



## The Livestock Project

Supporting organic and alternative animal health continuing education series

# Overview of organic and alternative animal health for veterinary technicians, extension specialists, and other animal health professionals

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CFSPH

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# 1. Introduction and Learning Objectives



This introductory course of the Organic and Alternative Livestock Production course series is a broad overview of organic and alternative livestock production and your role as an animal health/animal management professional working with these farmers and ranchers. We will introduce you to organic and alternative agriculture and discuss its roots, economics, benefits, and the current and evolving, growing production system. We will meet the farmers and ranchers and learn why they work in and believe in these systems. Organic certification rules and regulations will be explored, along with the different treatment options used on these operations. We will also delve into practice management and communication tools to engage with farmers and incorporate these new clients.

Learning more about organic and alternative agriculture systems through this overview and additional resources supports these farmers and benefits your veterinary and animal health efforts. This agriculture system to support these farmers will benefit your work and animal health efforts. This chapter is a very broad overview. Subsequent chapters are being developed to expand on the important topics introduced in this chapter – stay tuned!

## Learning Objectives

After viewing this module, the participant will be able to:

- Explain oversight and the basic requirements of **USDA** certified organic livestock production
- Distinguish between the various types of organic and alternative livestock production
- Recognize the motivations of organic and alternative producers
- Recognize treatment options that are common to both conventional and organic livestock production
- Locate resources relevant to learning more about organic and alternative livestock production

## 2. The roots of organic agriculture

There was a time in the not-so-distant past when all agriculture was organic. Since the discovery, development, and availability of antibiotics, pesticides, and fertilizers in the 1940s, these new materials/resources became commonplace in agriculture and livestock production. American organic farming has roots in the humus-farming movement of the 1920s-1950s. Humus is the dark, organic material that forms in soil when plant and animal matter decays without the assistance of commercial synthetic fertilizers or pesticides. This occurs in farms that include livestock, food crops, feed crops, and green manures (Coffey and Baier 2012).

The 1960s through the 1980s saw the growth of organic agriculture as public concern over pesticides grew. During this time, third-party organic certifiers carried out independent assessments to verify compliance but had an inconsistent set of standards. This changed in 1990 when the U.S. Congress passed the Organic Foods Production Act. Then, in 1992, the National Organic Program (NOP), a **USDA** federal regulatory program that develops and enforces national standards for organic agricultural products sold in the U.S., was established. They also created an advisory board – the National Organic Standards Board (NOSB), which makes recommendations to the **NOP** on new regulations and standards. In 2002 the NOP started to accredit certifiers.

### **USDA's National Organic Program NOP**

The NOP oversees the production standards. It also maintains the National List of Allowed and Prohibited Substances, which specifies approved synthetic substances that may be used in organic production and natural substances that may not be used (7 CFR 205.603).

### **National Organic Standards Board NOSB**

A 15-member board that makes recommendations to the NOP about materials and practices that may be used in organic production. The board meets twice a year to hear public comments, continually evaluating and improving the standards as new materials become available and new information comes to light. The NOSB includes farmers, processors, retailers, environmentalists, scientists, consumers, and representatives of certification agencies.

### **Organic certification agencies**

The USDA accredits certification agencies to act on its behalf to ensure that farms and processing facilities are complying with organic regulations. These agencies have the power to grant or revoke organic certification. Farmers can choose a certification agency based on a number of factors. In addition to determining certification status, the agency keeps the farmer/processor updated about changes to regulations.

### **Organic inspectors**

Trained individuals who visit farms to audit records, inspect fields and facilities and verify producers and processors are following NOP rules. They do not grant or revoke certification. They provide the information to the certification agency, which decides. Inspectors who are inspecting certified organic operations are not allowed to recommend farming practices or products (This may be in contrast with inspectors for alternative certifications who can give insight to farmers being inspected).

### 3. What is organic/alternative livestock?

Organic agriculture is based on the principle of sustainability – meeting current needs without jeopardizing the ability of future generations to meet their needs (Coffey and Baier 2012).

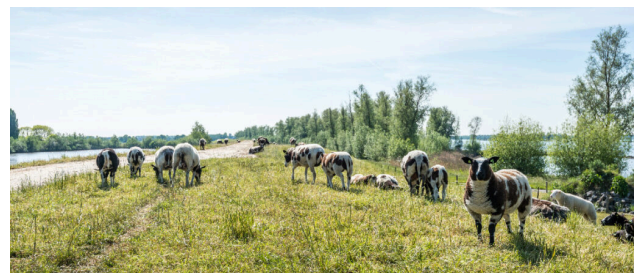
The National Organic Program (NOP) and the National Organic Standards Board (NOSB) define organic agriculture as a production systems approach that seeks to understand how all the parts of the system work together. Organic farmers consider how soil, water, plants, animals, insects, bacteria, fungi, and all other parts of the system interact to promote production and wholesome food products. Organic/alternative (O/A) farmers use various approaches, including:

