent) dry matter intake from pasture during the grazing season

issues faced by those who raise those livestock organically. A list of resources also is included in an appendix.

CHAPTER 15
SOURCE OF ANIMALS

According to the USDA organic regulations, the history of each animal is a determining factor in whether it eventually can be sold or represented as organic. Some animals obtained from nonorganic sources can be transitioned into organic production under certain conditions and if specific criteria are met.

Refer to Figure 2, "Origin of Livestock," on page 46. It is a flowchart designed to help producers understand the requirements of the USDA organic regulations. The requirements include the following:

- **Mammalian livestock** (e.g., cattle, sheep, hogs, goats, and rabbits) raised for *meat production* must be under fully organic management beginning no later than the third trimester of gestation. For example, bred cows from conventional sources must be under fully organic management at least 3 months prior to calving in order for the offspring to be considered organic. Bred ewes and does must be under fully organic management at least 50 days before the birth of offspring in order for those offspring to be eligible.
- **Livestock used as breeding stock** may be obtained from a nonorganic operation. They must be managed organically, and while they may be used to produce organic offspring, the breeding animals themselves may not be sold as organic slaughter stock.
- **Poultry chicks from conventional sources** are allowed for the production of organic meat and eggs only if they are raised organically beginning the second day of life (i.e., as "day-old chicks").
- **Older birds grown under conventional management** are allowed only as breeder stock for the production of hatching eggs.
- **Dairy animals** must be maintained under organic management for a minimum of 1 year prior to their milk or milk products being sold, represented, or used as organic. There is one exception: a farm that is transitioning to organic production. In that case, if a whole herd and farm are being transitioned together, the herd can be fed third-year transitional feed from the farm as if it were organic feed. This allows the herd and land to complete their transition at the same time and become organic within 3 years. Otherwise, the land could be certified as organic in 3 years, but no organic milk would be produced until a year later. The feed produced during the transition can be used only by that farm. It cannot be sold as organic. Any dairy animal raised organic since the last third of gestation can produce organic milk and be organic slaughter stock. Once again, conventional dairy animals that have been transitioned to organic milk production may not be sold as organic slaughter stock.
- **Livestock and livestock products** that are removed from an organic operation and subsequently managed on a nonorganic operation may be not sold, labeled, or represented as organically produced. For instance, dry dairy cows may not be kept on a nonorganic farm and then reintroduced into an organic herd for lactation.

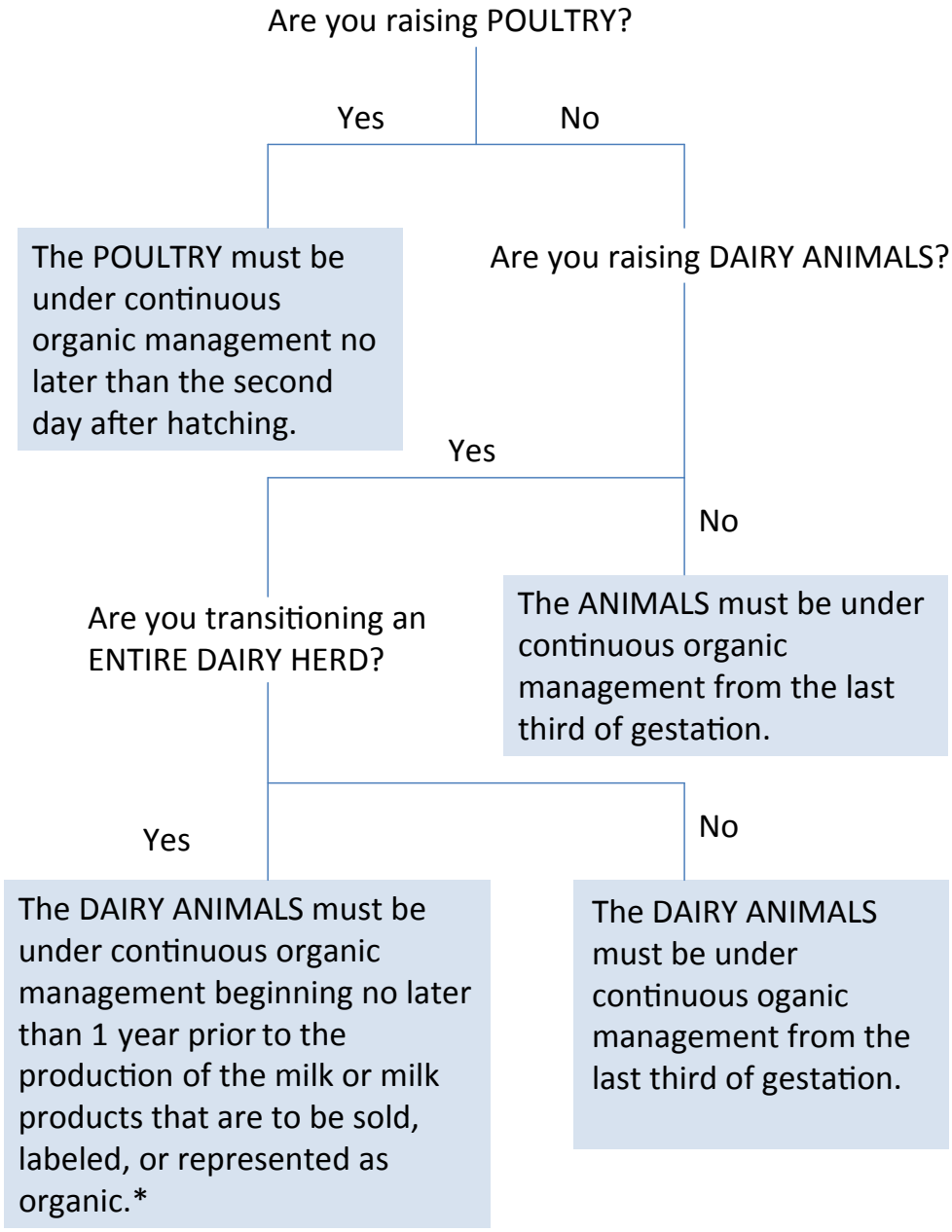
New organic producers are sometimes confused about the USDA organic regulations regarding replacement dairy animals. The regulations require that replacement animals be maintained under organic management for 12 months or that the animals be managed organically from the last third of gestation. Some certifiers allow an established organic

dairy to purchase an additional herd and transition them for 12 months to produce organic milk. Other certifiers may not allow this practice, stating that once an entire herd has been converted, all dairy animals must be organic from the last third of gestation.

As of this writing, the NOP is working on a proposed rule that would clarify the issue and lead to consistent interpretation. Check with your certifier to understand how you may acquire replacement dairy animals and clarify your strategy in your Organic System Plan (OSP).

Artificial insemination (AI) is permitted in organic production. However, the use of hormones to synchronize estrous cycles for breeding is not allowed.

Figure 2—Origin of Livestock



* Crops and forage from land, included in the Organic System Plan of a dairy farm, that is in the third year of organic management may be consumed by the dairy animals of the farm during the 12-month period immediately prior to the sale of organic milk.

Questions

- If you are raising organic slaughter livestock (other than poultry), have the animals been under continuous organic management from the last third of gestation? ☐ Yes ☐ No ☐ N/A
- Once animals have transitioned, are they managed organically for the life of the animal? ☐ Yes ☐ No ☐ N/A
- If you are raising organic poultry, have the birds been under continuous organic management beginning no later than the second day of life? ☐ Yes ☐ No ☐ N/A
- If livestock have been acquired from an organic source, do you have verification of their organic status? ☐ Yes ☐ No ☐ N/A
- Do you retain purchase records for all acquired livestock? ☐ Yes ☐ No ☐ N/A
- Do you keep adequate records documenting the organic management of breeding stock to ensure the organic status of their offspring? ☐ Yes ☐ No ☐ N/A
- If you are producing organic milk or milk products, is the milk coming from animals that have been under continuous organic management for no less than 12 months? ☐ Yes ☐ No ☐ N/A

Notes

CHAPTER 16
THE ORGANIC APPROACH TO ANIMAL HEALTH

The basic strategy for sustaining livestock vitality in organic systems is to identify and optimize those elements, conditions, and practices that support health. Here are some of the elements:

- Genetics. Some individuals and lines are more hardy than others; some breeds are better adapted to the climate.
- Good, balanced nutrition. An adequate diet encourages a strong immune system.
- A low-stress environment. This includes gentle handling and shelter from the elements.
- Exercise. This includes normal behaviors such as grooming and play.
- Minimal exposure to disease and parasites. This is accomplished with biosecurity, grazing management, and sanitation.
- Vaccinations and other preventive measures.

Genetics

The USDA organic regulations require that producers choose livestock species and types suited to the site-specific conditions of the farm and those with natural resistance to prevalent diseases and parasites. Some breeds are inherently not well suited to a region. A breed developed in the northern country, such as Scottish Highland cattle, will have too much hair to be comfortable in Georgia, for example. It is a good practice for any producer to select animals within the region of the operation because they will be adapted to the climate and forages. It is good husbandry to add animals adapted to similar management as well. For example, grazing animals learn from their mothers, and those that have been raised in confinement without access to pasture will not adapt well to pasture systems. Animals with internal-parasite resistance are a real benefit to grazing systems. To sum up, this regulation is really common sense and leads to better animal welfare, health, and production. Paying attention to individual animals on your farm and selecting the best (considering health and production) for breeding will lead to better livestock.

Good, balanced nutrition

The USDA organic regulations require 100-percent organic agricultural products in feed for all livestock and access to pasture for ruminant livestock during the grazing season. This is explained in more detail in Section 2 and in Chapter 21, "Organic Feed." The regulations also stipulate that producers provide "a feed ration sufficient to meet nutritional requirements" as part of the health-care standard, acknowledging that meeting animals' nutritional requirements helps maintain their immune system as well as their overall well-being. "Balanced" nutrition is also addressed in the livestock-feed standard of the USDA organic regulations. You are not allowed to provide feed supplements or additives in amounts above what is needed for health maintenance and adequate nutrition.

A low-stress environment

Stress increases susceptibility to disease, so lowering stress helps support good health and animal welfare. A low-stress environment encompasses appropriate shelter (with good ventilation, sanitation, and freedom of movement); performing necessary physical alterations such as castration or dehorning in ways that are as humane as possible; moving animals gently and with respect for their inherent behaviors; and keeping animal numbers at appropriate levels to avoid overcrowding. It also involves controlling predation and being

careful about mixing groups of animals (in some species, mixing unfamiliar animals leads to fighting).

Exercise

Encouraging exercise for pregnant animals leads to better health and smoother deliveries. All animals benefit from having room to carry out normal behavior (e.g., grooming, play, natural maintenance, and comfort behaviors). Exercise leads to improved muscle tone, relieves stress, boosts the immune system, and keeps the animals' overall well-being high.

Minimal exposure to disease and parasites

Minimizing exposure to disease and parasites begins with biosecurity. Maintaining a closed herd, quarantining sick or newly purchased animals, and maintaining good sanitation of equipment and living spaces are good first steps. Visitors to farms can be fun, but they may pose a risk to your animals' health. Asking visitors to avoid contact with other livestock prior to coming to your farm and providing footbaths to clean their shoes before walking around your livestock are good ways to minimize this risk. Good grazing management is essential to organic parasite control because it boosts animal health and nutrition. However, producers must be careful to manage the grazing with a goal of minimizing exposure to parasite larvae. Keeping the stocking rate at sustainable levels and using multispecies grazing or other strategies to break internal-parasite cycles are good practices. And while predation is not a disease per se, providing for some protection from predators is another way to lower stress and prevent animal losses.

Vaccinations and other preventive measures

Some diseases can be prevented by administering appropriate vaccinations. Vaccinations must be given if needed to prevent a known disease threat. The vaccines you plan to use should be listed on your Organic System Plan (OSP) along with all the other health-care practices you have planned.

Look at all of these points together. They add up to good management and common-sense animal husbandry. There are other regulations that have to do with maintaining organic integrity (e.g., not using antibiotics, pesticides, or performance enhancers, and using only 100-percent organic agricultural products in feed), and these will be explained further in the following chapters.

Your OSP should reflect a holistic health-management strategy that uses these principles and measures as a foundation. You also must indicate what practices, procedures, and materials will be used to deal with those animals that do become ill. These options are discussed in the next chapter of this guide, "Treatment of Sick or Injured Livestock."

Notes

CHAPTER 17
TREATMENT OF SICK OR INJURED LIVESTOCK

Despite the best organic management, some livestock will inevitably get sick or injured and require treatment. At the time of this writing, many routine veterinary medicines—most notably antibiotics—are prohibited in organic production. Animals treated with medications that are not allowed in organic production cannot be sold afterward as organic. However, the USDA organic regulations do not allow you to withhold treatment: § 205.238(c)(7) states that the producer of organic livestock must not "(w)ithhold medical treatment from a sick animal in an effort to preserve its organic status. All appropriate medications must be used to restore an animal to health when methods acceptable to organic production fail…"

A producer who determines that an animal is sick and needs treatment and then chooses to use an alternative method over a proven method in order to preserve the animal's organic status is in noncompliance.

To be "acceptable to organic production," methods must preserve organic integrity and also have the likelihood of being effective. Methods acceptable to organic production include natural substances and certain synthetic substances, which are included on the National List of Allowed and Prohibited Substances (National List). The National List not only describes what substances may be used but also how (for what purpose) they are to be used. Print a copy of the National List to share with your veterinarian. Also, products that are acceptable for organic health treatment may be found on the Organic Materials Review Institute (OMRI) list. This also would be helpful information for your veterinarian. See the Resources section of this guide for links to the National List and to OMRI, as well as for books about organic health care.

In the face of an acute illness, alternative treatments may not offer the possibility of restoring an animal to health because they may work slowly (or not at all). In that case, using an alternative treatment with little likelihood of success is in essence denying treatment. In other cases, where illness is mild, effective alternative treatments may be used. Producers who research alternative methods will have a better idea of when and how those methods may be used for the good of the animal and when it would be better to use conventional treatments.

Because few conventional medications are allowed, organic producers may explore complementary and alternative veterinary medicine (CAVM) treatment options, such as herbalism, homeopathy, acupuncture, chiropractic, and other nontraditional modalities (methods). CAVM treatments certainly can be seen as acceptable to organic production as long as they provide needed relief and care for the animal. A producer who determines that an animal is sick and needs treatment and then chooses to use an alternative method over a proven method in order to preserve the animal's organic status is in noncompliance.

On a practical level, one of the wisest things you can do is to find and develop a relationship with a veterinarian who understands and supports your choice to be organic. With such a vet as your "herd health partner," it is much easier to develop treatment strategies that are holistic and compliant with the regulations and avoid the accidental use of prohibited medicines when suitable alternatives are available. If you are working with a veterinarian who is not familiar with organic regulations, you will need to clarify your situation at the outset.

Finally, if the alternative methods you try fail, you will need to resort to conventional treatments and accept the loss of organic status for that animal. Livestock producers may not use various alternative treatments as a delaying tactic in hopes that the animal will recover on its own in order to preserve its organic status.

Some helpful resources

Check the Resources section of this guide for a list of books that may help you learn more about alternative health care for livestock. Two that are very helpful for producers raising ruminants are "Alternative Treatments for Ruminant Animals" by Dr. Paul Dettloff, and "Treating Dairy Cows Naturally" by Dr. Hubert J. Karreman. Obviously, the focus of the latter book is on dairy cows, but many of the concepts will apply to other ruminants as well. These books may also be useful to your veterinarian.

Developing a relationship with a veterinarian

There are several ways to develop an effective working relationship with a veterinarian. Paying attention to these points will benefit you, your veterinarian, and your livestock:

- Set an appointment for an initial farm visit so the veterinarian can see the whole setup before there are any problems. You will pay for this visit, but it is money well spent.
- Consult the veterinarian about vaccination protocol and other preventive strategies that you should employ.
- Communicate your nutritional program and gather nutritional advice or a referral to a nutrition consultant if needed.
- Share information regarding acceptable organic treatment options:
  - — Give the veterinarian a copy of the National List.
  - — Inform the veterinarian of the OMRI list and share its Web link.
  - — Provide the veterinarian with books (or a list of books) that can be educational concerning organic treatment options. (See the Resources section of this guide and "Some helpful resources" in this chapter.)
- Observe your livestock closely and be responsive to signs that an animal is not well.
- Call your veterinarian in a timely manner; do not wait until the animal is too ill to be helped.
- If treatment is not effective, consult your veterinarian to determine what actions to take next. If your animal is not responding to organically approved health-care methods, you must use conventional treatments to prevent suffering.
- Identify the reasons for animal deaths. Post-mortems can give vital information to help you and your veterinarian improve health practices to prevent further losses.
- Keep careful records about all illnesses and death losses and review them with your veterinarian periodically to look for patterns that may suggest the weak area in the system. (For example, if most illnesses are nutrition related, improving the nutritional program will be an important measure to take.)
- If death loss is excessive, ask your veterinarian to visit the farm again and help you troubleshoot the situation. Health is a necessary component of organic production.

Questions

- Are you using organically acceptable strategies and techniques to treat, control, and/or prevent diseases and injuries in livestock [§ 205.105 and also § 205.603]? Allowed options include, but are not limited to, the following: ☐ Yes ☐ No ☐ N/A
  - — Selective breeding
  - — Quarantine of newly purchased, injured, or diseased animals
  - — Vaccinations
  - — Nutritional therapy
  - — Aseptic protocols during vaccinations, physical alterations, and surgical procedures
  - — Use of electrolytes, glucose, and dextrose
  - — Vitamin therapy
  - — Probiotics (includes colostrums, which must not be from a genetically engineered source)
  - — Iodine
  - — Hydrogen peroxide

The following strategies are allowed but may not be effective. Research the use of these methods and use them only in situations in which they might reasonably be considered capable of helping the animal, either because research has shown that they work in the given situations or because your veterinarian agrees that they might be effective:

— Homeopathy
— Herbal remedies
— Acupuncture
— Chiropractic

Prohibited materials and techniques include, but are not limited to, the following:

— Antibiotics (required if necessary; animal loses organic status)
— Genetically modified probiotics
— Synthetic growth or breeding hormones
— Most conventional veterinary medications (required if necessary; animal loses organic status)
— Parasitisides not on the National List (required if necessary; animal loses organic status)

- Do you keep records of all animal-health products used, along with their purchase receipts and labels? ☐ Yes ☐ No ☐ N/A
- Do your herd/flock health records accurately document all health treatments given and/or procedures performed? ☐ Yes ☐ No ☐ N/A
- Are your herd/flock health records adequate to track animals treated with prohibited materials to ensure that they are not sold as organic? ☐ Yes ☐ No ☐ N/A
- If livestock become sick or injured, do you take action and apply the necessary medications to restore health regardless of the consequences to the animal's organic status? ☐ Yes ☐ No ☐ N/A
- Are you using allowed medications solely for the purposes of restoring animal health? (Drugs may not be administered to enhance animal growth or performance. Medications are allowed only for the treatment of injury or disease.) ☐ Yes ☐ No ☐ N/A
- Do you have a working relationship with a veterinarian who has been informed of your livestock's organic status? ☐ Yes ☐ No ☐ N/A

Notes

CHAPTER 18
PHYSICAL ALTERATIONS

The term "physical alterations" refers to irreversible procedures that alter the natural appearance or function of animals. They are typically used for five reasons in livestock management:

- For identification (e.g., branding, tattooing, ear tags, and ear notching)
- To prevent injury from fighting or cannibalism among animals (e.g., beak trimming, dehorning, tail clipping, and castration)
- To prevent damage to pastures (e.g., noserings in hogs)
- To improve product quality and marketability (e.g., castration and caponization)
- For livestock health (e.g., tail docking in sheep)

According to the USDA organic regulations, physical alterations are permitted "as needed to promote the animal's welfare" as well as to maintain individual identification of mammals. Convenience for the producer should not be construed as "animal welfare." For example, the docking of tails on dairy cattle may serve the convenience of the dairyman by removing the irritation occasioned by being slapped in the face by a wet tail. However, a cow's tail has definite purpose in fighting off flies, and its removal is not in the animal's best interests.