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

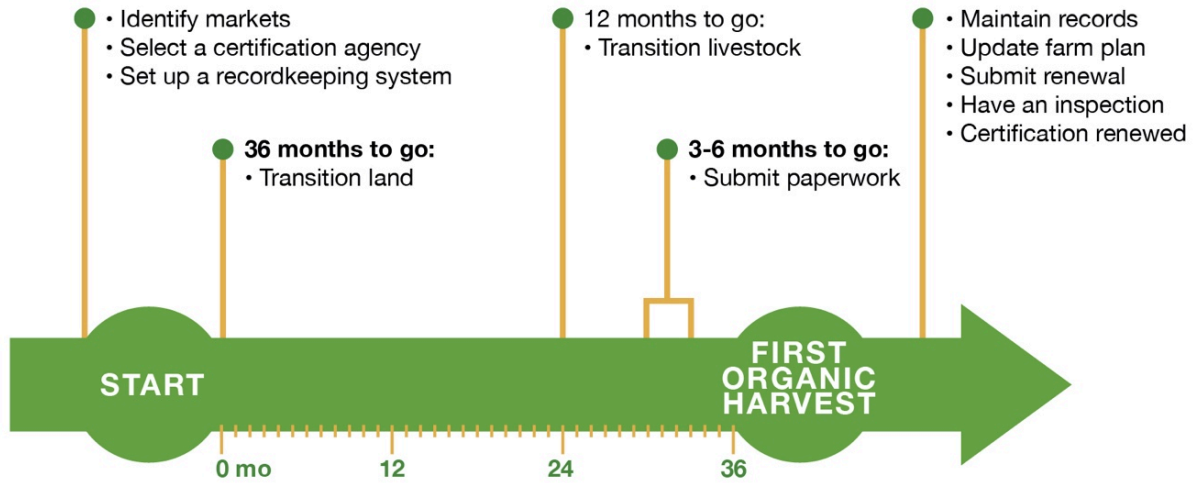
Organic agriculture is based on the principle of sustainability – meeting current needs without jeopardizing the ability of future generations to meet their needs (Coffey and Baier 2012).

According to the **NOP**, organic food must be produced without using conventional pesticides, petroleum-based fertilizers, sewage sludge-based fertilizers, herbicides, genetic engineering (biotechnology), antibiotics, growth hormones, or irradiation (CFR 205.105). Animals raised on an organic operation must meet animal health and welfare standards, not be fed antibiotics or growth hormones, be fed 100-percent organic feed, and be provided access to the outdoors (Coffey and Baier 2012) (CFR 205.236 through 205.240). The **USDA** oversees the NOP by certification of farmers who wish to become certified organic and carry the organic label. They establish a list of allowed and prohibited substances used in organic livestock, accredit the certifiers, require organic processing of carcasses, record-keeping, and regular re-certification. It is a land requirement to have no prohibited substances applied for 3 years preceding the harvest of a crop [Code of Federal Regulation-National Organic Program](#).

It is a 3-year process for a farm to become certified organic. During that time, farmers who cannot sell as organic are called “transitional” (Coffey and Baier 2012). However, some land may be eligible for organic certification right away. This would include Conservation Reserve Program (CRP) ground or hay/grass that has had no prohibited inputs. We will go into more detail about the certification process in the coming chapters.