A further requirement of the USDA organic regulations is that physical alterations be done "in a manner that minimizes pain and stress." For example, it is desirable to castrate male calves at a very young age, as opposed to later in life when the pain and stress is much greater. Another example is freeze branding, which uses dry ice and is considered more humane than fire branding using electrically or fire-heated metal.

Since the USDA organic regulations do not include information about which practices are and are not acceptable, there is no consistent agreement among certifying bodies (or even among animal-welfare advocates) as to what alterations should be allowed. If you are planning to perform any physical alterations on your livestock, clearly outline in your Organic System Plan (OSP) what you plan to do, how you plan to do it, and when it will be done. Be especially clear in explaining why you plan to do the alteration. These alterations should be justified in the OSP with regard to their necessity for livestock welfare, product quality, and audit control. It is also wise to indicate whether the planned alterations will be a routine practice or a contingency in the event of extreme animal behavior. It is a strongly advisable practice to confer closely with your certifier to determine what is and is not an acceptable practice for your operation.

Questions

- Have you discussed all routine and contingency physical alterations with your certifier and outlined them in your Organic System Plan? ☐ Yes ☐ No ☐ N/A
- Are you selecting physical-alteration methods and performing them in a manner that causes the least amount of pain and stress to your animals? ☐ Yes ☐ No ☐ N/A

CHAPTER 19
INTERNAL AND EXTERNAL PARASITE MANAGEMENT

The first line of defense in parasite management—especially of internal parasites—is optimal nutrition. Livestock provided with ample quantities of good-quality organic feed appropriate for their stage of growth have an excellent chance of staying a step ahead of parasites. Minerals are very important in supporting the immune system, and good managers will be careful to supply a good mineral mix to livestock at all times.

Assuming there is adequate nutrition, other factors must be considered:

- Sanitation (water troughs and feeders)
- Good forage cover, with at least 3-inch stubble height after grazing
- Biodiversity in plants and in grazing animals
- Genetics (some livestock have more resistance and/or resilience)
- Grazing management (see "Grazing and parasite management" in this chapter)
- Stocking density
- Stage of life (livestock are more susceptible to parasites when young or lactating)
- Weather and season (e.g., temperature, rainfall, and animal production-stage interaction)

Related ATTRA publications
www.attra.ncat.org

Integrated Parasite Management for Livestock

Managing Internal Parasites in Sheep and Goats

Raising Organic Pigs: A Guide to USDA Certified Organic Requirements

Tools for Managing Internal Parasites in Sheep and Goats: Sericea Lespedeza

Tools for Managing Internal Parasites in Sheep and Goats: Animal Selection

Coccidiosis in Poultry

Blackhead in Turkeys

Internal parasites

Internal parasite numbers respond to a number of factors:

- Increase with the number of host animals
- Increase during warm, humid weather
- Increase when pastures are grazed too short
- Decrease during hot, dry weather
- Decrease if nonhost animals graze the same pasture. Cattle or horses are nonhost animals for sheep and goat parasites and vice versa.
- Decrease with longer pasture-rest time because the larvae naturally die without a host. How long the pasture must rest depends on weather and on the parasite.
- Decrease when pastures are cut for hay

In humid areas, internal parasites may be the most important health problem that managers will encounter, especially for sheep and goats. Farms with higher concentrations of animals usually have more problems. It's mathematical—the number of host animals is correlated with the number of internal parasites.

Resistant and well-adapted animals will stay healthy even when conditions are favorable to internal parasites, and that is why keeping records and retaining the healthiest animals for breeding will help your flock or herd make progress. Pay special attention to the breeding males since they contribute half of the genetics.

Also, producers are encouraged to learn about internal-parasite life cycles to better understand effective parasite-prevention techniques for the livestock species they are raising. The ATTRA publications listed in this chapter are good sources of information on this issue.

Parasites and pigs

Parasites are problematic for hogs, especially on pasture or dirt lots and in bedded systems. The research on parasite control in pigs is limited because the wider industry uses full-confinement indoor systems. Commercial anthelmintics are effective, but virtually all are synthetics, and such synthetic treatments are not allowed.

The synthetic parasiticide ivermectin is the exception, but it is allowed only for emergency treatment of sows when they are not lactating and before the last third of gestation.

The basic strategies to prevent internal parasite problems in pigs are sanitation, reduced animal density, and rotation of pastures—the same things you would do for other species.

Common external parasites, also known as ectoparasites, are lice, mange, keds, and ticks. External parasites cause reduced rates of weight gain and loss of animal condition, and they decrease production rates due to animal discomfort (e.g., skin irritation) and blood loss. Some parasites, like mange, also can affect the mammary gland. In all cases, they reduce production, profitability, and animal welfare.

Environmental and weather conditions contribute to ectoparasite infestations. In humid areas, for example, external parasites such as ticks are more common in animals that graze close to woodlands. Animals that are in confinement and very close to each other and animals in cold weather conditions are prone to suffer from ectoparasites. Weather is not something that can be manipulated, of course, but animal density can be controlled with good management strategies. Other preventive strategies could include the following:

- Segregating animals new to the farm for at least 21 days. They should be monitored closely and treated if necessary.
- Separating infested animals from the herd. These sickly animals also should be checked for other underlying problems that could be contributing to a weak immune system.
- Ensuring good feed quality and a constant supply of free-choice minerals (for ruminants). Low stress and good nutrition help animals' immune systems thrive.
- Employing stress-reducing practices, including the following:
  - Providing adequate space for animals to exercise and to eat without excessive competition
  - Providing access to the outdoors
  - Providing quiet, calm care when moving or otherwise working with livestock

There are several organic treatment options for external parasite infestations. These treatments are generally allowed, but they are not always effective. If you plan to use them, they should be listed in your Organic System Plan (OSP) and monitored for efficacy:

- Liquid enzymes
- Diatomaceous earth and garlic powder
- Soap
- Organic plant oils (e.g., soy and canola)

Talk with your certifier before using any treatment materials that are not listed in your OSP.

Flies are another example of small but costly pests. Here are a few tools for managing fly populations organically:

- Sanitation practices to keep facilities clean and dry to reduce breeding grounds for flies
- Physical traps, including sticky tapes and larger fly traps
- Natural predators such as bats and predatory wasps
- Composting manure, mortalities, and afterbirths

If you get good control of the situation early in the fly season, it will be easier to keep the fly population down later in the year. Using all available tools will make this more manageable. Contact your Cooperative Extension Service for more on Integrated Pest Management (IPM) for flies and other pests. Another resource to consult is ATTRA's Biorational Database. This is a searchable database designed to help farmers and ranchers find preventative techniques and possible treatments for many pests and diseases. OMRI-listed products are noted in the database. It can be found online at www.attra.ncat.org/attra-pub/biorationals/. Remember always to check with your certifier before using any material and to include your plans in your OSP.

Simply because a pesticide is natural does not mean it is safe.

Investigate cultural practices before purchasing costly off-farm inputs. This is especially true of alternative pesticides, which can be quite expensive. There also is the matter of safety. Simply because a pesticide is natural does not mean it is safe. Botanicals, in particular, can be toxic to humans, livestock, and a wide range of nontarget organisms. Should you need to use any pesticide, be certain to follow label instructions and check with your certifier first if it is not outlined in your OSP.

Grazing and parasite management

There are a number of strategies and techniques that graziers can use to reduce problems with internal and external parasites. Most of them require a good degree of management skill and a controlled grazing environment. Here are some examples:

Removing livestock from a pasture before forages are grazed too short will reduce the intake of internal parasites because they tend to reside on the lower portions of plant stems and leaves.

Resting pastures long enough allows internal parasites to hatch and die before the host livestock return to the field—a self-cleaning process. Note that this can take 60 days or more, so you need a strategy for keeping feed quality high and not wasting forage. Cutting for hay or using a nonhost animal to graze are two possibilities.

Employing multispecies grazing will reduce parasite loads because most internal parasites are not shared across species. (Note that sheep and goats have the same internal parasites.)

Grazing younger, more parasite-susceptible stock first on fresh pasture will help protect the health of these more-vulnerable animals. Older, less-susceptible stock then can follow when forage is shorter and the parasite hazard increases.

Following cattle with pastured or ranged chickens can reduce both internal and external parasites—particularly flies. Poultry "disassemble" manure pats, destroying parasite eggs and feeding on larvae.

Providing browse (shrubs, vines, and leafy trees) allows animals to graze off the ground, which will prevent them from ingesting parasite larvae. Many browse plants are nutritious, and this helps the animals stay healthy as well.

Providing diverse pastures helps improve animal health because diversity encourages animals to eat more. Also, some plants have medicinal properties.

High-tannin forages such as sericea lespedeza have been shown to reduce fecal egg counts in sheep and goats. See the ATTRA publication on this topic for more information. There are undoubtedly many other plants that have helpful effects that are yet to be discovered: offering a diverse pasture may provide nutrition and medicine.

Organically acceptable dewormers

If you farm or ranch in a region with high internal-parasite pressure, then you have a particularly difficult challenge. As you will see, there are very few organically allowable products available to assist you.

Diatomaceous earth (DE) often is touted as a parasiticide and is commonly used by organic producers. DE is manufactured from the fossilized remains of tiny sea organisms called diatoms, which are mined and ground to make a fine "shell flour." The particles of this flour have sharp edges that pierce the exoskeleton of parasites and insect pests, causing damage that leads to their deaths. The sharp edges are apparently small enough that they cause no damage to the intestinal tracts of livestock. When used, DE often is mixed with feeds and/or free-choice supplements or is provided free-choice on its own. The only direct physical hazard comes from breathing too much DE: silicosis and related lung conditions can result. An indirect—and possibly more serious—hazard may result from the failure to control a significant parasite problem.

While heavily promoted as a dewormer, the efficacy of DE is open to question. Some veterinarians believe that the positive effects attributed to DE actually arise from other aspects of good organic management and DE is accorded more credit than it deserves. If you choose to use DE, make certain that it is part of a more comprehensive parasite-management plan. Also be certain that you are using an organically allowable form of DE. There are formulations of DE intended for use in swimming pool filters and similar applications. These forms are not allowed in organic production.

Several herbal agents also are reputed to be useful for deworming livestock. Garlic is most often mentioned, although other plants and plant extracts also have been used. It has even been suggested that raw garlic be added to the feed. If you choose such a strategy, be certain to consult with your certifier. The garlic or other plants used in this manner may need to be organically grown. Unless they are "home-grown," herbal dewormers are likely to be expensive, and their efficacy is not yet well documented.

The SARE program

The Sustainable Agriculture Research and Education (SARE) program offers many opportunities to learn about research into innovative or alternative internal-parasite control and to find the results of other research pertinent to farmers. There is a search function on SARE's Web site. Go to www.sare.org and click on "research reports." Using "internal parasite" as the search term will bring up many research reports from all SARE regions. It is possible to search more specifically, but it is interesting to note the wide range of projects that are done to investigate this health issue. Several studies evaluated the usefulness of garlic and other herbal dewormers. Note the pasture-management and animal-selection projects as well. Learning about the research that already has been done can save a lot of effort, time, and money—and improve the well-being of your animals.

At the time of this writing, the synthetic parasiticide ivermectin is allowed for limited use in organic production. (Check with your certifier for the current status; more synthetics may be added to the National List in the future.) Ivermectin is prohibited in slaughter stock, but it is allowed for emergency treatment of dairy and breeder stock when management strategies do not prevent infestation. Milk or milk products from a treated animal cannot be marketed as organic for 90 days following treatment. In breeder stock, treatment cannot occur during the last third of gestation if the progeny will be sold as organic, and it must not be done during the lactation period of breeding stock. This means that during the times of highest susceptibility—in young animals before their immune system is fully developed, at parturition (birth), and during lactation—you are not allowed to use ivermectin or you forfeit organic status. For example, if you treat a cow in late pregnancy, the

cow and that calf are no longer organic. Similarly, if you treat a ewe that is nursing twins, the ewe and her nursing lambs are no longer organic. And if a pen of slaughter hogs had to be treated, each animal treated would have to be sold as conventional. This underscores the point that you must not rely on the use of dewormers. Focus on animal selection and excellent management to prevent heavy internal-parasite infection.

One of the principal concerns surrounding the use of synthetic dewormers is their effect on the ecology of soil life—especially those organisms involved in the breakdown and incorporation of manure. Ivermectin is known to decimate dung beetles, one of the main organisms involved in manure recycling. It is wise, therefore, to make limited use of this material.

Questions

☐ Yes ☐ No ☐ N/A

- Are you using organically allowed strategies and techniques for preventing and controlling internal parasites in livestock? Success is more likely when several of these strategies are used together. Options include, but are not limited to, the following:
  - — Pasture rotation (See "Grazing and parasite management" in this chapter.)
  - — Controlled grazing (See "Grazing and parasite management" in this chapter.)
  - — Multispecies grazing (See "Grazing and parasite management" in this chapter.)
  - — Dragging pastures to disperse manure piles
  - — Fecal sampling as a monitoring tool
  - — Selective breeding for resistant stock
  - — Sanitation
  - — Herbal treatments (use caution—see SARE research)
  - — Diatomaceous earth (use caution—see SARE research)
  - — Ivermectin (limited use only)

  Prohibited materials and techniques include, but are not limited to, the following:
  - — Most synthetic deworming agents (required to be used if medically necessary, even though the animal loses organic status)
  - — Ionophores (antibiotics that control protozoan parasites, such as coccidia)

☐ Yes ☐ No ☐ N/A

- Are you using organically allowed strategies and techniques to control or prevent flies, mosquitoes, and external parasites? Options include, but are not limited to, the following:
  - — Pasture rotation
  - — Multispecies grazing (See "Grazing and parasite management" in this chapter.)
  - — Dragging pastures to disperse manure piles
  - — Manure management (See Chapter 24, "Management of Manure, Compost, Mortalities, and Waste Materials.")
  - — Sanitation
  - — Ventilation and moisture control
  - — Screening
  - — Fly parasites and other beneficial insects
  - — Bat conservation
  - — Purple martins and other insectivorous birds
  - — Walk-through fly traps

— Sticky traps
— Flying-insect traps
— Electric bug zappers
— Biological pesticides
— Diatomaceous earth
— Botanical pesticides and preparations

Prohibited materials and techniques include, but are not limited to, the following:

— Most synthetic insecticides and acaricides
— Synthetic insecticidal ear tags

Notes

CHAPTER 20
PREDATOR MANAGEMENT

Predation is a serious concern in almost all livestock operations. As a general rule, as the size of the livestock decreases, its susceptibility to predation increases. Additionally, the number of potential predator species increases as the size of the livestock decreases. For example, a chicken or lamb on pasture is much more likely to be preyed upon than a full-grown heifer. And while opossums, raccoons, and mink can be serious predators of chickens, they rarely constitute a threat to small ruminants.

The USDA organic regulations require producers to provide for livestock welfare and to protect livestock from injury. However, there are constraints that limit the choices for predator control because predator populations must be managed according to Section § 205.200 of the USDA organic regulations. This regulation requires that producers "must maintain or improve the natural resources" of the livestock operation. Wildlife, including predators, is designated as a natural resource, according to the program definitions located in § 205.2 of the regulations. This encourages producers to rely on preventive management to protect their livestock from predation.

Preventive predator management is less stressful on the farmer, the livestock, and the surrounding wildlife population. Predators are generally predictable, and recurring losses to predation should be considered an indication of flawed organic husbandry practices. In the face of successful predation prevention over time, the population of predators in a given area can actually help stop livestock predation. After being shocked by a high-powered electric fence or chased away by angry livestock-guardian dogs (LGDs), most predators eventually accept a well-guarded livestock operation as being "off-limits" and will look for easier sources of prey. These predators, territorial by nature, will act as a deterrent for other "untrained" members of their species entering into the area.

In many areas, early spring is a peak time of predator activity because many predators have their young to feed and the available food supplies are low. A successful predator-prevention program will maintain heightened vigilance during these times.

Occasionally, individual predators will become chronic problems and must be killed or removed in accordance with local, State, and Federal laws. This is a last resort, and it can lead to more problems. For instance, if the dominant female (the only reproductively active pack member) in a pack of coyotes is killed, multiple females in the pack will go into heat, which can lead to a doubling or tripling of the local coyote population.

Raptor species such as hawks, owls, and eagles are protected nationally by the Federal Migratory Bird Treaty Act. Other predator species, including wolves, cougars, and bears, may have protected statuses either nationally or in a given locale. Poisoning is not an approved predator-control method under the USDA organic regulations.

One other predator should be mentioned and guarded against, and in some areas, it is the primary predator: the domestic dog. The culprit might be your neighbor's family pet—or your own—or there could be a pack of feral dogs. See the following Web site for tips on diagnosing whether depredation was caused by a coyote or a dog: www.omafra.gov.on.ca/english/livestock/sheep/facts/coydog2.htm. Learn about State and local laws regarding dogs and the legal ways to address them and all other predator problems.

Predators and scavengers are attracted by livestock carcasses and remains, as well as by live animals. Promptly removing and composting livestock remains will help discourage those animals, as well as lessen fly problems and reduce the risk of disease. Most Cooperative Extension offices have information on composting dead livestock.

Questions

- Are you using preventive strategies and techniques to control predation of your livestock? Options include, but are not limited to, the following: ☐ Yes ☐ No ☐ N/A
  - — Livestock-guardian animals (LGDs and donkeys)
  - — Secure fencing, especially electric fencing
  - — Night confinement of stock
  - — Mixing small stock (poultry, sheep, or goats) with larger stock (cattle, horses, or donkeys)
  - — Lambing or calving in secure sheds and lots
  - — Monitoring fields and stock frequently and at varied times (Predators detect patterns and are deterred by random human presence.)
  - — Properly disposing of dead livestock

  Prohibited materials and techniques include, but are not limited to, poison baits. Section § 205.604(a) of the regulations specifically prohibits strychnine.

Notes

CHAPTER 21
ORGANIC FEED

All USDA-certified organic livestock must be fed organically grown and prepared (processed or handled) feedstuffs. This includes pastures and forages, as well as plant materials used as bedding for organic livestock. Certain feed additives, such as vitamins and trace minerals, that are not produced organically can be fed to organic livestock in trace amounts.

Organic producers are required to provide diets that are adequate to meet the nutritional requirements of their animals. The nutritional requirements for livestock include consideration of energy, amino acids, vitamins, minerals, fatty acids, and fiber. Generally speaking, synthetic substances are not allowed as feedstuffs for organic livestock. There are exceptions for U.S. Food and Drug Administration (FDA)-approved vitamins and trace minerals. The synthetic amino acid DL-Methionine also is allowed for use as an amino acid source in organic poultry production because it is on the National List of Allowed and Prohibited Substances (National List). However, the amount that can be included in the diet was reduced in October 2012. Organic livestock producers should become familiar with the National List—found in § 205.600 of the regulations—and work closely with their certifying agency to ensure compliance with organic feed requirements.

The regulations do not directly address the quality of water provided to livestock, although any materials added to the water must be listed as allowed on the National List, and restricted materials, such as chlorine, must be used in compliance with drinking-water standards. Keep in mind that adequate quantities of clean water are essential to livestock health and to good production.

Materials not allowed for feeding organic livestock

- Feeding animal drugs, including hormones, to promote growth
- Feeding plastic pellets for roughage
- Feeding rations containing urea or manure (including poultry litter)
- Feeding mammalian- or poultry-slaughter products (e.g., blood meal, plasma meal, feather meal, tallow, and grease) to any livestock, including poultry
- Feeding antibiotics (including ionophores)
- Feeding excessive amounts of feed supplements or additives

The regulations have additional requirements and guidelines for organic production of ruminant livestock—cattle, sheep, and goats. Specifically, ruminant animals must consume at least 30 percent of their dry matter intake as pasture or residual forage during the grazing season, which must be at least 120 days per year. Residual forage is simply forage that has been cut or windrowed and left to lie in place. Ruminant-livestock producers also are required to document all feed rations fed to each class of livestock, including feed produced on-farm, feed purchased from off-farm sources, feed supplements and additives, and pasture provided. Although it is not specifically required by the regulations, most producers of pigs or poultry also find that keeping similarly detailed records of feedstuffs fed to their animals is of great assistance to inspectors and certifying agencies. (See "Feed audit" in Chapter 30.)

Questions

- Do your livestock graze only certified organic pastures or rangelands? ☐ Yes ☐ No ☐ N/A
- Are all farm-produced feeds and forages certified organically grown? ☐ Yes ☐ No ☐ N/A
- Are all purchased feeds and forages certified organic? ☐ Yes ☐ No ☐ N/A
- Are all your feed supplements and additives allowed in organic production? ☐ Yes ☐ No ☐ N/A
- Are you supplying all feed supplements and additives in appropriate amounts (not more than required by the animal)? ☐ Yes ☐ No ☐ N/A
- Do you retain all feed tags, labels, and feed-purchase records from all feeds, including supplements and additives? ☐ Yes ☐ No ☐ N/A
- Have you kept documentation adequate to verify the allowability of supplements and additives? ☐ Yes ☐ No ☐ N/A
- If you produce organic livestock feed, including pasture, do you keep records to document all production practices, harvest, and storage, and are these activities fully described in your Organic System Plan? ☐ Yes ☐ No ☐ N/A
- Do you have a backup plan in case of an on-farm feed-shortage emergency, and is it outlined in your Organic System Plan? It is a good idea to include the names of feed brokers you would contact should the need arise. ☐ Yes ☐ No ☐ N/A
- Do your livestock have free access to fresh, clean water? ☐ Yes ☐ No ☐ N/A
- Are you providing adequate nutrition to all species and classes of livestock? ☐ Yes ☐ No ☐ N/A
- Do your records indicate your feeding plans throughout the year, including grazing records, dry matter intake, and dry matter demand for grazing animals? ☐ Yes ☐ No ☐ N/A

Notes

CHAPTER 22
FEED STORAGE

There are several areas of concern regarding organic-feed storage. The first involves preserving feed quality. In large part, this requires sound design and construction of bins, cribs, barns, and other storage structures, followed by good maintenance. Feed quality also involves controlling pests. All pest control must be done using organically acceptable methods and materials. (See Chapter 23, "Livestock Living Conditions, Facilities, and Handling," for more information on facility pest management.)

A second concern related to feed storage is contamination. Take care that organic feed does not become contaminated by such prohibited materials as fuels, lubricants, and cleaning agents. In addition, wood treated with prohibited chemicals must not be used where it can contact stored feeds or livestock on the farm. Baling twine that has been treated with a fungicide to prevent rotting also can present a contamination hazard. Be certain to check with your certifier—you may not even be allowed to use treated twine. Treated twine—and plastic twine for that matter—must be properly disposed of. Used twine should not be left where animals can chew it or get tangled in it. It should not find its way onto manure or compost piles, and it definitely should not be left or spread in the field. Dumping twine in a proper landfill appears to be the soundest means of disposal. (For more information, see "Recycling and waste management" in Chapter 24.)

The third area of concern is the commingling of organic and conventional feeds. This is primarily an issue for operations that have both organic and noncertified livestock. Often, the simplest approach is to isolate organic and noncertified feed into unique storage areas on the farmstead. For example, store noncertified hay intended for horses in a side shed away from the organic hay and grain intended for certified organic dairy cows. In some cases, it is not practical to isolate feed in different buildings. Organic and noncertified feed can be stored near each other. However, producers must specify in their Organic System Plan (OSP) how organic and noncertified feed will be kept separate. This can be as simple as a movable partition in a haymow, or it can be as complex as a more elaborate system of labeled bins. If you have both organic and noncertified feed on your operation, be prepared to document more extensively exactly how your storage system prevents commingling organic and conventional feeds.

Questions

- Are the floors, ceilings, and walls of your feed-storage bins in good condition? ☐ Yes ☐ No ☐ N/A
- Are the floors, ceilings, and walls of your feed-storage bins constructed of nontreated lumber or other materials that will not contaminate organic crops? ☐ Yes ☐ No ☐ N/A
- Are your feed-storage bins sealed to prevent access by rodents, birds, and other pest animals? ☐ Yes ☐ No ☐ N/A
- Where both conventional and organic feeds are handled and stored, are organic and conventional storage bins segregated and clearly marked? ☐ Yes ☐ No ☐ N/A
- Where feed bins and storage areas have mixed use (both conventional and organic storage), are there clean-out protocols, clean-out logs, storage records, and visible labeling that clearly establish whether the contents are organic or conventional? ☐ Yes ☐ No ☐ N/A

- Are prohibited materials stored away from organic storage units? ☐ Yes ☐ No ☐ N/A
- Are appropriate sanitation procedures used? ☐ Yes ☐ No ☐ N/A
- Are you using organically allowable pest-control products and practices? ☐ Yes ☐ No ☐ N/A
  (See Chapter 23 for information on how pest-control decisions should be made.)
  Approved pest-control techniques and materials include but are not limited to:
  — Fencing, screening, and netting
  — Good sanitation
  — Noisemakers
  — Trapping
  — Release of beneficial predators and/or parasites
  — Barn cats
  — Diatomaceous earth
  — Approved biological pesticides
  — Approved botanical pesticides
  — Vitamin D3 (for rodents)
- Are stored feeds reasonably free of pest problems? ☐ Yes ☐ No ☐ N/A
- Do storage facilities meet farm/ranch needs for capacity and the ability to segregate feeds as needed? ☐ Yes ☐ No ☐ N/A
- If some feeds are stored off-farm, are these storage units either certified organic or included in your farm's inspection and certification? ☐ Yes ☐ No ☐ N/A
- If you are using plastic bale wrappers, plastic silage bags, plastic baling twine, or are allowed to use treated baling twine, are the wastes properly disposed of to ensure organic integrity and to protect the environment? (See "Recycling and waste management" in Chapter 24 for additional information.) ☐ Yes ☐ No ☐ N/A

Notes

CHAPTER 23
LIVESTOCK LIVING CONDITIONS, FACILITIES, AND HANDLING

To comply with the USDA organic regulations, livestock producers must establish and maintain living conditions that accommodate the health and natural behavior of their animals. These requirements reflect concerns for animal welfare and strive to balance production concerns with animal well-being and environmental quality. The regulations [§ 205.239(a)(1)] require that all livestock have access to the following:

- Outdoor areas
- Shade
- Shelter
- Space for exercise
- Fresh air
- Clean water for drinking
- Direct sunlight

Related ATTRA publications
www.attra.ncat.org

Pressure-Treated Wood: Organic and Natural Alternatives

As is the case with any regulations, the USDA organic regulations cannot explicitly address every possible scenario that might occur on a production farm. Producers must therefore exercise judgment as they balance animal welfare with health, production, and environmental quality. Although organic livestock must have continuous access to outdoor areas, space to exercise, and direct sunlight in most cases, there are accommodations for temporary confinement of organic livestock during periods of inclement weather and to avoid risk to soil or water quality. Additionally, confining animals in order to administer preventive or curative health-care measures is allowed. Breeding animals also may be temporarily confined to allow controlled mating, but must again be allowed access to the outdoors following breeding. (See "Temporary confinement for 'stage of life'" in this chapter.)

The regulations call for the provision of shelter [§ 205.239(a)(4)] and require that shelter be designed to allow animals the following:

- Opportunity to exercise
- Protection from temperature extremes
- Adequate ventilation and air circulation
- Comfort behaviors
- Natural grooming and maintenance
- A low-hazard environment to prevent injury
- Bedding as appropriate to the species. Roughages that are used must be organic.

Organic livestock must be provided clean, dry bedding when it is appropriate for the animal. For example, bedding must be provided to pigs during cold winter months, but bedding is not required for grazing dairy cattle during the summer. Pigs will use bedding in the winter to insulate themselves from the cold, an obvious benefit to the animal. Conversely, a composting bedding pack may actually decrease animal well-being during the summer unless animals have access to other areas for lounging and resting. If the bedding provided is roughage, such as straw or other crop residue, the bedding must be produced organically.

Temporary confinement for "stage of life"

Livestock may be confined for a short time for the following reasons:

- Inclement weather
- Specific health and safety needs of the animal
- Risk to soil or water quality
- The animal's stage of life

While temporary confinement is allowed, it must be a short-term strategy undertaken to achieve a greater good than simply maximizing production. For example, lactating dairy cows may be confined for short periods of time each day in order to be milked, but cattle may not be confined during their entire lactation as a management strategy. Similarly, while most producers and certifiers will not balk at brooding chicks in a tightly controlled indoor environment, adult laying hens may not be kept from accessing the outdoors. It is essential to communicate with your certifier about any plans you have to restrict outdoor access to your livestock. Be certain to outline your rationale in detail within your Organic System Plan (OSP).

"Stage of life" refers to a period of time in an animal's life (e.g., baby chicks, fully feathered chicks, pullets, and laying hens or baby pigs, feeder pigs, and fattening pigs). Different stages of life bring different needs, and that is acknowledged in the USDA organic regulations. For example, it is good management and essential to their well-being to confine baby chicks to a warm, safe environment. However, older chickens can and should be allowed to be outdoors. Similarly, baby pigs need warmer conditions and possibly need protection from being crushed by the sow.

One stage of life that some producers mistakenly think allows them to confine animals is the finishing phase for ruminants. During the part of the finishing phase (the last one-fifth of life or 120 days, whichever is shorter) that overlaps with the grazing season, ruminants are exempt from the requirement that 30 percent of dry matter requirement come from pasture. These finishing animals may be fed a high-concentrate diet in a feedlot, but they also must have access to pasture. They may not be confined during the grazing season. Outside of the grazing season, the finishing animals may be confined to a feedlot as long as they have sufficient outdoor access. Producers also might consider that there is a growing market for grass-finished beef. Producing high-quality, grass-finished beef, however, requires excellent grazing management, excellent genetics, and excellent health-care practices. Be sure to do your homework in advance.

Note that the regulations specifically state that lactation is not a stage of life that exempts ruminants from the mandated access to the outdoors.

All ruminants must be managed on pasture, with daily grazing throughout the grazing season. (See Chapter 13, "Grazing Management and the Pasture Rule.") Finishing ruminant slaughter stock on yards, feeding pads, or feedlots is allowed year round as long as the animals can freely leave the yard to go to pasture during the grazing season. Yards or feedlots used to provide finishing rations must be large enough to allow all animals occupying the yard to feed simultaneously without competition for feed. The finishing period for ruminants is restricted to a time period of either one-fifth of the animal's total life or 120 days, whichever is shorter.

Pigs and poultry are not ruminant animals, and they may be kept on concrete or dirt lots for all stages of production as long as the living-condition requirements—access to the outdoors, fresh air, direct sunlight, space to exercise, shade, shelter from inclement weather, clean drinking water, and bedding as appropriate—are met. Regardless of the

species involved, feedlots and yards must be well drained, with frequent removal of animal manure. Feedlots and yards also must be managed to prevent runoff contamination of nearby surface water and crops. See the appendices at the end of this guide for more details concerning hog and poultry living conditions.

Poor-quality livestock housing and living conditions can become a health hazard for the animals, the farmer, and the farm help. Specific concerns to watch out for include the following:

- Ammonia accumulation in temporary confinement buildings (see Appendix 1)
- Dust and other airborne particulates
- Histoplasmosis and other avian-associated respiratory diseases
- Hantavirus and other diseases spread by rodents
- Unsafe use of facilities and equipment that could cause accidents

While the regulations do not provide guidelines for artificial lighting, access to natural cycles of light and dark can reasonably be considered essential to the welfare of livestock. This may have particular relevance to the practice of forced molting. Forced molting can be seen as a violation of § 205.238(a)(4) of the regulations, which requires the reduction of stress; § 205.238(a)(2), which requires the provision of adequate feed; and § 205.239(a), which requires living conditions that accommodate natural behavior. Therefore, it is not likely that certifiers will allow the practice of forced molting.

Unnecessary stress reduces productivity, increases susceptibility to disease, reduces meat quality, and increases the likelihood of injury to both animals and humans. Therefore, stress should be minimized. The following practices may be helpful in lowering stress:

- Calm, quiet handling is used when moving, working, or loading livestock.
- Working facilities are designed for low-stress handling. (Look for works by Dr. Temple Grandin online and in books.)
- Adequate space is provided at feedbunks so that animals do not have to compete.
- Shelters are checked to be sure there are no hazards (e.g., nails or other metal dropped on the floor, loose metal siding, doorways that are too narrow for animal movement, pallets lying on the ground, etc.).
- Adequate space is provided for exercise.
- When feasible, animals are familiarized with loading chutes and trucks or trailers before hauling (for example, by parking a trailer in the pasture).
- Long hauling distances are avoided, but when hauling does take place over long distances, provisions are made for feeding, watering, and resting the animals en route if possible.
- When possible, animals are allowed to have companions. The exception is when an animal is isolated due to contagious illness. Animals are calmer when they are not alone.
- During hot, humid weather, extra space is allowed, extra air movement is provided if possible, and water is kept clean and cool to encourage consumption. For hogs, a wallow or a mister may be very helpful.
- During cold weather, windbreaks, bedding, water that is warmed, and plenty of good-quality roughage for ruminants are provided. Feed requirements will be higher during very cold weather. All livestock will need appropriate shelter for the climate and for the species.

See the Sustainable Farming Connection Web site at www.ibiblio.org/farming-connection/grazing/features/lowstress.htm for more resources about low-stress handling and facilities.

Regarding the wooden structures used in organic production facilities, here is what the regulations state:

- In instances where conventional operations are being converted to organic production, treated wood may be permitted if it does not represent a significant contamination hazard to animals or feed.
- New or replacement construction may not contain any prohibited materials—such as arsenate-treated wood, lead-based paints, creosote, etc.—where they can contact organic soil, crops, or animals.

For more information on this subject, see the ATTRA publication "Pressure-Treated Wood: Organic and Natural Alternatives"

Structural pest-management decisions

Structural pests include a wide range of organisms such as termites, which can damage structures; mice and grain weevils, which use structures as habitat and a food source; and mites and lice, which exploit the structural environment to infect or infest a host animal. As with weed, pest, and disease management, you are required to use a multi-level, hierarchical approach in deciding how to deal with structural pests. In this case, there are four levels, which will be referred to as A, B, C, and D.

Level A, the first line of defense generally comprises preventive measures.

These Level A practices specifically include the following:

- Removal of pest habitat, food sources, and breeding areas
- Prevention of pest access
- Management of environmental factors

Level B is the second line of defense, to be chosen if the preventive practices of Level A are not sufficient to control pests. Level B practices generally include mechanical and physical practices, including the following:

- Traps, light, sound, and similar physical controls
- Natural and allowed synthetic lures and repellents

Level C is the third line of defense, to be chosen if the level of pest control required is not achieved after you apply the control options in Levels A and B. In such instances, you are allowed the wider use of the nonsynthetic and allowed synthetics provided for on the National List of Allowed and Prohibited Substances (National List).

Level D measures are allowed in the event that the pest-control actions in levels A, B, and C do not adequately prevent or control facility pests. You may apply a synthetic substance that is not on the National List, provided that you and your certifier agree on the substance, method of application, and measures to be taken to prevent contact with organic livestock, feed, or other organic products. If you take Level D action, you must update your OSP to reflect the application, how it was made, and the contamination-control measures that were used.

If use of a prohibited pesticide is required by Federal, State, or local laws or regulations, it does not compromise your organic status as long as you take measures to prevent contamination of the livestock, the livestock feed, and other organic products.

Questions

- Are all your livestock given access to the outdoors, fresh air, sunlight, space to exercise, and shelter from inclement weather? ☐ Yes ☐ No ☐ N/A
- Are all your livestock provided with sufficient quantity and quality of feed and water to meet their health and welfare needs? ☐ Yes ☐ No ☐ N/A
- Are all your ruminant stock provided with pasture? ☐ Yes ☐ No ☐ N/A
- Do your animals on pasture or range have access to some form of protection from severe weather? ☐ Yes ☐ No ☐ N/A
- Are all wooden livestock buildings, corrals, handling facilities, fence posts, gateposts, board fencing, etc., constructed either with untreated wood or with other allowed materials? ☐ Yes ☐ No ☐ N/A
- Do you use allowed materials and processes to control structural pests in livestock-production buildings? ☐ Yes ☐ No ☐ N/A
- Do you provide adequate bedding for temporarily confined and semi-confined livestock when and where needed? Note that in circumstances where roughages are used for bedding, the bedding materials must be certified organic. ☐ Yes ☐ No ☐ N/A
- Do you store prohibited materials where they pose no danger of contamination to livestock? ☐ Yes ☐ No ☐ N/A
- Is housing cleaned and manure removed often enough to protect livestock health? ☐ Yes ☐ No ☐ N/A
- Do you use allowed materials to clean and sanitize housing units? ☐ Yes ☐ No ☐ N/A
- Are your production buildings and areas adequately protected from pesticide drift and/or infiltration by contaminated runoff water? ☐ Yes ☐ No ☐ N/A
- If you produce organic and conventional animals, do you segregate the animals or use some form of identification to ensure that commingling does not occur? ☐ Yes ☐ No ☐ N/A
- Do you use organically approved methods and materials to manage weeds around facilities and buildings? Allowed practices and materials typically include but are not limited to the following:
  - — Thermal weeding (i.e., flaming)
  - — Grazing
  - — Hoeing or pulling by hand
  - — Mowing/string trimming ☐ Yes ☐ No ☐ N/A
  - — Using herbicidal soaps and/or other allowed substances
- Are your buildings and production lots numbered and records maintained that document management history? ☐ Yes ☐ No ☐ N/A

CHAPTER 24
MANAGEMENT OF MANURE, COMPOST, MORTALITIES, AND WASTE MATERIALS

Manure is one of the most valued fertilizers on an organic operation. Capturing the full value of manure requires attention to how it is collected, stored, and spread on the field. This chapter will focus on matters that relate to collection and storage. The ATTRA publication "Guide for Organic Crop Producers" addresses the use of manure as a fertilizer and soil amendment.