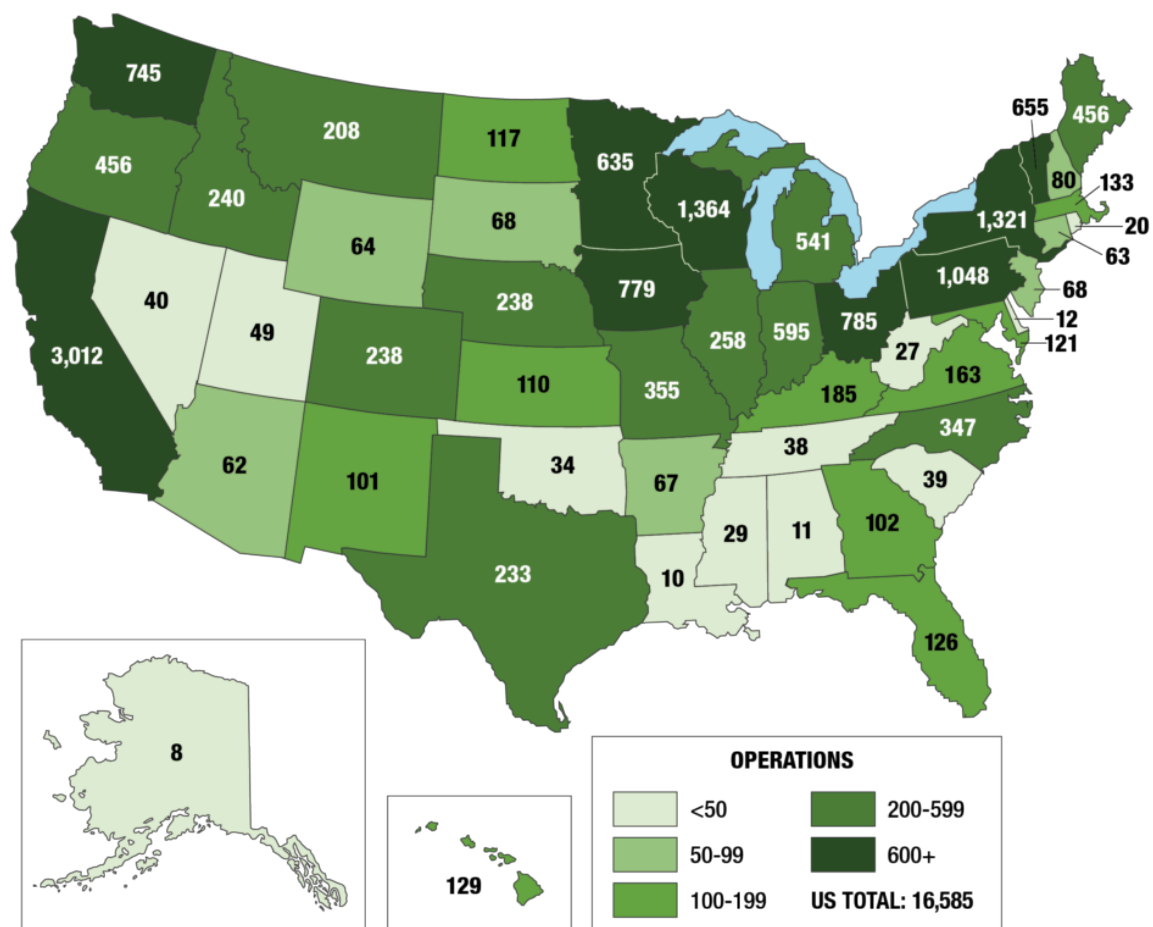
# Organic Transition Timeline



## What do we mean by organic/alternative livestock?

When we say certified organic, we are talking about those farms certified by the USDA to carry the organic label described above. All other labels or claims that include the use or non-use of antibiotics, pesticides, and **GMOs** will be designated in these pages as **“alternative”**. The term “alternative” also includes farms that may not seek USDA organic certification due to the heavy regulation and requirements to become certified but may, in fact, practice non-use of antibiotics, pesticides, etc. Farms that are in the process of USDA organic certification but are not yet certified are called “transitional” and, for our purposes, are included under the term “alternative.” Together we will call these groups of producers organic/alternative (O/A).

## 4. Numbers and trends in organic production



Certified Organic Farms—States and United States 2019 Organic Survey. Source: [USDA NASS Minnesota Field Office](#)

Data in Table 1 below are from the 2019 Certified Organic Survey conducted by **USDA**. Since data gathering and reporting on organic agriculture began, there has been a steady increase in farms and acres under organic production.

Table 1: Number of organic farms, organic land, cropland, and rangeland, 2008 to 2019

	2008	2014	2016	2019
Farms	10,903	12,634	14,217	16,585
Organic land (1,000 acres)	4,004	3,643	5,019	5,495
Cropland	2,230	N/A	2,714	3,517
Rangeland	N/A	N/A	2,305	1,974

The data in Table 2. below, show that sales of certified organic production continued to increase from 2016. U.S. farms and ranches produced and sold \$9.9 billion in certified organic commodities in 2019, up 31% from 2016. During the same year, the number of organic farms in the country increased 17% to 16,585, and the number of certified acres increased 9% to 5.5 million (Results include those certified organic and those transitioning to organic).

**Table 2: Market value of certified organic products in the U.S. from 2016 to 2019, in USD**

	2016 (Millions)	2019 (Millions)	% Increase
Total sales	7,554	9,926	31
Crops	4,193	5,787	38
Livestock and poultry	1,157	1,663	44
Livestock and poultry products	2,205	2,476	12

While the data above includes all organic commodities, not just animals and animal products, it highlights the strong and steady growth of the organic industry. If we look solely at livestock and livestock products, the growth has been equally strong. This, in large part, can be attributed to consumer demand and matches the trends seen in the previously discussed data.

**Table 3: Organic commodity, increase in sales 2016-2019 and total sales in 2019, in USD.**

Organic commodity	Increase in sales from 2016 to 2019	Total Sales 2019
Eggs	9%	887 M
Milk	14%	1.6 B
Hogs and pigs	17%	8.1 M
Cattle	26%	293 M
Broiler chickens	49%	1.1 B
Turkeys	67%	139 M

The growth of the antibiotic-free/organic meat movement is highlighted in an [October 2019 report](#) by a group of organizations, including the Milken Institute School of Public Health and Consumer Reports. “The fast-food industry is one of America’s largest meat and poultry buyers. Chipotle and Panera are given the highest marks for their approach to antibiotic use in beef. These large restaurants are leveraging their buying power to support antibiotic-free meat, driven by consumers who increasingly demand it.”

In 2020 the top five organic retailers were Walmart, Costco, Kroger, Target, and Safeway – 56% of organic sales were in conventional grocery store chains, club stores, and supercenters (Merrigan, Giraud et al. 2021).



## 5. Organic and alternative certification

How can you recognize organic and **alternatively** raised products? Due to the great variety of options and varying levels of oversight, it's not as easy as one might think! Some programs have certification through third-party certifiers (e.g., **USDA** certified organic, American Grassfed Association (AGA)), and some programs combine organic or alternative claims and welfare claims. (e.g., Global Animal Partnership(GAP)), and some make label claims with no mention of "certification" (e.g., natural, free-range, sustainable, etc.).

Certification implies that someone, either a 3rd party with no affiliation to the company/product or someone within the company, is overseeing the practices and ensuring compliance with the rules laid out by the organization. We'll provide more information on these options in the following section, starting with 3rd party certification programs.

One goal for most of the various certification programs is to provide producers a marketing advantage with consumers.

### USDA organic certification

USDA organic certification is accomplished through an independent 3rd party certification process. Certifying agents are accredited by the USDA and ensure USDA organic products meet all organic standards. Most USDA-accredited certifying agencies are allowed to certify farms and businesses anywhere in the world. Farmers, ranchers, and processors may work with any USDA-accredited certifying agency.



#### To become a USDA certified organic producer:

1. Submit an application and an Organic System Plan (OSP) detailing how the operation will comply with the regulations.
2. Have an inspection. If the plan looks compliant, the certification agency will send an inspector to verify that the farm's practices match the plan. The organic inspector will review all records and the organic system plan, visit every field, and look at the equipment, storage, and livestock facilities.
3. After visiting the farm, the inspector will submit a report verifying that the producer follows the plan to the certification agency. The agency may call or write with requests for information.
4. The certifying agency will send a determination letter to the farmer. If approved, the operation is issued an Organic Certificate.
5. Producers can then apply for available certification cost-share rebates.

Annual review, record keeping, and inspection are required to maintain organic status. More information can be found here: [Guidebook for Organic Certification-Marbleseed.](#)

The cost of USDA organic certification varies widely and depends on several factors, including the certifying agency, the size and scope of the operation, and the state in which the farm or ranch is located. Processing facilities are also required to be certified.

The USDA makes an exception from certification for farmers who sell less than \$5,000 a year in organic foods. These producers must follow the guidelines for organic food production, but they do not have to go through the certification

process. They can label their products as organic, but they may not use the official USDA Organic seal. These products cannot go into processed products (i.e., growing strawberries for USDA certified organic strawberry jam).

Animal products originating outside of the U.S. can be sold in the U.S. as certified organic if they are certified organic by USDA organic regulations or an authorized international standard and have trade agreements with the US. Currently, the U.S. has organic trade arrangements with Canada, the European Union, Japan, the Republic of Korea, and Switzerland. More information on imported organic products can be found in the USDA factsheet: [Importing Organic Products into the US](#).



## American Grassfed Association (AGA)

Another 3rd-party certification program is available and administered by the American Grassfed Association for beef cattle, dairy, and swine. The program's standards require continuous access to pasture and a diet of 100 percent forage. Confinement to feedlots and the use of hormones and antibiotics are prohibited. Ill or injured animals are treated but must be taken out of the program. Independent **AGA**-approved inspectors conduct farm/ranch inspections. Dairy inspectors must complete an online course offered by the International Organic Inspectors Association (IOIA).



Additionally, any veterinarian with a practice that includes the inspected species may become an AGA inspector. Once inspections are completed, the report is submitted to the certification committee. There is an annual fee for producers, and reinspection occurs every 12-15 months. Only American-raised animals can be certified by the AGA.

## Alternative livestock certification programs that include humane practices

This description includes livestock producers who may not use antibiotics, **GMOs**, or pesticides but are not certified organic. It may also include animal welfare-related designations and certifications. This group of producers is much harder to define, measure, understand, and compare. Some examples include (**GAP**), Whole Foods' humane labeling program, American Humane Certified, Animal Welfare Approved, and Certified Humane. For producers desiring to become certified by these organizations, etc., there is clearly a place for animal health professionals to contribute/consult/advise to help these producers accomplish their certification goals.

## Non-certified labels/claims

For a product to carry the organic label, the production process must be certified organic from start to finish to ensure that organic requirements are met. However, companies put many other labels or claims on their food for marketing purposes unrelated to any certification program. Meat, eggs, and milk products can also be labeled as grass-fed, 100% grass-fed, all-natural, natural, 100% natural, ethically raised, free-range, pasture-raised, certified humane, raised without antibiotics, or raised without pesticides or raised without added hormones or as non-**GMO**. There is a dizzying array of designations that independent verification does not substantiate.

## 6. Organic and alternative producers - who they are and why they do it

Getting to know your farming community and potential new clients is important if you are new to organic and alternative agriculture. While the demographic data in the table below from a 2017 **USDA** survey of organic producers is dated, it provides some insight into certified organic producers. Organic farmers have a lot in common with conventional farmers, particularly concerning race and gender makeup. They differ slightly in being a bit younger. More organic farmers are new or beginning farmers, and more of them list farming as their primary occupation, see the [2019 Organic Survey Data Release from USDA](#).



**Table 4: Demographics of certified organic producers compared with all producers.**  
(2017 Census of Agriculture, from NASS)

	Percent of certified organic farmers N = 30,090	Percent of all U.S. farmers N = 3,399,834
Under 35 years	19	8
35-64	61	58
65+	20	34
New/beginning	34	27
Served in military	5	11
Farm primary occupation	69	42
Primary occupation – other	31	58
Male	65	64
Female	35	36
Hispanic	4	3
Race: American Indian/Alaska Native	0.4	1.7
Asian	1.7	0.6
Black	0.5	1.3
Native Hawaiian/Pacific Islander	0.2	0.1
White	96.4	95.5
More than one race	0.8	0.8

[The Livestock Project](#) at the Center for Food Security and Public Health (CFSPH) at Iowa State University conducted a small study of 150 organic and alternative livestock producers in the spring/summer of 2021. We found that organic and alternative (O/A) farmers:

- 30% raised one species of livestock – 40% raised 2-3 species, and 30% raised 4 or more species.
- Species included everything from beef, poultry, swine, sheep, dairy, goats, rabbits, bees, bison, yak, and fish.

The big picture is that raising organic or alternative livestock is based on human, animal, and ecosystem health/welfare concerns. **O/A** farmers believe that non-use of certain products on the land, their animals, and crops directly and positively affects their health, their animals, and the environment. Economics is also important. Farmers can't stay in business if they don't make a living and have the ability to support their families. So, the increased income from selling an organic or alternatively raised product is also a motivating factor. In general, O/A producers are not one-size-fits-all. However, like all farmers, these farmers are hardworking, busy, and passionate about their families and their work.

While certified organic livestock producers are bound by the rules and regulations of the National Organic Program (NOP), those with alternative livestock may not operate under any official program. Just as there are many ways of being a veterinarian, a teacher, or a parent, there are a variety of ways of being a farmer. Throughout this course, we provide comments from organic and alternative producers who responded to our 2021 Iowa State University Survey. We hope this helps you recognize the variety of individuals, some with strongly opposing views, you may encounter in the O/A community. Our goal is to enhance communication and strengthen interactions between animal health professionals and O/A clients to provide the best services to them and the best care to their animals.

## Benefits and Possibilities of Organic/Alternative Agricultural Practices

Organic agricultural practices can play a role in reaching sustainable development goals in multiple areas. Listed below are a few areas in which helping organic producers through your services can further promote improvements for local, national, and global animal and public health.