The USDA organic regulations state that organic producers "must manage manure in a manner that does not contribute to the contamination of crops, soil, or water by plant nutrients, heavy metals, or pathogenic organisms and optimizes recycling of nutrients" [§ 205.239(e)]. This has implications not only for how manure is applied to the field but also for how it is handled and stored prior to being spread. Contamination is not the only issue. Unless properly handled, manure also can be a health issue for livestock and humans. In addition to the USDA organic regulations, some livestock producers may be subject to regulations by the U.S. Environmental Protection Agency (EPA) or State environmental agencies regarding handling of manure.

The regulations do not specify handling procedures, but only that the system used not compromise organic integrity. When applying animal manure to cropland, consider the following time requirements:

- Raw animal manure may be applied at any time to land used for a crop not intended for human consumption (e.g., field corn and forage crops).
- Raw animal manure may be incorporated into soil not less than 90 days prior to the harvest of a crop whose edible portion does not have direct contact with the soil surface or soil particles (e.g., sweet corn and tomatoes).
- Raw animal manure may be incorporated into soil not less than 120 days prior to the harvest of a crop whose edible portion has direct contact with the soil surface or soil particles (e.g., carrots and potatoes).

There are fewer restrictions on applying manure to cropland in the form of compost. However, the regulations specifically define compost as the product of a managed process through which microorganisms break down plant and animal materials into more-available forms suitable for application to the soil. Compost must be produced through a process that combines plant and animal materials with an initial carbon-to-nitrogen ratio of between 25:1 and 40:1. Composting material also must be maintained at a temperature between 131°F and 170°F for a period of 3 to 15 days depending on the method being used. Documenting that you have achieved these (and other) requirements is necessary in order to apply animal manure as "compost."

Even if your manure-handling strategy does not fall neatly within the parameters defined by the regulations, combining livestock manure with plant material and allowing it to decompose is a form of composting. Composting is one of the most reliable and time-honored means of conserving and recycling manure nutrients and is highly recommended for organic farming. It stabilizes the nutrients in manure, protecting them against volatilization and leaching. At the same time, it aids in the control of plant and animal diseases, flies, and weeds.

Related ATTRA publications
www.attra.ncat.org

Manures for Organic Crop Production

Sustainable Soil Management

Soil Management: National Organic Program Regulations

Composting: The Basics

Guide for Organic Crop Producers

There are further restrictions that also apply to making compost in organic systems. These relate to the addition of other feedstock materials. Allowed materials include bedding, food wastes, ground rock powders, Biodynamic™ preparations, and other specifically listed organic fertilizers or soil amendments. Materials that may not be added to the compost pile if it is to be used in organic production include most synthetic fertilizers, biosolids (sewage sludge), pesticide-contaminated materials, materials contaminated with heavy metals, and plastics.

Animal mortalities may be composted. For example, "spent hens" (hens that have ceased to be productive) may be destroyed to create fertilizer, or they may simply be disposed of. They may be properly composted if that is allowed in local, State, and Federal regulations. Questions of humane handling and of site contamination may be raised by the certifier. Such practices should be discussed with your certifier in advance and outlined clearly in your OSP.

Controlling odors is not specifically required by the regulations, but strong odors are generally indicators of other issues and can negatively impact animal and human health and well-being. Good ventilation, sanitation procedures, composting, and some common-sense management can go a long way in reducing manure odor. If you use a barn lime or other rock powder to absorb and deodorize animal wastes, be aware that hydrated lime is specifically prohibited by the regulations. In liquid-manure handling systems, stabilizers and acidifiers are sometimes used. Consult with your certifier to ensure that any products you intend to use to treat manure or compost are allowed.

Controlling flies and other insects also is related to managing manure and mortalities because flies are attracted to manure and dead animals, and fly populations increase if managers do not deal with them promptly. As mentioned earlier, proper disposal of manure helps keep flies under control because it reduces their breeding grounds. Dead animals attract flies and encourage their breeding as well, and the mortalities must be disposed of in accordance with local regulations and in a manner that does not jeopardize the health of other members of the herd or flock. Composting is a good way to handle both manure and mortalities.

Most synthetic insecticides and baits are prohibited in organic production. Once again, good sanitation procedures, composting, and some common-sense management can go a long way in controlling undesirable flies and insects. These fundamental steps can be backed up with biological and allowed insecticidal controls. (See "Managing pests, weeds, and disease" in Chapter 8 for guidance on how to make decisions for controlling these pests.)

Recycling and waste management

Although it strives to be environmentally friendly, organic farming will still generate waste materials that cannot be recycled on-farm. Common examples include plastic bale wrappers and natural-pesticide containers. Recycling is the preferred option for plastic, aluminum, and glass wastes. Landfills should be used if recycling is not an option.

The burning of plastics is strongly discouraged. If you must burn plastics, be certain that you do not burn them with wood or other materials that you plan to return to the field. Ash that has been contaminated with plastics is prohibited in organic crop production. Also be sure to check local regulations before burning anything.

Questions

- If manure is stockpiled or stored in a lagoon, do you take measures to avoid leaching and contamination of surface waters? ☐ Yes ☐ No ☐ N/A
- Are plastics and other wastes from the operation properly disposed of to prevent contamination or livestock health problems? ☐ Yes ☐ No ☐ N/A
- Is all water runoff from production areas controlled or contained so that it does not contaminate surface waters or cause soil erosion? ☐ Yes ☐ No ☐ N/A
- Do you have a strategy for disposing of dead livestock that does not pose a health risk to other livestock, contaminate organic products, or pollute the environment? Organic producers need to understand and follow State regulations regarding dead-animal disposal. Composting is a desirable option in areas where it is permitted. ☐ Yes ☐ No ☐ N/A
- Are you applying manure or compost in a way that does not pose a risk to the environment, and are you documenting all applications? These considerations apply: ☐ Yes ☐ No ☐ N/A
  - — Abide by all relevant regulations governing manure application, including the EPA and State agencies
  - — Apply quantities appropriate to build soil, but not overload it
  - — Take soil tests and apply materials accordingly
  - — Apply at the proper time (e.g., not in winter on frozen ground because nutrients will not be effectively absorbed)
  - — Apply manure with adequate buffers between application areas and any waterways

Notes

CHAPTER 25
ASSESSING THE VITALITY AND HEALTH OF YOUR ORGANIC LIVESTOCK

The proof of the effectiveness of all the factors that go into your organic livestock-management plan is how the animals respond. It is seen in livestock health and in production. Both of these factors also depend on genetics, and, as the manager, you are responsible for selecting genetics that continually improve your livestock.

The indicators below can help you assess the effectiveness of your organic production system with regard to livestock health. It is also highly advisable to enlist the services of your veterinarian. Arrange for routine herd health checks and give serious consideration to your veterinarian's advice and observations.

Inspectors will assess your animals during their annual inspection visit. These indicators are not (taken separately) specifically in the USDA organic regulations, yet they point to the health of the organic system on the farm. The indicators include the following:

- Livestock appear to be well-fed (e.g., in good body condition for the age of the animal and the species and breed). (Producers should learn how to conduct body-condition scoring for the types of livestock on their farm and how to adjust feeding plans in response.)
- There is a low incidence of ascites and other metabolic diseases in a poultry flock.
- Animals have healthy coats or feathering.
- Animals' eyes are bright and clear.
- Animals are active and responsive.
- Teats and udders of lactating animals are in good condition.
- Animals' feet/hooves are in good condition.
- Livestock have little evidence of sores, swelling, or inflamed tissues.
- There are few incidents of injury and illness.
- There is little evidence of fighting and aggression.
- Animals are typically calm and content.
- Veterinary visits are primarily for preventive care.
- Animals have good appetites.
- Animals are producing or growing as well as they should.
- Meat from slaughter animals is high yielding and high quality.
- Lactating animals are producing milk at an acceptable level for their stage of lactation.
- Milk has low somatic cell counts and high solids content.
- Manure is of a normal consistency for the species of animal and the time of year (e.g., some loose stools are expected when pastures are very lush, but sheep and goats normally have pelleted manure).

Section 4: Handling of organic feed and livestock products

The USDA Certified Organic label provides assurance that products were grown and handled—that is to say produced, received, processed, packaged, stored, transported, and delivered to market—in a manner that complies with the USDA organic regulations. This section addresses key regulations for production and handling as they relate to producers of organic livestock and livestock products. These regulations address the handling of organic animals and livestock products, including eggs, milk, meat, and fiber. They also address the handling activities employed to produce the feed for organic livestock. Producers whose operations engage in more complex handling will find it useful to read the "Guide for Organic Crop Producers," which addresses related topics in greater detail.

Organic regulations apply to all production and handling activities, regardless of who does them or where they are done, including the following common types of operations:

- Handling businesses that are certified for handling only, such as feed mills that produce organic livestock feeds apart from animal production
- Livestock producers who purchase and utilize organically handled feed
- Organic livestock producers who also engage in some type of on-farm handling activity. According to the handling definitions below, this would include many, if not most, livestock producers who produce and handle feed and/or livestock products.
- Producers who contract with other operations for certain harvesting, processing, or other handling

A livestock producer's Organic System Plan (OSP) and recordkeeping systems need to include these activities accordingly.

Organic handling requirements and terms defined

§ 205.270 Organic handling requirements

(a) Mechanical or biological methods, including but not limited to cooking, baking, curing, heating, drying, mixing, grinding, churning, separating, distilling, extracting, slaughtering, cutting, fermenting, eviscerating, preserving, dehydrating, freezing, chilling, or otherwise manufacturing, and the packaging, canning, jarring, or otherwise enclosing food in a container may be used to process an organically produced agricultural product for the purpose of retarding spoilage or otherwise preparing the agricultural product for market.

§ 205.2 Terms defined

Handle. To sell, process, or package agricultural products, except such term shall not include the sale, transportation, or delivery of crops or livestock by the producer thereof to a handler.

Handler. Any person engaged in the business of handling agricultural products, including producers who handle crops or livestock of their own production, except such term shall not include final retailers of agricultural products that do not process agricultural products.

Handling operation. Any operation or portion of an operation (except final retailers of agricultural products that do not process agricultural products) that receives or otherwise acquires agricultural products and processes, packages, or stores such products.

Processing. Cooking, baking, curing, heating, drying, mixing, grinding, churning, separating, extracting, slaughtering, cutting, fermenting, distilling, eviscerating, preserving, dehydrating, freezing, chilling, or otherwise manufacturing and includes the packaging, canning, jarring, or otherwise enclosing food in a container.

Related ATTRA publications

www.attra.ncat.org

Organic Materials Compliance

Preparing for an Organic Inspection: Steps and Checklists

Organic Certification Process

Organic Standards for Livestock Production: Excerpts of USDA's National Organic Program Regulations

Organic Standards for Crop Production: Excerpts of USDA's National Organic Program Regulations

Organic Standards for Handling: Excerpts of USDA's National Organic Program Regulations

Organic System Plan Template for Crop and/or Livestock Production

Documentation Forms for Organic Crop and Livestock Producers

Pasture for Organic Ruminant Livestock: Understanding and Implementing the National Organic Program (NOP) Pasture Rule

CHAPTER 26
ORGANIC SYSTEMS PLAN

As noted above, the production and handling of organic livestock feed and the handling of organic livestock products involve distinct processes and materials. All organic handling procedures prepare products for use by the operation or for the market, and they must be described in an Organic System Plan (OSP). Accredited organic certifiers provide OSP forms to their clients. While the actual forms may be unique to each certifier, all OSP forms provide a framework in which handlers (or producers who do some handling activities) describe their practices, materials, and recordkeeping systems, as well as how they comply with the USDA organic regulations.

Organic System Plan models

There are a number of online templates to help you develop your Organic System Plan, including the following:

- The ATTRA Web site includes the Organic System Plan Template for Crop and/or Livestock Production. It is available at www.attra.ncat.org/attra-pub/summaries/summary.php?pub=359
- The NOP Web site has three separate templates.
  - — Organic System Plan Template for Crop and/or Livestock Production. It is available at www.ams.usda.gov/nopprogramhandbook
  - — Organic System Plan Template for Crop Production. It is available at www.ams.usda.gov/nopprogramhandbook
  - — Organic System Plan Template for Livestock Production. It is available at www.ams.usda.gov/nopprogramhandbook

OSP forms generally include the following sections and contents:

- **Production site and handling location description**
  - — Accurate farm/ranch and facility maps clearly marked to show fields, pastures, and paddocks and identify housing or pens, feed storage areas, handling facilities, and product-storage areas
  - — A complete list of activities and products (and details whether they are all organic or have split or parallel production)
- **Practices and procedures**
  - — Product flow chart (which may be combined with the maps described above) to show the sequence of handling steps and identify all containers, equipment, and storage areas
- **Pest management**
  - — Details of pest-monitoring methods, potential pest problems, and the frequency of recurring pest problems
  - — Preventative, mechanical, and physical control methods

— Any materials used (see also below)—including brand names and product formulations, intended uses and locations, and whether they are listed for this purpose on the National List of Allowed and Prohibited Substances, which is part of the USDA organic regulations

- **Prevention of commingling and contamination (maintaining organic integrity)**
  - — Descriptions of practices and procedures used to prevent commingling of organic and nonorganic products and protect organic products from contact with prohibited substances
  - — List of all containers, packaging, preservatives, fumigants, equipment, and storage areas, and any applicable rinsing or purging procedures, as well as testing done to verify their effectiveness in assuring that organic products are not contaminated with prohibited materials. As noted in the NOP's Program Handbook, "Production and handling operations need to identify and address their commingling and contamination risks, or organic control points, in their OSP." The handbook provides specific examples. It is available online at www.ams.usda.gov/nopprogramhandbook
- **Cleaning, disinfection, and sanitation**
  - — Descriptions of procedures and materials used to maintain cleanliness of all containers, equipment, and storage areas in which organic feed or livestock products come into contact as well as descriptions of how these materials are prevented from contaminating organic products.
- **Recordkeeping systems**
  - — Description of how the producer/handler documents the operation's procedures. For your inspection, you will need to keep documentation to demonstrate how you are following your OSP, including practices and procedures as well as purchases and uses of all materials. The next chapter addresses recordkeeping requirements in greater detail.
- **Materials list**
  - — The handling processes used for livestock feed and livestock products include a variety of materials that fit into several categories, each of which is addressed in a different part of the USDA organic regulations. These include feed ingredients, additives and supplements, processing aids, cleaners, disinfectants, and sanitizers. This is a complex subject, so it is a good idea to consider using this workbook as a starting point to help you become familiar with the terminology you need and the important questions to ask. Then consult with your certifier to be sure you understand both the terms and the regulations that are pertinent to your operation. You can then describe your operation accurately and fully in the appropriate parts of your OSP. Most OSPs have sections in which to include all types of ingredients and processing aids as well as all materials used for cleaning and/or sanitation. Each material must be listed with its brand name and formulation (attach label information or Material Data Safety Sheets as appropriate), its manufacturer, the location and reason for its use in your operation, and the circumstances under which the material is allowed (annotations or restrictions) for its intended use according to the National List. (The National List actually is made up of separate lists for crop production, livestock production, and handling.)

Questions

- Have you chosen a USDA accredited certifier, obtained a copy of the certifier's OSP forms, and communicated with the certifier to ensure that you are completing the appropriate OSP forms to describe your operation and its activities? Have you collected all appropriate supporting documentation to be attached to your application and OSP? ☐ Yes ☐ No ☐ N/A
- Have you listed in your OSP all materials you use or plan to use, describing their intended use? Is your list complete and accurate, including brand names and formulations (if any), and have you attached labels and Material Safety Date Sheets as appropriate? ☐ Yes ☐ No ☐ N/A
- If materials listed in your OSP include any annotations or restrictions, is your use compliant, and do you keep documentation to demonstrate this is the case? ☐ Yes ☐ No ☐ N/A
- If any material you use is not among those allowed on the National List for your proposed use, do you have written procedures describing how you will rinse or purge and how you will test to verify appropriate levels of restricted materials (chlorine, for example) or absence of prohibited materials (those not on the National List)? ☐ Yes ☐ No ☐ N/A
- Have you received your certifier's approval to use all listed materials for their intended purpose? ☐ Yes ☐ No ☐ N/A

Notes

CHAPTER 27
RECORDKEEPING SYSTEMS: AUDIT TRAILS AND ORGANIC INTEGRITY

Every certified organic operation must have a recordkeeping system that is sufficient to demonstrate compliance with the USDA organic regulations. Records that are complete, clearly organized, and readily available are required and allow for a more efficient organic inspection. Production, harvest, and handling records must be adapted to the operation, disclose all activities and transactions, be maintained for not less than 5 years, and be sufficient to demonstrate compliance. Together, these documents provide an audit trail to track organic products as they move from origin to final sale—while maintaining their identity and organic integrity—and ensure that organic products are not mixed up with nonorganic products or contaminated by prohibited materials throughout their journey. In short, records show that organic products really are organic.

Recordkeeping requirements

§ 205.103 Recordkeeping by certified operations

(a) A certified operation must maintain records concerning the production, harvesting, and handling of agricultural products that are or that are intended to be sold, labeled, or represented as "100 percent organic," "organic," or "made with organic (specified ingredients or food group(s))."

(b) Such records must:
- (1) Be adapted to the particular business that the certified operation is conducting;
- (2) Fully disclose all activities and transactions of the certified operation in sufficient detail as to be readily understood and audited;
- (3) Be maintained for not less than 5 years beyond their creation; and
- (4) Be sufficient to demonstrate compliance with the Act and the regulations in this part.

(c) The certified operation must make such records available for inspection and copying during normal business hours by authorized representatives of the Secretary, the applicable State program's governing State official, and the certifying agent.

Types of documentation

There are three main types of documentation that enable accredited certifiers to verify a producer's compliance with the USDA organic regulations:

1. The Organic System Plan (OSP). Requirements for the OSP are described in Chapter 27.

2. Producer and Handler Records (PHR). The producer's own records, kept at the farm, ranch, or handling facility, of actual crop and livestock production and handling activities. Although they may be linked to an audit-trail document (described below), none of the following are specifically documented by any other type of record: field operations; pasture establishment and management; feed-crop production and harvest; feed inventories; on-farm movement of animals; grazing dates and locations; manure clean-out and application (quantities, dates, and locations); breeding and birthing; vaccinations; animal-health observations; administration of any vaccines, medications, or treatments; feed preparation; actual rations fed to each type and class of animal; and calculation of dry matter intake.

3. Audit-Trail Documentation (ATD). This documentation includes, among others, purchase records for seed, inoculants, feed, supplements, vaccines, or medicines; animal-purchase receipts; organic certificates; feed tags and product labels;

contracted custom harvest, application, clean-out, or purge records; labels and purchase receipts for all products and/or veterinary services used; animal or product sales invoices; documentation of conditions, such as soil- and/or water-test reports; and crop pest and disease reports.

The publication "Documentation Forms for Organic Crop and Livestock Producers" provides both a framework for organizing recordkeeping systems and sample documentation forms for crop and livestock producers. It is available online at www.attra.ncat.org/attra-pub/summaries/summary.php?pub=358.

The same information also is available in the NOP's Program Handbook on its Web site. The handbook includes appendices with various documentation forms, including "Introduction to Documentation Forms," "Crop Documentation Forms," and "Livestock Documentation Forms." Reviewing these forms will help producers understand what information must be kept, and the blank forms can be printed and copied as needed to help with recordkeeping. The livestock forms are available online at www.ams.usda.gov/nopprogramhandbook.

Producers who raise ruminants need to keep pasture-management and feeding records, as detailed in Chapter 13 of this workbook, to demonstrate compliance with the NOP Pasture Rule. The publication "Pasture for Organic Ruminant Livestock: Understanding and Implementing the National Organic Program (NOP) Pasture Rule" contains explanations of the Pasture Rule, worksheets, and other information. It is available online at www.attra.ncat.org/attra-pub/summaries/summary.php?pub=360. The publication also is available as Appendix H of the NOP Program Handbook on its Web site.

Audit trail

Audit trail refers to the documentation necessary to determine the source, movement, and transfer of ownership of any organic product. The audit trail allows for tracking the identity, sources, and quantities of every agricultural ingredient back to harvest from a field managed with organic production practices or purchase from a certified organic producer; tracking allowable nonagricultural products or allowed ingredients; tracking production and post-harvest handling or other handling process; and tracking the final utilization or sale of products.

A complete and thorough audit trail allows a product—a carton of yogurt, for example—to be traced back through the handling processes of all of its ingredients (including cultures and, if it were flavored yogurt, to the fruit and sugar). There would be a paper trail linking each carton to the farm where the animals were milked; to the production inputs used; and to the management of the fruit crops grown and pastures grazed. All of this product documentation would demonstrate that the producer is farming organically. A feed audit will usually be conducted during inspection (see Chapter 29), which also requires complete records to be available.

The following are among the common types of details that organic livestock producers keep documents for in order to ensure a complete audit trail as part of their recordkeeping system. The recordkeeping system components are noted in parentheses: Organic System Plan (OSP); Producer or Handler Records (PHR); or Audit Trail Documentation (ATD). You may want to check off the types of records you have, mark through the ones that don't apply to your operation, and draw an arrow to the ones you need to set up.

- Production-site description (OSP). Accurate maps should be clearly marked to show the following:
  - — Fields, pasture, or paddocks

  - Housing or pen identification
  - Feed-storage areas and/or production units

- Land-use history (OSP) and current management practices (PHR). Accurate records of the following should be included:
  - Production practices
  - Materials applied (including labels)
  - Dates of field operations
  - Crop harvest records
  - Documentation of conditions such as soil- or water-test reports
  - Crop pest and disease reports

- Animal identification. The following should be included:
  - Animal origin and breeding description (OSP)
  - Identification of individual (mammalian) or flocks (avian) of animals (PHR)

- Livestock origin and health. The following should be included:
  - Breeding practices description (OSP)
  - Breeding and birth records (PHR)
  - Documentation of purchased animals and organic certificates of purchased breeding stock, as required (ATD)
  - Production and sale records (ATD)
  - Herd-health records and administration of vaccines or any medications (PHR)
  - Labels and purchase receipts for all products and/or veterinary services used (ATD)

- Livestock feeding and grazing. The following should be included:
  - Feed-production practices
  - List of purchased-feed suppliers (OSP)
  - Feed purchase records (ATD)
  - Product or feed labels (ATD)
  - Organic certificates showing the type and quantity of feed and feed supplements purchased (ATD)
  - Records of custom harvest and equipment clean-out, as applicable (ATD)
  - Harvest records for feed grown on-farm (PHR)
  - Inventories of feed in storage (PHR)
  - Actual rations fed to each type and class of animal (PHR)
  - Purchase of off-farm inputs (ATD)
  - Application dates and quantities of manure applied to pastures (PHR)
  - Seed or inoculants used in pasture establishment (ATD)
  - Other pasture-management details (especially for compliance with the Pasture Rule, including dates of grazing, calculations for dry matter demand, etc.) (PHR)

Lot numbering

Lot numbers are codes assigned by producers that link products to their origins and to the year or date when they were produced. Lot numbers may not be necessary if you do direct marketing or package products into retail containers. They are required by the USDA organic regulations, however, for all nonretail packages, such as totes or bins sold to wholesale markets or processors.

A good lot-numbering system is logical and can readily be decoded. For example, Lot No. OE0614311 might code for Organic Eggs, from production building number 06, which was collected on the Julian calendar date 143 (May 23) in the year 2011. (In the Julian Date Calendar, which is commonly used for product coding, each day is assigned a number in sequence from 1 through 365 or 366 in leap years. An example of the Julian calendar is available at http://landweb.nascom.nasa.gov/browse/calendar.html. Lot No. OC0611 might code for Organic Corn, from bin number 06, which was harvested in 2011.

Questions

- Have you read the NOP Document "Guidance: Commingling and Contamination Prevention in Organic Production and Handling," which is available online at www.ams.usda.gov/nopprogramhandbook, and taken steps to ensure the organic integrity of your operation? ☐ Yes ☐ No ☐ N/A
- Do your audit-trail documentation and lot-numbering system permit accurate tracking of animals and animal products through processing and marketing [§ 205.236(c)]? ☐ Yes ☐ No ☐ N/A
- Do you maintain records of production, handling, and sales to ensure a complete audit trail? ☐ Yes ☐ No ☐ N/A
- Are you maintaining a complete set of operation records covering the production and handling of all agricultural products that you intend to be sold, labeled, or represented as organic [§ 205.103(a)]? ☐ Yes ☐ No ☐ N/A
- Is your recordkeeping system appropriate and well adapted to the needs of your organic operation [§ 205.103(b)(1)]? ☐ Yes ☐ No ☐ N/A
- Does your recordkeeping system fully disclose all activities and transactions in sufficient detail so as to be readily understood and audited [§ 205.103(b)(2)]? ☐ Yes ☐ No ☐ N/A
- Have you retained or are you preparing to retain all records applicable to your organic operation for at least 5 years [§ 205.400(d) and § 205.103(b)(3)]? ☐ Yes ☐ No ☐ N/A
- Is your recordkeeping system sufficient to demonstrate compliance with the USDA organic regulations and the Organic Foods Production Act [§ 205.103(b)(4)]? ☐ Yes ☐ No ☐ N/A
- Are your records available for inspection and copying during normal business hours by authorized representatives of the U.S. Secretary of Agriculture, the State organic program, and/or the certifying agent [§ 205.103(c)]? ☐ Yes ☐ No ☐ N/A
- If you have a split operation, are your records adequate to demonstrate that no commingling occurs? ☐ Yes ☐ No ☐ N/A

CHAPTER 28
PRODUCT COMPOSITION, PACKAGING, AND LABELING

Handlers who package and label their products have several factors to consider besides the challenge of designing eye-catching, customer-friendly logos. In organic food processing, regardless of scale, the handler must identify and source certified organic agricultural ingredients and other approved ingredients. Allowed nonorganic ingredients (besides water and salt) considered natural and allowed are addressed in the National List of Allowed and Prohibited Substances in the USDA organic regulations. In § 205.605, the National List deals with nonagricultural (nonorganic) substances allowed as ingredients in or on processed products labeled as "organic" or "made with organic (specified ingredients or food group(s))"—both natural (nonsynthetics) and synthetics; § 205.606 deals with *allowed* nonorganically produced agricultural products *allowed as ingredients in or on processed products labeled as "organic."*

Labeling-regulation highlights

The labels of certified products must include a phrase such as "Certified Organic by _____ (the name of the USDA-accredited certifier from whom the handler has a certificate)" [§ 205.303(b)(2)]. The labels of "100 Percent Organic" and "Organic" products may include the USDA seal and/or the seal of the certifier (provided that the certifier's seal is not displayed more prominently than the USDA seal (see § 205.303(a)(5) and 205.311). Clearly, packaging materials must not contaminate or otherwise compromise the organic integrity of their contents: packaging materials must not contain prohibited pesticides (such as fungicides). With respect to storage of organic products, regulations require prevention of contamination from prohibited materials, and common sense indicates that all goods should be protected from pest or disease infestation. The front-panel labeling must accurately represent the composition of the product's contents [§ 205.301].

Product composition

The regulations identify five categories of product composition:

- "100 Percent Organic" refers to any product that contains 100 percent organic ingredients (excluding salt and water, which are considered natural). Most raw, unprocessed products may be designated "100 Percent Organic." Likewise, many value-added farm products that have no added ingredients—such as frozen whole chickens and packaged eggs—may be labeled "100 Percent Organic." The organic seal may be used in labeling for these products.
- "Organic" may be used to label any product that contains a minimum of 95 percent organic ingredients (excluding salt and water). Up to 5 percent of the ingredients may be nonorganic agricultural products that are not commercially available organically and/or nonagricultural products that are included in § 205.605 of the National List. The organic seal may be used in labeling for these products.
- "Made with Organic _____" can be used on the label of a product that contains at least 70 percent organically produced ingredients (excluding salt and water). There are a number of detailed constraints regarding the ingredients that may comprise the nonorganic portion. The organic seal may not be used in products where the percentage of organic ingredients, as specified in § 205.302 of the regulations, is between 70 and 95 percent. Producers should consult § 205.304 of the regulations for details.
- Products with less than 70-percent organically produced ingredients may identify certified organic ingredients as organic in the ingredient statement.

- Livestock feed must contain 100-percent organically produced raw or processed agricultural products and be in compliance with all the regulations related to livestock feed in § 205.237.

As described above, the USDA Certified Organic seal may be used only on the labels of products that are "100 Percent Organic" or "Organic." The labels of such products also may feature the logo of the certifying agent on the label. Only certified organic producers or handlers may represent products as certified organic or use the USDA Certified Organic seal for their products. Most organic farmers and livestock producers market raw or minimally processed or handled products. In most instances where these producers use a label, the words "100 Percent Organic" or "Organic" will be appropriate. Include a copy of your proposed label in your Organic System Plan for certifier approval to ensure it is correct before its final printing. It is important to read the applicable regulations and check with your certifier to be sure you understand specifically how they will be applied to your type of product and labeling.

Livestock feed

§ 205.306 Labeling of livestock feed

(a) Livestock feed products described in §205.301(e)(1) and (e)(2) may display on any package panel the following terms:
(1) The statement, "100 percent organic" or "organic," as applicable, to modify the name of the feed product;
(2) The USDA seal;
(3) The seal, logo, or other identifying mark of the certifying agent which certified the production or handling operation producing the raw or processed organic ingredients used in the finished product, Provided, That, such seals or marks are not displayed more prominently than the USDA seal;
(4) The word, "organic," or an asterisk or other reference mark which is defined on the package to identify ingredients that are organically produced. Water or salt included as ingredients cannot be identified as organic.

(b) Livestock feed products described in §205.301(e)(1) and (e)(2) must:
(1) On the information panel, below the information identifying the handler or distributor of the product and preceded by the statement, "Certified organic by _____," or similar phrase, display the name of the certifying agent that certified the handler of the finished product. The business address, Internet address, or telephone number of the certifying agent may be included in such label.
(2) Comply with other Federal agency or State feed labeling requirements as applicable.

Questions

- Are all packaging materials, storage containers, or bins free of synthetic fungicides, preservatives, and fumigants [§ 205.272(b)(1)]? ☐ Yes ☐ No ☐ N/A
- Are all bags or containers either new or dedicated to organic uses in such a way that they are free of contact with any substance that would compromise the organic integrity of any organically produced product or ingredient placed in them [§ 205.272(b)(2)]? ☐ Yes ☐ No ☐ N/A
- Are all packaging materials stored where they will remain free from contamination? ☐ Yes ☐ No ☐ N/A

- Is all labeling in compliance with the USDA organic regulations [§ 205.300; § 205.301; § 205.302; § 205.303; § 205.304; § 205.305; and § 205.306]? Be sure to read the appropriate sections of the regulations, provide a sample label for approval, and confer with your certifier. ☐ Yes ☐ No ☐ N/A
- Where production, handling, or sales of both organic and conventional products occur, are protocols and labeling adequate to ensure product identification, tracking, and segregation? ☐ Yes ☐ No ☐ N/A
- Are all products sold in nonretail containers assigned lot numbers that permit traceability through your recordkeeping system [§ 205.236(c)]? ☐ Yes ☐ No ☐ N/A

Notes

CHAPTER 29
ORGANIC FEED: PURCHASED FEED AND ON-FARM HANDLING

There are four main categories of operations covered by the USDA organic regulations relating to certification of organic livestock feed:

- Organic livestock producers who do on-farm organic feed production and handling activities to prepare feed for their own organic livestock
- Organic livestock producers who contract for custom harvest or handling services
- Organic livestock producers who purchase organic livestock feed or feed products from a certified organic producer or handler
- Organic feed handlers who market organic feed to livestock producers

All of these activities require organic certification of one or more operations. Certification is not required for suppliers and distributors unless they repack or otherwise modify the original products.

On-farm preparation of feed for an operation's own livestock may be described in its Organic System Plan (OSP) or in handler OSP forms (at the certifier's discretion) to be completed as part of the OSP. Handling activities that producers of organic livestock manage themselves (or for which they contract) as part of their farm or ranch operations may include baling hay; storing hay in the barn; making silage, baleage, or haylage; and milling, grinding, and/or mixing feed rations. Documentation consists of production records kept for feed produced on-farm. Producers also keep purchase receipts and a copy of the current organic certificate for any purchased feed components. The producer must track the storage and preparation of all feed materials as well as the actual rations provided to organic livestock. Records to be kept may include feed inventories, handling records (including such preparation of feed as mixing or grinding), and the amounts of feed fed to each animal, flock, or herd (as needed to support feed audits and verify sources of dry matter intake for ruminants).

Producers who contract with a custom service for harvest or for handling (such as hay baling or grain harvesting and drying) must verify that the operator is certified as an organic handler and keep a current organic certificate and corresponding list of all products for which the handler is certified according to the regulations. Alternatively, if the custom harvester or processor is not certified organic, the organic producers may include a complete description of all handling activities in their own OSP. The point is that all the processes must be certified organic by someone: if the custom service is not certified, the organic producer is responsible for doing so. It is very important to pay attention to preventing contamination and commingling since the harvesting or processing equipment also will be used for nonorganic crops. Purging and clean-out procedures must be planned and described in the OSP, and records documenting them must be kept by the organic producer.

Producers or handlers who sell organic livestock feed must provide an organic production and/or handling certificate and documentation of sale (invoice or receipt) to their customers. Livestock producers who purchase feed must request these documents and keep them in their records.

Those who sell organic feed may be certified as a crop producer (e.g., hay), a handler, or both. If you process organic feed for sale, you will need to be certified for this activity. Your OSP must address all your production and/or handling activities. Ask your certifier which specific forms are required for your type and complexity of handling activity.

The questions at the end of this chapter will help clarify methods to prevent commingling and contamination, as well as what records are necessary for compliance.

Feed audit

The purpose of a feed audit is to document that producers have enough organic feed—produced on-farm and/or purchased—to provide for their animals' needs over the course of the year. A feed audit is a normal part of an organic livestock inspection, and producers need to be prepared for a feed audit as part of their annual inspection. Certifiers require inspectors to report their observations and calculations to verify compliance.

Typically, the inspector will choose at least one feed type to audit over a period of time. Depending on the feed type, the records that will be needed may include the following:

- Feed-production records
- Harvest and storage records (e.g., hay baling and silage production)
- Purchase receipts (e.g., weigh tags and invoices)
- Inventory summaries by date (estimates for starting and ending inventories of grain in the bin or hay in the barn) for different feed types.

The producer should have production and sales, purchases, losses, and inventory summaries readily available and in good order that show documentation for all sources of organic livestock feed. Additional records that are needed include feed rations per animal or flock and records of actual amounts of feed fed to each class or group of animals. Complete records in good order will enable your inspector to easily identify and reconcile feed needed by livestock and feed available during the selected time period.

Organic livestock inspectors must submit a table such as the one below with their report.

Livestock Feed Audit

Type of Feed	Quantity of feed	Number of animals	Class of animal	Total amount of feed used	Total amount produced on site	Total amount of feed purchased	Adequate feed?
Example: Grain	*10 lbs/cow*	*50*	*Milk Cow - High string*	*140 x 10 x 50=70,000 lbs*	*n/a*	*80,000 lbs*	*Yes*

Questions

- If you are producing feed or feed ingredients, is the description of the production process current and complete in your OSP, including materials and methods used; product flow; and audit trail used to track production, handling, storage, and use and/or sale of the feed or feed product? ☐ Yes ☐ No ☐ N/A
- Do your actual farm records document your practices completely (input use, production/harvest, storage/inventory, sales, etc.)? ☐ Yes ☐ No ☐ N/A
- Is your on-farm milling, mixing, and/or chopping equipment properly maintained to prevent contamination of organic feeds by prohibited materials? ☐ Yes ☐ No ☐ N/A
- If conventional feeds are also handled or processed on your farm, are equipment clean-out protocols clearly established and logs maintained? ☐ Yes ☐ No ☐ N/A

☐ Yes ☐ No ☐ N/A

- When custom handling/processing is done on your farm using portable equipment provided by a service or neighboring farmer, is that service or farmer certified organic?

☐ Yes ☐ No ☐ N/A

- If you use a custom handling service or processing unit that is not certified organic, have you included a complete description of all handling activities in your own OSP and kept records such that all handling practices and related documentation may be verified at inspection and certified as part of your operation?

☐ Yes ☐ No ☐ N/A

- If the handling equipment (whether owned or contracted) used for organic products also is used for nonorganic products, have you kept clear documentation of sufficient clean-out or purge protocols available for inspection?

☐ Yes ☐ No ☐ N/A

- When handling and/or processing equipment is purged, the purge batch of feed or product cannot be considered organic. Do you keep adequate records on the quantity of feed used in purging and how it was subsequently used? The first batch of feed used to purge processing equipment may be disposed of in a number of ways. Among others, it may be sold on the conventional market, fed to conventional livestock in split or parallel production, fed to draft animals, or used as a soil amendment.

Notes

CHAPTER 30
ON-FARM HANDLING OF LIVESTOCK PRODUCTS

This guide addresses considerations for common types of on-farm handling of organic livestock feed in the previous chapter and of livestock products in this chapter. It outlines common handling procedures and mentions frequently used materials in a brief and noncomprehensive manner. This guide should stimulate further reading and investigation to clarify the Federal, State, and local regulations and industry standards that are relevant to your operation. For other types of processing—such as processing multiple-ingredient livestock products, slaughtering, and packaging meat that requires USDA or State inspection, cheesemaking and other dairy processing, and fiber processing —refer to the ATTRA publication "Organic Standards for Handling: Excerpts of the USDA's National Organic Program Regulations" or ask your certifier.