“We consider human, animal, environmental health, and economics as being of equal importance – they all are interrelated and connected. We also believe that the contributions of forages and well-managed grazing livestock to the building of healthy soil and the mitigation of climate change are vitally important reasons for raising livestock as organically and naturally as possible”. Organic livestock producer, 2021 Survey, Iowa State University.

### Environmental Health

Research over the years has noted and suggested multiple ways in which the rules of organic farming can lead and contribute to improved environmental health.

- Reduced use of nitrogen fertilizers leads to reduced energy consumption (Merrigan, Giraud, et al. 2021).
- Pasture grazing requirements (>120days) for ruminants lead to improved soil composition and less soil erosion (Merrigan, Giraud, et al. 2021). When pastures are managed properly, soil sequestration of carbon can even increase.
- Organic crops may be more resistant to droughts and other harsh conditions leading to adaptable and sustainable agricultural processes during severe weather changes (Scialabba and Müller-Lindenlauf 2010).

“We practice regenerative agriculture over organic. Straight organic farming is not necessarily better for the animals, the humans that eat the food, or the environment. Our operation is carbon neutral or carbon negative. We believe this is just as important or more important than organic. We also believe animal welfare isn’t always a consideration with organic standards”. Alternative livestock producer, 2021 Survey, Iowa State University.

## Economic Health

Agriculture as a whole is a unique business that must balance economic stability and food production. Organic agriculture options provide additional ways to contribute to these areas.

- Following a 5-year transition period, organic fields have demonstrated competitive yields to conventional fields (Rodale 2011).
- “Organic hotspots,” places with a high concentration of organic operations, have shown high labor force participation, high median household income, and lower unemployment (Marasteanu and Jaenicke 2019). These outcomes can help promote economic development in rural areas.
- Organic farming practices that focus on building biologically active soil result in fewer off-farm inputs. Consequentially this decreases farmer outside source costs, as well as transportation, hauling, and other costs (Coffey and Baier 2012).

“The better economics makes my farm possible. Conventional prices don’t pay. Organic prices allow my farm to function allowing other values to be worked on which are very important to my value system”. Organic livestock producer, 2021 Survey, Iowa State University.

“Being organic offers no advantage to my farm or my customers. I agree with the basic tenants of organic farming and follow most of them, but in a truly local market, it’s not necessary” Alternative livestock producer, 2021 Survey, Iowa State University.

## Human Health

With time and research, improvements to health practices and healthy lifestyles are constantly being made. Having options is a good thing, this allows us the opportunity to compare and choose practices that can benefit our health and those around us. Listed below are just a few ways organic farming practices can be advantageous for human health.

- Reduced exposure to antibiotic-resistant bacteria (Smith-Spangler, Brandeau, et al. 2012)
- Higher levels of antioxidants in organic crops (Barański, Srednicka-Tober, et al. 2014)
- Increased omega-3 fatty acids in organic dairy products (Benbrook, Butler, et al. 2013)
- Improved fatty acid profiles in organic meat products (Ribas-Agustí, Díaz, et al. 2019)
- Decreased exposure to synthetic pesticide use (Smith-Spangler, Brandeau, et al. 2012)
- Generally lower levels of toxic heavy metal concentrations in the soil (E.U. Parliament Report)

“We really, really love being around our animals. We also want to know exactly how our food was raised and offer healthy options to our friends, family, and community”. Organic/alternative livestock producer, 2021 Survey, Iowa State University.

## Animal Health

Lastly, supporting organic practices is a way to make improvements in animal health. Similar to other aspects of veterinary medicine (i.e. surgery, dystocia, disinfectants, etc.), there is usually more than one way to approach a problem and provide a solution. Seeing organic farming practices as another option for improving animal health can benefit your clients and patients. Listed below are some considerations for animal health improvements that organic farming can provide:

- Decreased provision of grain along with a high forage diet and increased grazing by livestock in organic and alternative systems results in fewer problems with ketosis and acidosis in dairy cattle (Richert 2013).
- Well-managed pasture-based systems have been shown to reduce hock lesions, mastitis, and other health problems potentially resulting in lower cull rates (Arnott, Ferris, et al. 2017, Mee and Boyle 2020).
- Organic production requirements for space and outdoor access enable additional freedom to express normal behaviors and exercise by animals. Exercise is widely known to improve muscle tone, relieve stress, and boost the immune system (Coffey and Baier 2012).

“It’s imperative to me that I am not only a good steward to my land, but a GREAT steward to the animals under my care. I want them to have the things they need to thrive, not just to survive. I believe that working WITH nature instead of against it is better for the animals, us, the environment and my customers.” Organic livestock producer, 2021 Survey, Iowa State University.

## 7. The role of animal health professionals on organic/alternative operations

Hardworking, knowledgeable, and passionate about their work and way of life. This description of animal health professionals and organic and alternative (O/A) livestock producers indicates they are more alike than different. No one has all the answers. Producers are not disease diagnosticians, and animal health professionals are usually not knowledgeable about non-conventional treatments nor financially responsible for farm operations. Therefore, trust, respect, and open minds are needed for a partnership between producers and animal health professionals to grow and help each other achieve their common goals – improving and maintaining animal health.

The active role of veterinarians on **O/A** livestock operations is well laid out by the **USDA** in the Guide for Organic Livestock Producers (Coffee and Baier 2012). Despite its age, (2012) the [USDA Guide for Organic Producers](#) provides timeless written guidance for organic livestock producers, including information on the use of veterinarians on their operations. Very little has been written about the role of other animal health professionals such as veterinary technicians and extension specialists on O/A operations. Both of these roles have obvious and important contributions to make to organic and alternative animal health.