Materials

The USDA organic regulations regarding the use of materials by producers and handlers of livestock feed and products are found in several sections, including § 205.2 Terms defined; § 205.270 Organic handling requirements; § 205.271 Facility pest management practice standard; § 205.272 Commingling and contact with prohibited substance prevention practice standard; § 205.600-606 The National List of Allowed and Prohibited Substances; § 205.237 Livestock feed; and § 205.306 Labeling of livestock feed. Producers and handlers of livestock feed and livestock products should read these regulations and seek any needed clarification from their certifier.

To be in compliance with the materials regulations, organic producers and handlers must list every material in their Organic Systems Plan (OSP) with its intended use and receive their certifier's approval for the use of each material before they use it. They must then document each material's purchase and utilization. Several materials have one or more annotations or restrictions that specify under what circumstances they may be used. Producers must document their compliance with these conditions.

For more information, see the ATTRA publication "Organic Materials Compliance." It is available online at www.attra.ncat.org/attra-pub/summaries/summary.php?pub=157.

Related ATTRA publications
www.attra.ncat.org

Organic Materials Compliance

Organic Standards for Handling: Excerpts of USDA's National Organic Program Regulations

Small-Scale Egg Handling

Small-Scale Poultry Processing

Legal Issues for Small-Scale Poultry Processors

Processes

In addition to verifying that all materials used are allowed—and used in allowed ways—handlers must have all processes used in production, handling, transport, and storage certified. Processes addressed briefly in this workbook include the following:

- **Dairy.** Milking animals, cleaning milking equipment, and cooling and storing milk
- **Eggs.** Washing, sanitizing, coating, and packing eggs
- **Slaughter of animals exempt from USDA inspection.** Evisceration, washing, and packaging

Milk and dairy handling

Milking and the cleaning of milking equipment are generally considered to be on-farm handling. They usually involve chilling (which is included in the list of activities defined as processing) and also require documentation of monitoring procedures to demonstrate prevention of contamination of organic milk, especially with respect to materials used for cleaning and sanitation. Like other livestock producers, the organic dairy producer must comply with a combination of requirements and establish a balanced set of practices and procedures that fulfill them all: dairy industry standards and recommendations; Federal, State, and local government regulations; and the USDA organic regulations.

Equipment used may be unique to each dairy operation and described in the OSP. Although some are simple hand-milking systems, many dairy operations use mechanized systems that include several surfaces with which milk comes into contact. Milking-system components (teat cup liners, milk lines, bulk tanks, utensil surfaces, etc.) all are cleaned and sanitized after each milking and/or milk pickup. The organic constituents of milk (fats, proteins, and sugars), minerals precipitated by cleaning agents (such as calcium, magnesium, or iron), and the deposits formed on equipment by their combination (known as milkstone) must all be removed to prevent bacteria from growing and to maintain the proper functioning of the equipment.

Cleaning agents must be both effective—taking into consideration the equipment used and the local water supply's mineral content and pH—and compliant with the regulations regarding materials. Milking equipment is washed first with a chlorinated alkaline detergent to loosen and dissolve materials and then rinsed with plain water. Next comes an acid rinse, which brings water to pH 3.0-4.0 in order to kill bacteria and remove or prevent accumulation of mineral deposits or milkstone buildup. Finally, milk lines and bulk tanks are sanitized to further reduce the bacteria on surfaces. The dairy producer's OSP must describe all milking equipment, list materials, and outline procedures to be used in handling milk.

Milk tankers that are used to haul milk from the dairy farm to the dairy processor must be either certified organic; noncertified but listed on the OSP for the dairy farm; or noncertified but listed on the dairy processor's OSP. Milk can lose its organic status if it is hauled in a tanker in which a sanitizer that is not allowed in organic production was used or if a noncertified tanker is used to haul the milk and neither the dairy farm nor the dairy processor includes milk tanker protocols in their OSP.

Materials lists maintained by the Organic Materials Resources Institute (OMRI) (see Chapter 7) and the Washington State Department of Agriculture (WSDA) include several "cleaners," "disinfectants," and "sanitizers" (use these terms to search for products in the lists) that have been reviewed for compliance with the regulations for use in cleaning specific types of equipment. The materials' listings provide further details about their ingredients and restrictions on their use. As noted above, the implementation of practices and appropriate testing must be documented so that compliance can be verified during inspection.

The OMRI list is available online at www.omri.org/omri-lists. The WSDA list is available online at www.agr.wa.gov/FoodAnimal/Organic/MaterialsLists.aspx.

Egg handling

In order to meet the goal of providing clean, safe, and organically certifiable eggs, producers should use common sense, consult egg-industry recommendations, and give due consideration to food-safety concerns. Producers with more than 3,000 layers also are subject to additional FDA rules related to egg safety. The ATTRA publication "Small-Scale Egg Handling" provides information for egg producers and/or handlers on a number of topics, including cleaning, keeping eggs clean, collection, candling, grading, methods for washing, storage and distribution, site facilities, egg products, government regulations and grading, and organic egg handling. It is available online at www.attra.ncat.org/attra-pub/summaries/summary.php?pub=325.

Materials used in handling eggs may include the following:

- Egg washes/sanitizers
- Defoaming materials
- Egg coatings

Many of the materials on the market include ingredients that are not allowed for use in handling organic eggs. Because egg shells are porous, any materials used on eggs or in water used to wash eggs are considered food additives, so they must be listed as allowed on the National List of Allowed and Prohibited Substances. All ingredients in the materials being used must either be certified organic or listed as allowed in § 205.605 of the USDA

organic regulations: "Nonagricultural (nonorganic) substances allowed as ingredients in or on processed products labeled as 'organic' or 'made with organic (specified ingredients or food group(s))'." This list includes both synthetics and nonsynthetics.

As per the National List, materials used in organic egg production may include, but are not limited to, those used for different purposes.

Egg washes include the following:

- Hydrogen peroxide
- Potassium hydroxide
- Sodium bicarbonate
- Sodium carbonate
- Sodium hydroxide
- Peracetic acid (Peroxyacetic acid)
- Chlorine materials for disinfecting and sanitizing food-contact surfaces. (See "Use of chlorine materials in handling organic product" in this chapter for details concerning the conditions under which chlorine may be used as specified in the regulations and National Organic Program (NOP) "Guidance" document.)

Defoaming agents include the following:

- Silicon dioxide
- Lecithin
- Organic vegetable oil

Egg coatings for use after washing include the following:

- Organic vegetable oils

Some commercial egg washes and other materials have been reviewed for compliance and may be found on the OMRI list.

Use of chlorine materials in handling organic product

The U.S. Department of Agriculture (USDA) document "Guidance: The Use of Chlorine Materials in Organic Production and Handling" states that chlorine may be used "*Except*, That, residual chlorine levels in the water shall not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act (Calcium hypochlorite; Chlorine dioxide; and Sodium hypochlorite)."

The document also states the following:

4.3 Handling operations (includes on-farm post-harvest handling):

1. *For food handling facilities and equipment, chlorine materials may be used up to maximum-labeled rates for disinfecting and sanitizing food contact surfaces. Rinsing is not required unless mandated by the label use directions.*
2. *Water used in direct post-harvest crop or food contact (including flume water to transport fruits or vegetables, wash water used in produce lines, and water used for egg or carcass washing) is permitted to contain chlorine materials at levels approved by the FDA or the Environmental Protection Agency (EPA) for such purpose.*
   a. *Rinsing with potable water that does not exceed the maximum residual disinfectant limit for the chlorine material under the Safe Water Drinking Water Act (SDWA) must immediately follow this permitted use.*
   b. *Certified operators should monitor the chlorine level of the final rinse water, the point at which the water last contacts the organic product. The level of chlorine in the final rinse water must meet limits as set forth by the SDWA.*
   c. *Water used as an ingredient in organic food handling should not exceed the maximum residual disinfectant limit for the chlorine material under the SDWA, as required by the Organic Food Production Act (7 U.S.C. 6510(a)(7)).*

This regulation does not specify actual levels to allow for future changes in FDA, EPA, or SDWA regulations. At this writing, the SDWA allows 4 ppm of chlorine.

"Guidance: The Use of Chlorine Materials in Organic Production and Handling" is available online at www.ams.usda.gov/nopprogramhandbook.

Meat: slaughter of animals exempt from USDA inspection

Organic livestock producers and/or handlers must comply with Federal, State, and local inspection-program requirements. A Federal exemption allows for processing on-farm up to 20,000 birds that may be sold within the State where they are produced. However, many States have additional regulations that supersede the Federal exemption, either modifying it or prohibiting on-farm processing altogether. Although slaughtering on-farm may exempt producers from USDA inspection, it does not exempt them from health codes, and producers still must verify their processing procedures with their certifier to ensure compliance with the NOP. The ATTRA publication "Legal Issues for Small-Scale Poultry Processors" describes the conditions under which the Federal Poultry Products Inspection Act and its regulations provide exemptions from USDA inspection of small-scale poultry processors. It is the producer's responsibility to verify and comply with all current governmental regulations. Local Cooperative Extension staff may be able to help identify and clarify these regulations.

"Legal Issues for Small-Scale Poultry Processors" is available online at www.attra.ncat.org/attra-pub/summaries/summary.php?pub=334.

The ATTRA publication "Small-Scale Poultry Processing" covers small-scale processing, both on-farm and in small plants. This publication covers each step of processing poultry and offers examples of mobile processing units. It includes information on pre-slaughter preparations; immobilizing, killing, and bleeding; feather removal; removal of the head, oil glands, and feet; evisceration, washing the carcass, chilling, cut-up, deboning, and further processing; aging, packaging, storage, and delivery and distribution; clean-up, waste management, equipment, and supplies; processing diverse species; batch versus continuous processing; processing rates; processing setups; and economics. It also includes a list of other resources.

"Small-Scale Poultry Processing" is available online at www.attra.ncat.org/attra-pub/summaries/summary.php?pub=235.

The organic producer must consider these processing steps both in light of Federal, State, and local regulations regarding on-farm slaughter of poultry and the USDA organic regulations regarding materials and prevention of contamination. For example, "Small-Scale Poultry Processing" mentions the use of dish soap in scald water. While soap is commonly used for many cleaning purposes, it is not listed on the National List, so it should not be present in organic products. Chlorinated water spray also is mentioned for cleaning during evisceration, for washing the carcass, and for chilling. Use of chlorine materials must comply with NOP regulations and the USDA "Guidance" document mentioned above.

The issues addressed in the "Further Processing" section of "Small-Scale Poultry Processing" may be beyond the level of common on-farm handling and should probably be covered under a detailed Handling OSP. However, its mention of nitrates, sugar, and salt reminds the producer and/or handler that the use of such additives or ingredients must be listed in the OSP and documented as being allowed. Nitrates are not allowed in products labeled "Organic." Sugar would need to be certified organic, and salt would need to be documented as being free of any prohibited additives such as flow agents. Packaging and labeling considerations are noted in Chapter 28 of this workbook. Waste management is an important consideration for practical health and safety reasons, local regulations, and consistency with USDA organic regulations that require protection of water and other natural resources from contamination. USDA organic regulations composting regulations [§ 205.203(c)(2)] are relevant if "animal materials" such as offal and blood are composted on site.

Slaughter and processing of animals such as beef, hogs, sheep, and goats must be done, with few exceptions, in USDA-inspected facilities. Further discussion and resources related to

local meat processing may be found in the "ATTRAnews" newsletter of September 2010. It is available online at www.attra.ncat.org/newsletter/attranews_0910.html.

Many consumers are eager for such locally produced and processed meat as pastured poultry and grass-fed beef, sheep, and goats. This issue of "ATTRAnews" explores some of the possibilities for bringing locally raised meat to market, including facilities that provide services for independent producers. See the ATTRA Web site to find several other publications that address meat-marketing options for specialty meat labels, including grass-fed and organic, at www.attra.ncat.org.

For all handling, as was mentioned in Chapter 29 of this guide, a producer may contract for handling services, such as washing and packing eggs, processing milk, and processing meat. Those contracted handlers either must be certified organic or the processes must be certified through the organic producer's OSP and certificate. Special care should always be taken to prevent contamination and commingling.

Questions

- Have you consulted with your certifier to ensure that you have completed the appropriate OSP sections for the handling you do (or for which you contract) for your livestock operation? ☐ Yes ☐ No ☐ N/A
- Do you avoid the use of ionizing radiation and ingredients that have been treated with ionizing radiation [§ 205.105(f)]? ☐ Yes ☐ No ☐ N/A
- Have you developed a flowchart of all on-farm processing steps and procedures, and is it available for review by the certifying body and its inspectors? ☐ Yes ☐ No ☐ N/A
- Are all purchased raw commodities and ingredients used in on-farm processing or in hired custom processing certified organic or otherwise allowed for use in organic processing [§ 205.105 and §205.270]? ☐ Yes ☐ No ☐ N/A
- Do you take care to determine that each ingredient is not genetically engineered and does not result from a process that uses genetically modified organisms [§205.105(e)]? ☐ Yes ☐ No ☐ N/A
- Do you keep labels, invoices, and descriptions of all ingredients, processing aids, and cleaning agents on file? ☐ Yes ☐ No ☐ N/A
- Do you use sanitation protocols in on-farm processing as well as appropriate testing and documentation of test results to demonstrate appropriate levels of restricted materials or the absence of prohibited materials (those not listed as allowed in the USDA organic regulations)? ☐ Yes ☐ No ☐ N/A
- Do you use food-grade equipment and inputs in processing? ☐ Yes ☐ No ☐ N/A
- Where both organic and conventional products are handled and processed, do you have clearly established protocols for cleanup and product segregation? Are they adequate to prevent contamination and commingling [§ 205.272(a)]? ☐ Yes ☐ No ☐ N/A
- Where both organic and conventional products are handled and processed, are your logs of processing runs and cleanouts up to date? Does your documentation demonstrate compliance? ☐ Yes ☐ No ☐ N/A

- If you store any prohibited substances, are they clearly labeled and separated from processing equipment, processing inputs, raw products, and finished products? ☐ Yes ☐ No ☐ N/A
- Do you maintain processing equipment to prevent contamination of organic products with lubricants or other contaminants? ☐ Yes ☐ No ☐ N/A
- If you do on-farm meat processing, do you have a strategy for disposing of offal and other waste products that does not pose a health risk to livestock, contaminate organic products, or pollute the environment? ☐ Yes ☐ No ☐ N/A
- Do you manage wastewater from processing in a way that does not cause pollution or a health hazard? ☐ Yes ☐ No ☐ N/A
- Do you manage wastes from packaging in a way that does not contaminate organic products and does not create a pollution problem? ☐ Yes ☐ No ☐ N/A
- Do you complete coliform tests for all water used in food processing and washing? Annual testing is advisable and may be required by the certifier. ☐ Yes ☐ No ☐ N/A
- If you are using chlorine for sanitation purposes in on-farm processing, do you have a clear understanding of your certifier's expectations with regard to meeting the USDA organic regulations for residual chlorine levels [§ 205.605(b)(9)] and the current NOP Guidance regarding the use of chlorine? (See "Use of chlorine materials in handling organic products" in this chapter for clarification.) ☐ Yes ☐ No ☐ N/A
- Have you performed all additional water analyses requested by your certifier? ☐ Yes ☐ No ☐ N/A
- Have you installed any needed or required water-treatment technologies and are they fully functional? ☐ Yes ☐ No ☐ N/A
- Are you reasonably certain that your water sources are free of contamination by prohibited substances? ☐ Yes ☐ No ☐ N/A
- If you are producing both organic and nonorganic eggs, have you described in your OSP the protocols that you have in place to prevent the commingling of products [§ 205.272(a)]? ☐ Yes ☐ No ☐ N/A
- If you are producing both organic and conventional meats, have you described in your OSP the protocols that you have in place to prevent the commingling of products [§ 205.272(a)]? ☐ Yes ☐ No ☐ N/A
- If you are producing both organic and nonorganic milk and/or milk products, have you described in your OSP the protocols that you have in place to prevent the commingling of products [§ 205.272(a)]? ☐ Yes ☐ No ☐ N/A
- If you are producing both organic and conventional animal fiber and/or fiber products, have you described in your OSP the protocols that you have in place to prevent the commingling of products [§ 205.272(a)]? ☐ Yes ☐ No ☐ N/A
- If you use commercial trucking to haul animal products from your operation, have you described this in your OSP and documented the actual practices that ensure organic products are not contaminated or commingled with conventional products [§ 205.272(a)]? ☐ Yes ☐ No ☐ N/A
- If you process meat and/or meat products on your farm, is your processing facility also included in your OSP and has the facility been certified as part of your operation? ☐ Yes ☐ No ☐ N/A

- If you have livestock processed elsewhere for sale under your own label, is your meat processor certified organic and the facility's description covered in your OSP? ☐ Yes ☐ No ☐ N/A
- If you cool milk or process and package milk and/or milk products, is your milk room and/or processing facility also included in your OSP? Has it been inspected as part of your operation and verified as meeting organic regulations? ☐ Yes ☐ No ☐ N/A
- If you have milk and/or milk products processed elsewhere for sale under your own label, is your processor certified organic or has the facility been covered under your OSP and certification? ☐ Yes ☐ No ☐ N/A
- If you package eggs, is your washing and packaging facility described in your OSP and has it been certified as meeting organic regulations? ☐ Yes ☐ No ☐ N/A
- If you have eggs packaged elsewhere for sale under your own label, is your packager certified organic or has the facility been covered in your OSP and its certification included in your organic certificate? ☐ Yes ☐ No ☐ N/A
- If you process fiber, are your activities and facility included in your OSP and certified as part of your operation? ☐ Yes ☐ No ☐ N/A
- If you have fiber processed elsewhere for sale under your own label, is your processor certified organic or is the facility description covered in your OSP and certification? ☐ Yes ☐ No ☐ N/A

Online Resources

Cyber-Help for Organic Farmers
www.certifiedorganic.bc.ca/rcbtoa/services/questions.html#eggwashing

Cleaning and Sanitizing Milking Equipment by Virginia Cooperative Extension. www.pubs.ext.vt.edu/404/404-400/404-400.html

Notes

APPENDIX 1
ORGANIC POULTRY CONSIDERATIONS

Generally, organic poultry production in the United States is based upon two models: pastured operations and house- or barn-based systems. These production models are hybridized to some extent by farmers to meet their goals. For example, in most pastured systems, the fragile chicks and poults are brooded indoors for varying lengths of time to protect them against the elements. Meanwhile, house-based operations that have traditionally been confinement systems have adapted their operations to provide outdoor access and meet all the requirements of USDA organic regulations. Producers who use both production models can be passionate about their chosen system's design and management and its advantages. Producers may use a combination of additional descriptors for product distinction to promote their product. Some of these marketing terms have established standards and verification programs, while others have not. Common terms associated with poultry and eggs include "local," "hand-gathered," "cage-free," "free-range," "humane," and "pastured." Such terms may be used independently of, or in combination with, an organic claim to describe the nature of the production system and the quality of the products. To be certified organic, every poultry production system must comply with USDA organic regulations.

Some challenges of maintaining organic certification are common to poultry farming in general, regardless of the production system. Others are related to the production model that is chosen to raise the birds. Logically, the more a poultry system favors either model, the more the nature of the difficulties changes accordingly.