### The Role of Veterinary technicians and extension professionals

Veterinary Technicians have many roles, both inside and outside of the clinic. Vet techs often travel with veterinarians to farms and ranches in mixed and large animal rural practices. They provide useful skills and support to veterinarians and clients. Skillful vet techs offer a second set of eyes for the veterinarian. The vet tech's role includes giving drugs and vaccines, collecting samples, assisting in field surgery, and explaining procedures, including disease prevention actions such as cleaning and disinfection. The skill set that vet techs bring to O/A farms and ranches is no different. On O/A farms, vet techs can bring new skills and knowledge to assist veterinarians and help producers manage and care for their organic and **alternative** livestock.

Agricultural extension programs provide non-formal education and practical application of science on farms. Extension agents and specialists help producers assess their needs and have resources and programs that farms can use or adapt to fit their needs. Extension provides resources to increase production in addition to safety classes, youth development, nutrition education, and mental health resources. These resources are important and provide for farmers' welfare and personal development and help build future generations of farmers. O/A knowledgeable extension agents can help connect valuable practices and applicable research with farmers and ranchers needing assistance and increase the benefit to those they serve. O/A farming is a prospect for growth for extension programs (Alotaibi et al., 2021).

"I've said for a long time that most of what I treat as a food animal vet comes from errors in husbandry and management, stewardship, and stockmanship. Until we are really willing to change that, it seems like there will be a lot of tail-chasing." (Livestock veterinarian).

When it comes to the role of veterinarians, the history of veterinary use and the willingness of O/A producers and veterinarians to work together has been implicated. Let's explore this more.

### The veterinary perspective

Generally, veterinarians have mixed feelings about their ability to meet organic producer needs and believe they lack knowledge of organic guidelines and health treatments (O'Neill and Wells 2013; Sorge, Yamashita, et al. 2019). These

feelings likely mirror those of other animal health professionals and essential veterinary support staff. In a 2013 survey of Iowa veterinarians and organic livestock producers, less than 1% of veterinarians said they received instruction in organic livestock during veterinary school and agreed they need more information (O'Neill and Wells 2013). These deficiencies appear to be universal across veterinary education systems, including veterinary technician and other animalhealth professional training programs. It is difficult to find the time and space to include more courses in the already jam-packed veterinary, or similar curriculums. Currently, if they are interested, students would likely have to find that information through internships and externships during their senior year, reading up on the subject, and continuing education (CE) courses such as this. When asked about the availability of O/A farming information, veterinarians said current (2013) information was scarce, that they relied on the internet for sources of information on organic livestock, and suggested seminars and conferences as training options. Most veterinarians surveyed (72%) said they would attend an educational event (CE) related to organic livestock (O'Neill 2013). These deficiencies and suggestions highlight the need and desire for more educational resources on O/A farming and the veterinarian's role (O'Neill and Wells 2013). This extends into veterinary technician and animal health professional training as well.

“We need vets who have cultural awareness of the **plain community**” (Dairy veterinarian with conventional and organic clients).

When looking at specific species, a survey of bovine practitioners in 2019 found more than half of them thought organic rules were difficult to follow and that they lacked knowledge about organic regulations. As a result, these difficulties inhibit them from including organic and alternative farmers in their practices. Technicians and other professionals with knowledge about organic agriculture could be vital resources for veterinarians trying to work with organic and alternative producers. It is important to note that when these results were stratified by practitioners who had organic clients and those that didn't, veterinarians with organic clients were more likely to have positive responses regarding the ease of use of organic regulations and were less likely to agree that organic producers would not use veterinary advice. In this study, experience working with O/A clients provided a more favorable perspective. As a result, helping veterinarians gain more experience with these clients can be beneficial for all. Combined with observations from the 2013 O'Neill study regarding gaps in perception, knowledge, and communication among individuals in organic livestock systems (veterinarians and producers), these results indicate that positive working relationships between these groups are possible. How can mutual understanding and positive relationships best be developed between organic livestock producers and veterinarians?

(The studies cited above relate to organic dairies vs. conventional dairy operations. It should be noted that similar research regarding O/A beef, sheep, goat, poultry, swine, or egg operations hasn't been reported and is less clear).

“Veterinarians need to be willing to develop a **VCPR** with organic and alternative producers” (Veterinarian with conventional and organic/alternative clients)

## The producer's perspective

“It is really helpful to have a vet who is knowledgeable about organics and the standards. It's also just as important to have someone who believes in it – either the philosophy or at the very least respects it for the financial stability aspect.” (Organic/alternative producer)



Despite USDA recommendations, studies have shown that O/A livestock producers often do not use veterinary services as frequently as their conventional counterparts and instead seek animal health advice from other sources or handle problems independently (O'Neill and Wells 2013). These producers are more likely to rely on past experience, other producers, word of mouth, books, organic workshops, field days, and the Internet when dealing with common problems. (O'Neill and Wells 2013), Rickert 2013). O/A livestock producers do not see the need to consult a veterinarian or their staff for several reasons. Commonly reported reasons are they feel that their livestock are healthier than conventional livestock, they perceive a negative mindset of some veterinarians and other animal health professionals toward organic agriculture, or they believe veterinarians do not have the appropriate knowledge of organic regulations and allowable substances (Sorge, Yamashita, et al. 2019).



“The organic industry is what saved the dairy business in my area, so we are lucky in the fact that all the vets now realize it helped save their practices as well”. Organic/alternative livestock producer, 2021 Survey, Iowa State University.