Challenges common to all poultry systems

Feed. An important factor in both models is the cost of feed. Feed is the greatest expense in any poultry operation, regardless of whether it is conventional or organic. Organic grain prices are typically double or triple the price of conventional grains. As a result, you should consider grinding and mixing the feed ration on-farm—or even growing a portion or all of the needed grain on-farm using the nutrient-rich poultry manure produced by the farm. There also are restrictions on protein sources that can be used as components of organic poultry rations, and these restrictions can pose a problem in formulating a regulations-compliant, affordable feed.

Disease. All systems of poultry production, both organic and conventional, are vulnerable to disease. Non-genetically modified vaccines for viral and bacterial diseases (such as Mareck's disease and salmonella) are allowed under the USDA organic regulations. Many diseases, such as coccidiosis, often can be controlled by good husbandry practices. Keeping flocks stress-free with good nutrition is the first step in any disease-prevention program. Maintaining good biosecurity on the farm can prevent poultry from being exposed to many pathogens.

USDA organic regulations challenges in house-based systems

Fresh air. There are two primary challenges to maintaining good air quality in indoor systems: ammonia and dust. Poultry houses must have ventilation capable of maintaining good air quality. Often, poor air quality results when producers reduce ventilation in an effort to economize on heating and cooling costs, to the detriment of the birds' health. The USDA organic regulations specifically require all organic animals to have fresh air, among a list of requirements specified in § 205.239 Livestock living conditions.

Ammonia. A practical way of looking at ammonia (NH_3) is to see it as the loss of valuable nitrogen into the air. This loss, known as volatilization, is reduced by maintaining dry, high-carbon bedding (such as wood chips or shavings or rice hulls) that can absorb manure. Conversely, NH_3 volatilization is exacerbated by humid or wet conditions in the poultry house

and by bedding being insufficient or too moist to absorb the poultry manure. Although the USDA organic regulations do not explicitly give a threshold for allowed NH_3 concentration in the air, fresh air is necessary to maintain a safe working environment for people. The Occupational Health and Safety Act (OSHA) has set the threshold for a safe working environment at 35 parts per million (ppm) when NH_3 is present for no longer than 15 minutes or at an average of 25 ppm for an 8-hour workday. The human body is irritated by levels above the defined safety limit, and the symptoms of this irritation can be used to roughly estimate aerial NH_3 levels. The following table can help you characterize ammonia levels.

Table 1. Effects of Ammonia (NH_3) on Humans and Poultry

NH3 (ppm)	Effect on Body
1-2 ppm	Detectable by human nose
25 ppm	Mild irritating effect on eyes and nose
25 ppm	Irritating to poultry
35 ppm	Proposed EPA Short Term Exposure Limit (STEL)
130 ppm	Extreme burning of eyes, heavy tearing, difficulty breathing

Dust. Dust in the air poses a hazard because it can be taken deeply into the lungs and cause a host of health conditions for both the farmer and the livestock. Excessively dusty air is contrary to the USDA organic regulations fresh-air requirement. Dust is a particular challenge in poultry systems because it is a natural behavior for many poultry species to dust bathe. The birds' ability to bathe, however, is good for reducing parasites and allows the expression of a natural behavior in keeping with the spirit and regulation of the USDA organic regulations.

Clean bedding. The USDA organic regulations require appropriate, clean, dry bedding in § 205.239 Livestock living conditions. The bedding or litter must not be excessively moist or wet, smell of NH_3, or be covered excessively or completely by the manure. Damp, high-ammonia litter commonly causes a chemical burning of the poultry's feet, a condition called Foot Pad Dermatitis or, more commonly, Paw Burn. If pastured, the poultry must be moved or rotated often.

Outdoor access. The USDA organic regulations specifically require that all livestock, including poultry, have year-round access to the outdoors. Historically, the practical application of outdoor access has varied greatly between producers and certifiers, prompting in-depth discussion and even the possibility of changes in the regulations to make requirements more explicit. Certifiers currently differ in their interpretation of the regulations, especially with respect to the nature and extent of outdoor access. Check with your certifier to be certain that your plan for outdoor access is in compliance with the regulations.

Density. Organic regulations require preventative health-care practices and conditions that allow for exercise, freedom of movement, and reduction of stress appropriate to the species. Higher density housing, such as in conventional confined-animal feeding operations, creates stress in the birds. Bare patches in feathering on the heads, necks, backs, and tails of poultry can be indications of pecking due to excessive stress. The perception that physical alterations are needed to promote the animals' welfare is generally higher among producers using house-based systems compared to those using pasture-based systems. The certifier must assess the adequacy of the preventative health-care practices that are in place and whether physical alterations (such as beak trimming, dew claw removal, or dubbing) meets the intent of the regulations.

Manure management. The protection of the natural resources of the farm and the surrounding area is paramount and mandated by the USDA organic regulations. Manure must be managed "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 and must manage pastures and other outdoor access areas in a manner that does not put soil or water quality at risk" (§ 205.239(e)). Regulations also specify that "use of yards,

feeding pads, feedlots, and laneways shall be well-drained, kept in good condition (including frequent removal of wastes), and managed to prevent runoff of wastes and contaminated waters to adjoining or nearby surface water and across property boundaries" (§ 205.239(a)(5)). In summary, organic producers must give particular attention to manure management that maximizes cycling of nutrients and prevents contamination.

Animal Feeding Operations. If your operation meets the definition of an Animal Feeding Operation (animals are confined for at least 45 days in a 12-month period and there is no grass or other vegetation in the confinement area during the normal growing season), you are subject to all applicable Federal laws, including those that apply to Concentrated Animal Feeding Operations (CAFOs). See www.epa.gov/region07/water/cafo/index.htm for links to a chart showing the threshold number of animals by manure-handling-system type (liquid or nonliquid) in small, medium, and large CAFOs, as well as a link to the CAFO Final Rule, 40 CFR Parts 9, 122, and 412.

USDA organic regulations challenges in pasture-based systems

Pasture impact. Just as manure storage must be carefully managed to protect the environment in confinement systems, the soil and vegetation in pastures must be carefully managed as well. At high densities, poultry can quickly destroy soil structure. They also can consume and trample vegetation, which can lead to the denuding of the pasture and thus contribute to soil erosion and compaction. Poultry are hardest on soil during excessively wet periods or during times of minimal plant growth, such as winter or an extended drought. Strategies such as sacrifice paddocks or winter housing for hens, breeders, and other poultry that are compliant with the USDA organic regulations may be used to effectively preserve or enhance the ecology of the farm and the surrounding areas during sensitive times.

Shelter. The USDA organic regulations require that pastured poultry have shelter that provides good ventilation and air circulation, protects the birds from temperature extremes, provides shade, allows comfort behaviors such as preening and exercise, and protects the birds from injury caused by weather, predators, and flock members. Hot, humid weather poses the greatest threat to poultry. High temperatures can be deadly, especially for large meat birds such as broilers, which have a lot of flesh to cool down.

Management of predators. Predators can be a huge challenge to an outdoor production system. Because wildlife is considered part of the natural resources of an operation, predatory wildlife must be managed in a way that maintains or enhances the sustainability of the predator population. This can be accomplished through nonlethal physical barriers (e.g., housing and strong and/or electric fencing), management practices (e.g., guard animals and night corrals), or more active means, such as hunting or trapping during designated seasons. For more on predator management, see Chapter 20 and also the Resources section.

There is an increasing body of information available on effective, nonlethal predator-management strategies (see also the Resources section for specific examples) through such organizations as the following:

- Maine Organic Farmers and Gardener's Association, www.mofga.org/Publications/MaineOrganicFarmerGardener/Spring2005/PredatorFriendlyFarming/tabid/1224/Default.aspx
- Wildfarm Alliance, www.wildfarmalliance.org/resources/organic_BD.htm
- Predator Conservation Alliance's Wildlife Friendly Certification Project, www.walker-foundation.org/net/org/project.aspx?projectid=40467&p=39548 and www.walker-foundation.org/info/39548

It is a good idea to stay abreast of updated information, policy, and changes in the regulations by regularly visiting the NOP Web site.

APPENDIX 2
ORGANIC PIG PRODUCTION

Pig production certified organic by the U.S. Department of Agriculture (USDA) is a relatively small part of U.S. agriculture—17,000 pigs sold by 202 farms in 2008. Although demand for organic meat is strong in the United States, high prices for organic grains and the challenges of raising pigs in compliance with the USDA organic regulations have slowed the growth of organic pork production. That said, organic pork is a product that can command price premiums, so organic pig production may be a viable option for some farms. There are four general topics relating to organic certification for pigs: source of animals, feed, health care, and living conditions.

Source of animals

For a pig to be sold as USDA certified organic, it must be managed in compliance with the regulations at least 38 days prior to birth. In other words, the only pigs that can be sold as organic are pigs born to a sow or gilt that has been managed organically since the last third of gestation. Although organic feeder pigs may be available in some areas, most organic pig farms are farrow-to-finish operations.

A bred sow or gilt purchased from a conventional farm can give birth to organic piglets if the sow or gilt is managed organically for the last third of gestation. However, even after multiple years of organic management, a pig not farrowed by an organically managed dam will not qualify as USDA certified organic slaughter stock.

Feed

Organic pigs must be fed an organic diet. Organic pig diets are primarily organic grains and protein sources. Organic soybean meal is commercially available in some locations and is the most common source of amino acids—the building blocks of protein—in organic pig diets. Organic feed grains also can be purchased. However, some organic pig farms find that it is more cost-effective to grow their own grains than to purchase grain on the open market.

Synthetic vitamins and minerals maybe included in the organic ration. Some premixes and supplements contain prohibited substances and thus are not allowed. Before using a product in organic pig diets, it is essential to confirm that the product does not contain any prohibited substances.

A number of feed ingredients commonly used in conventional pork production are prohibited in organic pig production. The feeding of mammal and poultry slaughter byproducts—tallow, grease, meat and bone meal, feather meal, and spray dried plasma—is prohibited. However, organic eggs, organic dairy products, and commercial fishmeal are allowed. The feeding of crystalline amino acids such as L-lysine, DL-methionine, L-threonine, and L-tryptophan is not allowed. Similarly, the feeding of exogenous phytase, subtherapeutic antibiotics, or hormones is prohibited.

Health care

Non-genetically modified vaccines are allowed and encouraged in organic pig production, and some synthetic medications also are allowed. Injecting newborn pigs with supplemental iron to prevent anemia also is allowed. The use of feed additives such as organic acids, probiotics, and directly fed microbials to encourage animal health is not prohibited, but not all health-promoting feed additives are approved for use in organic production. In order to ensure compliance with the regulations, organic pig producers should consult with their third-party certifier before administering vaccines, medications, veterinary biologics, or feed additives.

Artificial insemination is allowed, but administrating hormones to synchronize estrus or stimulate growth is prohibited in organic production. However, therapeutic use of oxytocin post-parturition is allowed. Approved parasiticides also can be used when preventive practices have proven ineffective. Currently, the only parasiticide that is approved for use is the product ivermectin. Use of parasiticides is restricted to breeding stock, and they must be administered prior to the last third of gestation. Treating lactating sows or market animals with parasiticides is required if medically necessary, but the sow, her nursing piglets, and the market animals would then lose their organic status.

Physical alteration of organic livestock to promote their welfare is allowed but should be performed in a manner that minimizes pain and stress. Although the language of the relevant regulation is vague, most third-party certifiers interpret the rules as not allowing routine clipping of tails and needle teeth or noseringing sows. Surgical castration of young boars is generally expected to be performed within the first 3 to 4 days of life. Organic livestock must be identified, and the use of ear notches, ear tags, and tattoos are all currently approved methods for individually marking breeding stock and potential replacements.

Living conditions

The USDA organic regulations require that pigs have access to outdoors, shade, shelter, exercise areas, fresh air, clean drinking water, and direct sunlight as suitable for the animal's stage of life, the climate, and the environment. Different third-party certifiers may interpret this statute differently based on local conditions. That said, keeping newborn pigs inside a building during January in northern Michigan is generally allowed, but preventing adult animals from going outside on a warm fall day is not. Pigs are required to have access to the outdoors, but raising pigs on pasture is not required by organic regulations. Many organic pig producers do use pastures as their climate and farmland allows, but pasture-based pig production is not a prerequisite of certified organic pig production.

Organic pigs must have access to clean and dry bedding. If the bedding is crop residue, it must be from organic crops. Because most organic pigs are part of a larger organic crop and livestock farm that practices extensive crop rotations, sourcing organic bedding is not usually a problem. Other bedding materials such as shredded newsprint, wood chips, wood shavings, sawdust, and sand are allowed in organic systems and do not need to be certified organic.

The regulations do not specify exactly how much space is adequate. However, most firms that buy organic pigs and many retailers that market organic pork have adopted more-specific space requirements. Because different markets may require different space allocations, it is important for organic pig farmers to carefully consider where they plan to sell their animals. Space requirements for most organic pork markets are greater than typical space allowances in conventional confinement barns. These markets also may place restrictions on the use of standard farrowing crates and gestation stalls. NOP regulations do not directly address farrowing crates or gestation stalls, but organic livestock are required to have access to the outdoors, direct sunlight, and the opportunity to exercise. Any production practice that restricts access to required living conditions must be discussed with the certifier ahead of time and will need to be for a very limited period. Feeding stalls for sows are allowed, for example, and temporarily restraining sows in a stall to inseminate, check for pregnancy, or administer medical treatment is allowed.

For more information, see the ATTRA publication "Raising Organic Pigs: A Guide to USDA Certified Organic Requirements." It is available online at www.attra.ncat.org/attra-pub/summaries/summary.php?pub=365.

APPENDIX 3
ORGANIC CATTLE, SHEEP, AND GOATS FOR MEAT PRODUCTION

Depending on your production and marketing methods and your customers, it may be to your advantage to raise and sell organic calves, kids, lambs, or wool. This section highlights what is involved in producing ruminant animals organically for the purpose of meat production, and it will help you decide whether transitioning to organic is worthwhile for your operation. Reading the rest of this guide will give you a fuller understanding of what is involved in organic livestock production.

The following are some, although not all, of the basic requirements of organic certification:

- Agricultural ingredients in feed, including pasture, must be 100-percent certified organic.
- Animals must graze on pasture at least 120 days per year, and animals must have a minimum of 30-percent dry matter intake from grazing pasture during the grazing season. (See the ATTRA publication "Pasture for Organic Ruminants: Understanding and Implementing the NOP Pasture Rule" for information.)
- Ruminant livestock that are finished for slaughter are exempt from the minimum requirement of 30-percent dry matter intake from grazing pasture during the grazing season for a feeding period of no more than 120 days or one-fifth of the animal's life, whichever is shorter. The livestock still must have access to pasture during the grazing season, however.
- Use of most synthetic medicines and/or hormones is prohibited. (See the National List of Allowed and Prohibited Material for information about materials and the purposes for which they may be used.)
- Organic stock must be maintained under organic management from at least the last trimester before birth (e.g., does and ewes must be managed organically for more than 50 days before organic kids and lambs are born; cows must be managed organically for more than 3 months).
- Meat must be processed in a certified organic facility and must not be irradiated.

Some farms' current production practices may be very close to meeting the USDA organic regulations. But for most, changes will be necessary in both production and recordkeeping to comply with the regulations. Will those changes be worth it? Consider the following questions:

- What price do you currently receive for your product?
- Is there local demand for organic products? If not, you will need to develop a local market or develop one at a distance and ship your product. Remember, market development costs time, energy, and money.
- What price could you receive for organic beef, goat meat, lamb, or wool? USDA Market News provides free, near real-time agricultural market information.
- What do you currently pay for hay or grain to supplement your animals?
- What would you have to pay for organic hay or grain? How dependable is the local supply? Can you offset the increase in the price for organic feed with sales of certified organic animals or products?
- How important is organic certification to your customers? Is it sufficient for them to know you as the producer and understand that you use humane and sustainable practices, or do they need to see verification of organic standards?

For more information, see the Langston University article "Organic Meat Goat Production." It is available online at www.luresext.edu/goats/training/organic.html. The principles in the article apply easily to sheep and to cattle.

Now for the next hurdle. If you are selling meat, answer the following questions:

- Is there a certified organic processor in your area? This is necessary if you are selling organic meat.
- If there is currently no organic processor in your area, can you persuade a local processor to do the paperwork and follow the regulations? Note that if you are selling a whole animal, a custom processor can do the work. But if you plan to sell cuts or sell to a restaurant or store, your processor must be USDA inspected or State inspected.
- What extra processing costs will be charged for organic processing?

For information about organic meat processing, see the Montana State Extension article "Certified Organic." It is available at www.extension.org/pages/19710/certified-organic.

Also see the Midwest Organic and Sustainable Education Service article "Organic Meat Processing: A Growing Opportunity." It is available at www.mosesorganic.org/attachments/broadcaster/livestock14.6meatprocess.html.

The Minnesota Department of Agriculture has an article that would be helpful reading for meat processors as well. See "Organic Meat and Poultry Processing Basics" at www.mda.state.mn.us/Global/MDADocs/food/organic/organicmeatprod.aspx.

Answer the following questions if you are selling a live animal:

- Who is your buyer? (It's best to have more than one option.)
- What is the demand? (How many animals can you sell per year, and is it a steady market?)

If production costs will be feasible and the market is not a problem, consider whether you can you raise your animals under organic health-management practices.

Organic health care is based on preventing illness through good management. See Section 3 of this guide for details on building good management practices. They will prevent many illnesses, assuming there is a closed flock or herd. However, when illnesses do arise, you must remember that conventional treatments such as antibiotics are not approved for organic production. You will have to find alternative treatments. If they are not effective, you must use the conventional treatment for humane reasons and remove the treated animal from organic status.

In humid climates, goats and sheep may have serious trouble with internal parasites. Internal parasites can be devastating to the health of the animal, causing loss of productivity and sometimes death. Under the USDA organic regulations, use of approved synthetic dewormers is restricted for breeding and milking stock—they may not be used on lactating beef cows, does or ewes, beef cows, does and ewes in the last trimester of pregnancy, or any animals routinely. They also are prohibited for organic slaughter stock. If infection is severe, you should use the most effective treatment, including synthetic dewormers if necessary. Animals treated with synthetic dewormers not on the National List are no longer certified organic and must be removed from the organic herd or flock. Organic production may not be a viable option for producers who raise goats or sheep in climates that are extremely conducive to internal parasite infections.

For more information, see the ATTRA publication "Managing Internal Parasites in Sheep and Goats." It is available online at www.attra.ncat.org/attra-pub/summaries/summary.php?pub=215.

For additional information on transitioning to organic goat or sheep production, see the Midwest Organic and Sustainable Education Service article "Transitioning to Organic Sheep or Goat Meat Production." It is available online at www.mosesorganic.org/attachments/productioninfo/fstransgsmeat.html.

Also see the Langston University article "Organic Meat Goat Production." It is available online at www.luresext.edu/goats/training/organic.html. The principles in the article apply easily to sheep and to cattle.

Some other resources that are useful for beef cattle producers are listed below.

ATTRA publications
Organic and Grass-Finished Cattle Production
Building a Montana Organic Livestock Industry

Books
Ruechel, Julius. 2006. Grass-Fed Cattle: How to Produce and Market Natural Beef. Storey Publishing, North Adams, MA.
This book is a comprehensive work covering all aspects of pasture-based beef production from a practical standpoint. The sections on grazing management and business and marketing also are relevant for sheep and goat producers.