However, the decreased use of veterinarians on O/A farms is not clear-cut. One study of 292 organic and conventional dairy farms in New York, Oregon, and Wisconsin found that veterinary usage was more closely associated with intensiveness of management practices (i.e., pregnancy checking, use of a nutritionist, use of AI for breeding) than whether a farm was classified as organic or conventional. O/A operations are usually smaller, less intensive operations, so their lack of use of veterinary services is not surprising in this regard. The perception is that organic livestock producers are averse to using veterinary services. But in fact, it may be at least in part, that producers just don't need them in the traditional-conventional dairy practitioner sense. This supports the study's recommendation that veterinarians should not assume that organic herd managers are unwilling to use their services (Rickert 2013). Again, this study related to organic dairy operations and the applicability to other types of operations has not been reported.

“A veterinarian who is interested in working with the niche/organic folks can be a terrific resource for us” (Organic/alternative producer).

The varying viewpoints indicate a need for greater communication and understanding between veterinarians, technicians, extension, and O/A producers. This includes discussions of where they can be used (disease diagnosis is an obvious example) and where new opportunities might present themselves. Potential collaborative opportunities may entail nutritional consulting, consulting on organic certification and humane certification, food safety, biosecurity, disease prevention tools and tactics, record keeping, and more. These discussions will evolve, requiring open minds, a partnership mentality, scientific knowledge, and good communication.

Increasing the role of all types of animal health professionals on O/A farms will require training, open minds, and new ways of thinking. The health of our food, farms, and livestock depends on it.

“Producers need local vets who stay in contact.” Organic livestock producer, 2021 Survey, Iowa State University.

## 8. Prevention - proactive, practical measures that prioritize animal health

Prevention is the cornerstone of organic and alternative animal health

Without antibiotics to treat diseases or conventional anti-parasitics to treat parasite infections, prevention is a top priority for organic and alternative (O/A) farmers (Note, not all alternative systems prohibit antibiotics).

Lack of ability to use antibiotics potentially increases the risk of disease spread if disease enters a herd through a sick animal or on a fomite, like the shoes of a visitor. Conversely, the unique circumstances on organic farms can modify infectious disease transmission risks in their herds. These unique circumstances, which may decrease infectious disease risk (at least in dairy herds (Pieper 2014)) include the increased likelihood of **O/A**



farms being smaller, keeping a closed herd, and having decreased human traffic of professionals with regular animal/farm contact such as veterinarians, nutritionists, feed delivery, etc. Regardless of circumstance, due to the treatment option restrictions that come with farming in an organic or alternative manner, greater emphasis must be placed on disease prevention (Sorge, Moon, et al. 2016; Sorge, Yamashita, et al. 2019). For example, organic regulations heavily emphasize the importance of sanitation practices for disease prevention (Coffey and Baier 2012).

These unique circumstances on organic farms, which may decrease infectious disease risk (at least in dairy herds (Pieper 2014)) include the increased likelihood of O/A farms being smaller, keeping a closed herd, and having decreased human traffic of professionals with regular animal/farm contact such as veterinarians, nutritionists, feed delivery, etc.

### Focus on animal health

The **USDA** Guide for Organic Livestock Production stresses several elements, conditions, and practices that support health and disease prevention practices on organic livestock farms, including:

**Genetics** – This includes the cultural practice of choosing livestock breeds specifically adapted to a region, climate, and its forages. It also includes choosing animals that are genetically resistant to specific parasites. These practices reflect good husbandry and improve animal health, welfare, and production. Paying attention to your animals and only breeding from the best will result in a better herd (Coffey and Baier 2012).

**Nutrition** – USDA certified organic livestock must be fed a 100% organic diet and have a grazing requirement to fulfill this rule. Swine, who cannot get a complete diet simply by grazing, must be supplemented by feeding organic grain or organic protein sources such as soybean meal, camelina, or rapeseed. When it's not the grazing season, livestock can access outdoors in yards, feeding pads, and feed. The area should be large enough to prevent crowding and competition among the animals for the feed provided (Coffey and Baier 2012).

**Low-stress environment** – Low stress supports good health and welfare. Reduced stress in the form of appropriate shelter, humane animal handling, and movement, controlling predation, and avoiding overcrowding support good health and welfare (Coffey and Baier 2012).

**Exercise** – The ability to be outdoors, free to express normal behaviors, and exercise leads to better health. Exercise improves muscle tone, relieves stress, and boosts the immune system. This can result in improved health outcomes and smoother deliveries for pregnant animals (Coffey and Baier 2012).

**Minimize exposure to disease and parasites** – Disease prevention practices, particularly biosecurity, are essential components for maintaining and promoting animal health on any farm, but especially on O/A farms. Having areas to isolate or quarantine animals, maintaining a closed herd, good cleaning and disinfection protocols, limiting visitor contact with their animals, and good grazing management help prevent disease introduction and spread in the herd (Coffey and Baier 2012).

**Vaccination and other preventive measures** – Vaccines are allowed and encouraged under the National Organic Program (NOP) guidelines. This is a pivotal prevention area, and veterinarians should be closely involved in designing a vaccine program tailored to the specific operation and its disease risk. Many certifiers request that vaccination recommendations be made by veterinarians in the local geographical area. Veterinarians should know that not all O/A farmers (nor conventional producers) are keen on the routine use of vaccines. This provides a great opportunity for discussion and clear communication between veterinarians and producers to learn, understand and be sensitive to each other's views (Coffey and Baier 2012; Marbleseed Guide for Organic Livestock Production 7<sup>th</sup> Edition). In general, O/A livestock farmers often prefer to limit vaccination to disease agents that present clear threats to animal health and provide a greater cost-benefit ratio. Examples include vaccines for respiratory viruses and Clostridial vaccines in cattle.