APPENDIX 4
CATTLE, SHEEP, AND GOATS FOR DAIRY

Organic dairy regulations apply to all milk animals including cows, goats, and sheep. Complete USDA organic regulations can be found on the National Organic Program (NOP) Web site.

Marketing strategies

Producers contemplating the transition to organic dairy production should consider both the organic production regulations and the practical viability of their organic dairy business. Organic dairy producers must have a reliable market, with adequate contracts and prices sufficient to cover their production costs and sustain their business. Be sure to thoroughly understand your buyers and also consider alternate marketing strategies.

Feed

Organic feed for dairy animals must include pasture. Many resources on pasture management and dry matter intake calculation tools are available in the NOP Program Handbook, Sections A and H, and ATTRA publications listed below and the Resources section. Additionally, a reliable supply of supplemental feed—whether it is grown on farm or purchased—is critical for a compliant—and profitable—organic dairy. ATTRA has a database of organic livestock feed suppliers, which is self-listing. If your company is not listed, you can add it to the database at www.attra.ncat.org/directories.html. You also can check certifiers' directories to locate organic feed producers in your region.

Origin of dairy livestock

For initial conversion of a herd, dairy animals must be under continuous organic management for at least 1 year before their milk can be considered organic. The lone exception to this rule is described in § 205.236(a)(2)(i), which provides the opportunity for a producer to transition both land and animal simultaneously in three years (with animals consuming third-year transitional feed grown on land that is managed organically as part of the operation's organic system plan).

Once an entire, distinct dairy herd has been converted to organic production, USDA organic regulations (§ 205.236(a)(2)(ii)) state that "all dairy animals shall be under organic management from the last third of gestation" (the number of days of which, of course, depends on the gestation period of the species). Some certifiers currently allow an established certified organic dairy to convert additional conventional animals to organic dairy production using the 1-year transition when they are adding an additional "entire, distinct herd." The distinction is made that this must be an entire, distinct herd—as opposed to individual animals—in order to prevent an organic dairy producer from continually bringing in new conventional replacement stock for a 1-year transition to organic. In addition to complying with the regulations, many dairy producers consider keeping a closed herd to be instrumental, even critical, to maintaining herd health, as well as being conducive to meeting the goals of a breeding program that selects for adaptation and suitability to local conditions and resistance to prevalent diseases and parasites (§ 205.238(a)(1)).

Herd health

The intent of the regulations is for producers to consider every detail of their management practices and how these together "establish and maintain preventive animal health care practices" to maintain a healthy herd and dairy operation. In the selection of species, including breeding and culling and provision of feed rations, "appropriate housing, pasture

conditions, and sanitation practices to minimize the occurrence and spread of diseases and parasites," contribute to exercise, freedom of movement, stress reduction, and overall animal health and well-being. Potential dairy health problems are similarly addressed with a systems approach.

In the article "Contagious mastitis and organic milk production," Dr. Linda Tikofsky provides ideas for an integrated approach to udder health. With an understanding of the primary disease-causing organisms, dairy producers do well to disrupt pest and disease cycles by combining strategies of monitoring, refining milking procedures, maintaining equipment, carefully managing the entire life cycle from calf-raising to dry cow management, and ensuring general cleanliness of the environment, including fly management.

Organic producers must develop an integrated approach to livestock health care that emphasizes prevention (including vaccination and veterinary biologics, vitamins and other feed supplements to prevent prevalent diseases in the region) and uses allowed materials effectively when needed. Check with your certifier about the regulatory compliance of each material for its proposed use, even if that material is included on the National List of Allowed and Prohibited Substances (National List). All materials used or planned for use must be included in your OSP and approved before use by your certifier. Tikofsky's article is available at www.milkproduction.com/Library/Scientific-articles/Animal-health/Contagious-mastitis-and-organic-/.

Recordkeeping—animal identification, health care, and living conditions

Records must be sufficient to preserve the identity and track the management of all organic animals and animal products. The Organic Foods Production Act (OFPA) requires that mammalian livestock be identified individually. The producer must be able to track details of the life of each animal, including age, living conditions, management, and health care, Health-care records must include the timing of vaccinations, any physical alterations, and/or medications or treatments (including parasiticides) and their relationship to gestation lactation. If any animal must be treated with prohibited materials, such as antibiotics for infection, records must show the identification and (non-organic) destination of that animal. Records (breeding, feed rations and actual feeding, health care, and living conditions) must be sufficient to document compliance with USDA organic regulations, including the following:

- Organic management during the last third of gestation, except as described above
- 100-percent organically produced agricultural ingredients in feed, plus allowed additives and supplements
- Fulfillment of the "pasture rule" requirement that ruminants receive at least 30 percent of their dry matter intake from pasture during a grazing season of at least 120 days per year
- Minimization of pain and stress for any approved physical alteration
- Preventative health-care practices (vaccines and veterinary biologics)
- Year-round access to the outdoors with fresh air, clean water, sun, shade, and exercise areas
- Shelter that provides for natural maintenance, comfort behaviors, exercise, and reduction of potential for injuries
- Documentation of temporary confinement, including the following:
  - — Restricted access to the outdoors, including length of time and reason for each instance: stage of life, health and safety, protection of soil or water quality, health care, breeding, youth projects
  - — Denial of pasture: dry-off, birthing, shearing, and milking

Organic dairy challenges vary by region, although many issues are common. Three U.S.-based Organic Dairy Producers Alliances seek to address the needs of organic producers:

- Western Organic Dairy Producers Alliance (WODPA), www.wodpa.org
  The mission of the WODPA is to preserve, protect, and ensure the sustainability and integrity of organic dairy farming across the West.
- The Northeast Organic Dairy Producer's Alliance (NODPA), www.nodpa.com/resources.shtml
  The purpose of the NODPA is to enable organic dairy family farms, situated across an extensive area, to maintain the sustainability of organic dairy farming.
- NODPA Website Resource page has a library of articles on livestock health, grazing management, fly control, Integrated Pest Management, growing grains, soil health, economics, and much more.
- Midwest Organic Dairy Producers Alliance (MODPA)
  MODPA is an organic dairy producers group dedicated to improving communication and enhancing farm-gate price and consumer confidence while upholding the highest organic dairy standards. MODPA combined resources with NODPA in 2011 in order to be more efficient with Web site and publication resources.

  MODPA
  3253 150th Ave
  Glenwood City, WI 54013
  Phone: 715-265-4431
  Fax: 715-265-4431
  Cell: 715-781-4856
  Email: Darlene Coehoorn, president, ddviewpoint@yahoo.com
  Bruce Drinkman, treasurer, bdrinkman@hotmail.com

Other resources

Organic Farming Research Foundation (OFRF)
OFRF has a list of organic dairy resources at www.ofrf.org/resources/organic_dairy.html

Midwest Organic and Sustainable (MOSES)
www.mosesorganic.org
MOSES provides free on its Web site a guidebook, an upper Midwest organic resource directory, and fact sheets, including "Transitioning to Organic Dairy Production," "Transitioning to Organic Sheep and Goat Dairy Production," and "Pasture and Living Conditions for Organic Ruminant Animals."

eOrganic
www.extension.org
eOrganic has many organic dairy production resources with articles and videos. A broad list of webinars and articles is available at
www.extension.org/pages/25242/webinars-by-eorganic

Related ATTRA publications
www.attra.ncat.org

Organic Standards for Livestock Production: Excerpts of USDA's National Organic Program Regulations

Pasture for Organic Ruminant Livestock: Understanding and Implementing the National Organic Program (NOP) Pasture Rule

Pastures: Going Organic

Dairy Goats: Sustainable Production

Dairy Resource List: Organic and Pasture-Based

Value-added Dairy Options

The National Organic Farming Association of New York

The "Transitioning to Organic Dairy Management Self-Assessment Workbook" introduces the basic requirements for managing a certified organic dairy. It also provides farmers with questions to help evaluate whether this is a good option for their farm and business partners. The activities in the self-assessment workbook will help identify the infrastructure and management changes you will have to implement and where to source information along the way.

The "Organic Dairy Handbook: a Comprehensive Guide to the Transition and Beyond" is a whole-farm management resource for farmers interested in organic production. The handbook is a complete survey of proven options for all aspects of organic dairy management including two major risk sources: the management of herd health and animal nutrition.

APPENDIX 5
RESOURCES

The information presented in this chapter is intended as a helpful reference. It is for information purposes only and inclusion in this list does not constitute endorsement by USDA. It is the user's responsibility to verify the accuracy of any information.

The following resources provide information on organic regulations, the organic products industry, and food-safety regulations. This list is not intended to be exhaustive. There are many additional resources available, notably in the areas of business management or government programs for small business.

ATTRA
www.attra.ncat.org
Don't miss the ATTRA website, especially the organic farming section, the livestock and pasture section, and the databases. Links to the databases can be found at the top of the homepage, and include the biorationals database for pest control. This searchable database helps producers find OMRI-listed materials and (more importantly) preventive management strategies for a host of insects, diseases, weeds, and other problems. You will also see the Organic Seed Supplier's List, the Organic Livestock Feed Supplier's List, and much more.

Cooperative Extension System
www.csrees.usda.gov/Extension
The Cooperative Extension System is a nationwide educational network, with offices in every state and territory and a network of county offices to provide information related to local issues. Contact your county office to see what services may be available to you. See also eOrganic.

eOrganic
www.eorganic.info
The goal of eOrganic is to foster a national organic research and outreach community and to disseminate information about organic farming practices and regulations. eOrganic provides information to the agriculture community in the form of articles, videos, and webinars. Its resources are part of the Cooperative Extension System called eXtension (www.extension.org/organic_production).

National Organic Program
www.ams.usda.gov/nop
The NOP Web site is vital resource for organic producers. Note especially the heading "Organic Standards" on the homepage. Under this heading, you'll find links to the regulations, the Program Handbook, and the National List. Exploring the NOP site will get you the most up-to-date and authoritative materials. Training materials are available on the Web site, as well as information about financial assistance. Documentation forms are available from the site, as well as from ATTRA (the same forms are offered both places).

Rodale Institute New Farm
www.rodaleinstitute.org/new_farm
The Rodale Institute offers many interesting tools for organic farmers, including a 15-hour online course (broken into modules; can be taken at any time and for brief sessions) on organic transitioning. There is a tool to help you design your Organic System Plan (e-OSP) online, which can then be updated annually. The Organic Price Report, Organic Conversion Calculator, and Organic Certifiers Directory may also interest you. In addition to items specific to organic production, there are farmer stories of interest to anyone.

Midwest Organic and Sustainable Education Service (MOSES)
www.mosesorganic.org

MOSES is a non-profit that strives to help farmers to grow organic successfully. It offers educational resources, an annual conference in Wisconsin, field days and training for the Upper Midwest, and a toll-free line answered by organic specialists. A MOSES guidebook on certification is available online at www.mosesorganic.org/pdf/2011guidebook.pdf.

Kerr Center for Sustainable Agriculture
www.kerrcenter.com/resources/organic-agriculture.htm
The Kerr Center Web site offers many resources for those considering or involved in organic agriculture have been gathered in one well-organized location.

The Organic Pages Online
www.theorganicpages.com/topo/index.html
OTA's Organic Pages provide users with a quick, easy way to find certified organic products, producers, ingredients, supplies and services offered by OTA members, as well as items of interest to the entire organic community.

The Organic Trade Association
www.ota.com/index.html
The Organic Trade Association presents the Organic Pages™ to provide users with a quick, easy way to find certified organic products, producers, ingredients, supplies, and services offered by OTA members, as well as items of interest to the entire organic community. Farming Supplies and Farm-Produced Products are two categories that may be useful to producers.

The Organic Materials Review Institute (OMRI)
www.omri.org
The Organic Materials Review Institute (OMRI) provides organic certifiers, growers, manufacturers, and suppliers an independent review of products intended for use in certified organic production, handling, and processing. When companies apply, OMRI reviews their products against the National Organic Standards. Acceptable products are OMRI Listed® and appear on the "OMRI Products List." OMRI also provides subscribers and certifiers guidance on the acceptability of various material inputs in general under the NOP. OMRI offers a Seeds Database to assist producers in finding certified organic seed and nursery stock. OMRI Seeds Database suppliers are certified "final handlers" for organic seed. The database can be browsed: select a crop and click Browse, or enter a search phrase and click Search.

If Internet access is not available, contact OMRI at:
Box 11558
Eugene OR 97440
Street Address
2495 Hilyard Street, Suite B
Eugene, OR 97405
Phone: 541-343-7600
Fax: 541-343-8971

Sustainable Agriculture Research and Education (SARE)
www.sare.org
SARE promotes research and education to improve profitability and sustainability of farms. SARE's learning center contains books, videos, online courses, and fact sheets. The publications are typically national in scope and provide a thorough review of the subject. SARE also provides grants to farmers, researchers, and Extension personnel to conduct on-farm research. The reports about completed research are helpful to farmers; you can search the database for projects on a subject and find a list of relevant projects. Reading the research reports can help you find innovative solutions to problems, and also find out what methods did not work in a given situation.

Wild Farm Alliance
www.wildfarmalliance.org
Wild Farm Alliance offers practical help in learning how to conserve and enhance biodiversity on your farm or ranch. It offers free downloads of publications, information about wildlife friendly fencing, and many ideas about improving the natural system of checks and balances that helps with disease and pest control, improves pollination, and makes a farm a more beautiful and interesting landscape.

General books

Ekarius, Carol. 1999. Small-Scale Livestock Farming: A Grass-Based Approach for Health, Sustainability, and Profit. Storey Publishing, North Adams, MA.

Grandin, Temple. 2008. Humane Livestock Handling: Understanding Livestock Behavior and Building Facilities for Healthier Animals. Storey Publishing, North Adams, MA.

Hansen, Ann Larkin. 2010. The Organic Farming Manual: A Comprehensive Guide to Starting and Running a Certified Organic Farm. Storey Publishing, North Adams, MA.

Ruechel, Julius. 2006. Grass-Fed Cattle: How to Produce and Market Natural Beef. Storey Publishing, North Adams, MA.

Stockdale, Peter. 2008. Living with Worms in Organic Sheep Production. Canadian Organic Growers Practical Skills Handbook. Canadian Organic Grower, Ottawa, Ontario. www.cog.ca.
Use caution because this book is not written to NOP standards.

Publications

ATTRA
www.attra.ncat.org
The ATTRA Livestock and Pasture page, as well as the Organic Farming page, offers many relevant publications.

Information by livestock type

Beef information

ATTRA publications

Organic and Grass-Finished Cattle Production

Building a Montana Organic Livestock Industry

Dairy information

ATTRA publication

Dairy Resource List: Organic and Pasture Based

Hog information

ATTRA publication

Raising Organic Pigs: A Guide to USDA Certified Organic Requirements (2011)

Books

Blair, Robert. 2007. Nutrition and Feeding of Organic Pigs. CAB International, Oxfordshire, UK.

Cowart, Ross P. and Stan W. Casteel. An Outline of Swine Diseases: A Handbook. 2001. Iowa State University Press, Ames, IA.

Lammers, Peter, David Stender, and Mark Honeyman. 2007. The Niche Pork Production Handbook. Iowa State University Extension, Ames, IA.

Morrison, Frank B. 1948. Feeds and Feeding 21st edition. The Morrison Publishing Company, Ithaca, NY.

Poultry information

ATTRA publications

Legal Issues For Small-Scale Poultry Processors

Meat Chicken Breeds for Pastured Production

Organic Poultry Production in the United States

Organic Poultry Production: Providing Adequate Methionine

Parasite Management for Natural and Organic Poultry: Blackhead in Turkeys

Parasite Management for Natural and Organic Poultry:

Pastured-Raised Poultry Nutrition

Poultry House Management for Alternative Production

Small-Scale Egg Handling

Small-Scale Poultry Processing

Other online resources

American Livestock Breeds Conservancy Turkey Manual – How to Raise Heritage Turkeys on Pasture. www.albc-usa.org/EducationalResources/turkeys.html#manual

American Pastured Poultry Producers Association Listserve.

Small Poultry Processors and Services Database. www.attra.ncat.org/attra-pub/poultry_processors

State Poultry Processing Regulations. Niche Meat Processor Assistance Network, 2011. www.extension.org/mediawiki/files/2/28/NMPAN_State_Poultry_Regs_Report_6June2011.pdf

Books

APPPA. 2006. Raising Poultry on Pasture – Ten Years of Success. American Pastured Poultry Producers Association.

Blair, Robert. 2011. Nutrition and Feeding of Organic Poultry. CABI Publishing.

Damerow, Gail. 2011. Storey's Guide to Raising Chickens. Storey Publishing.

Glos, Karma. 2011 Humane, Healthy Poultry Production: A Manual for Organic Growers. Northeast Organic Farmers Association (NOFA) Organic Principles and Practices Series.

Plamondon, Robert. 2003. Success With Baby Chicks - A Complete Guide to Hatchery Selection, Mail-Order Chicks, Day-Old Chick Care, Brooding, Brooder Plans, Feeding and Housing. Norton Creek Press.

Organizations

American Pastured Poultry Producers Association (APPPA)
P.O. Box 87
Boyd, WI 54726
www.apppa.org
grit@apppa.org

Periodicals

APPPA GRIT! – Published by the American Pastured Poultry Producers Association (APPPA) Bi-monthly Publication

Sheep and goat information

ATTRA publications

Small Ruminant Sustainability

Other publications

Note that these were originally written before the Pasture Rule revision; therefore, they do not include Pasture Rule information.

Transitioning to Organic Sheep or Goat Meat Production
www.mosesorganic.org/attachments/productioninfo/fstransgsmeat.html

Organic Meat Goat Production
www.luresext.edu/goats/training/organic.html

Meat processing information

Organic Meat and Poultry Processing Basics
www.mda.state.mn.us/Global/MDADocs/food/organic/organicmeatprod.aspx

Montana State University Extension's Small Meat Processor home page
www.extension.org/pages/19710/certified-organic

Organic Meat Processing: A Growing Opportunity
www.mosesorganic.org/attachments/broadcaster/livestock14.6meatprocess.html

Pasture Rule and other grazing topics

ATTRA publications

Pasture for Organic Ruminant Livestock: Understanding and Implementing the National Organic Program Pasture Rule (2011)

Pastures: Going Organic

Pasture, Rangeland, and Grazing Management

Pastures: Sustainable Management

Rotational Grazing

Recordkeeping

ATTRA publications

Documentation Forms for Organic Crop and Livestock Producers

Organic System Plan Template for Crop and/or Livestock Production

Ruminant Nutrition

ATTRA publications

Ruminant Nutrition for Graziers

Organic Livestock Feed Suppliers Database

This publication is available online at:
www.attra.ncat.org
or by calling NCAT's ATTRA project: 800-346-9140
IP228
Slot 228

For more information, please contact the USDA National Organic Program:

National Organic Program
Agricultural Marketing Service
U.S. Department of Agriculture
1400 Independence Avenue, SW
Stop 0268, Room 2648-S
Washington, DC 20250-0268
Tel. 202-720-3252
Fax 202-205-7808
www.ams.usda.gov/NOP