A national study was conducted by The Livestock Project in 2021 with O/A producers to determine what they knew and practiced in the way of biosecurity and disease prevention on their farms. The study did not show surprising results; similar results would likely be found when surveying conventional livestock farms. That is, biosecurity is rarely at the top of anyone's list, and some practices are embraced, and others are put on the back burner. What surfaced from this study was that O/A producers might benefit from materials focused on their specific type of operation(s). These suggested materials are being developed by The Livestock Project to address biosecurity/disease prevention on O/A farms. While not vastly different from what others have prepared for conventional small farms, these materials are sensitive to the differences between conventional and O/A producer needs, goals, and philosophies and are targeted directly to some of the unique concerns of O/A producers. They will include information on everyday biosecurity aimed at O/A farmers, disease outbreaks, reportable and foreign animal diseases (FAD), guiding organic and alternative producers during a **FAD** emergency, and the role of veterinarians on O/A farms as advisors on these disease prevention topics. The Livestock Project website can be accessed here: [The Livestock Project](#).

## 9. Organic rules and regulations, standards, and Allowed and Prohibited Substances

This section will present the **USDA** rules and regulations for organic livestock production and the USDA Allowed and Prohibited Substances for use with organic livestock.

### USDA Organic Rules and Regulations

The USDA requires that livestock be raised according to the USDA organic regulations throughout their lives. To meet these rules, organic livestock must be:

- Produced without genetic engineering, ionizing radiation, or sewage sludge
- Managed in a way that conserves natural resources and biodiversity
- Raised per the National List of Allowed and Prohibited Substances

Use this link to access the living document of regulations which will include the most recent updates: [Code of Federal Regulation-National Organic Program](#)

Animal health and natural behavior must be accommodated year-round, and livestock must be:

- Managed organically from the last third of gestation (ruminants and swine) or second day of life (poultry). Organic milk and milk products must be from animals that have been under continuous organic management from the last third of gestation onward, with an exception for newly certified organic livestock operations ([National Organic Program: Origin of Livestock](#))
- Allowed year-round access to the outdoors, direct sunlight, and shade, except under specific conditions (e.g., inclement weather)
- Sheltered, offered dry clean organic bedding (i.e., straw, cornstalks or bean stubble), and clean drinking water
- Raised on certified organic land meeting all organic crop production standards
- Fed 100% certified organic feed, except for trace minerals and vitamins used to meet the animals' nutritional requirements
- Managed without antibiotics, added growth hormones, mammalian or avian by-products, or other prohibited feed ingredients (e.g., urea, manure, or arsenic compounds)

### Ruminant pasture standards

- At least 120 days of free access to certified organic pasture
- Diet must contain at least 30% dry matter, (on average), from certified organic pasture during the grazing season

- Organic ruminant livestock such as cattle, sheep, and goats must have free access to certified organic pasture for the entire grazing season. This period is specific to the farm's geographic climate but must be at least 120 days. Due to weather, season, or climate, the grazing season may or may not be continuous.
  - Per the USDA organic regulations, the grazing season is the period of time when pasture is available for grazing due to natural precipitation or irrigation.
    - After an animal reaches the 120-day grazing minimum, does that mean it no longer needs to be on

pasture? No, ruminant livestock must graze on certified organic pasture throughout the entire grazing season for the geographic region. Depending on region-specific environmental conditions (e.g., rainfall, frost-free days, growing season) the grazing season will range from 120 to 365 days per year.

- Organic ruminants' diets must contain at least 30% dry matter (on average) from certified organic pasture during the grazing season. Dry matter intake (DMI) is the amount of feed an animal consumes per day on a moisture-free basis. The rest of its diet must also be certified organic, including hay, grain, and other agricultural feed products.
- Ruminants must have free access to the outdoors year-round outside the grazing season except under specific conditions (inclement weather) (CFR 205.239(b)).
- During the finishing period, ruminant [slaughter](#) stock are exempt from the minimum 30 percent **DMI** requirement from [grazing](#). The finishing period for ruminant slaughter stock cannot exceed one-fifth (1/5) of the animal's total life or 120 days, whichever is shorter ([USDA Organic 101](#)).

To access worksheets on calculating DMI from pasture. [NOP Handbook: Guidance & Instructions for Accredited Certifying Agents & Certified Operations](#)

## The National List of Allowed and Prohibited Substances – USDA Organic

In general, when it comes to what products can be used on certified organic farms:

- Natural substances are allowed unless they are specifically prohibited
- Synthetic substances are not allowed unless they are specifically provided on the list
- Some substances may be used only in specific situations or up to a maximum amount

The Allowed and Prohibited substances list identifies what can and can't be used in organic crop and livestock production and processing of organic products. In general, **natural substances are allowed unless they are specifically prohibited on the list, and synthetic substances are not allowed unless they are specifically provided on the list. Some substances on the list may be used only in specific situations or up to a maximum amount.** The National List of Allowed and Prohibited Substances is a living document, and changes occur. The version below is from March 2021. The live document can be found here: [7 CFR 205.603](#).

The National Organics Standards Board (NOSB) meets twice a year and reviews items to be added or removed from the list. The **NOSB** makes recommendations to the Secretary of Agriculture through the National Organic Program (NOP). The producer's certification agency will update them when items are added or removed from the list.

A non-profit agency, the Organic Materials Review Institute (OMRI), has developed a generic and brand-name product review program. Suppliers of agricultural inputs can have their proprietary active and inert ingredients reviewed as compliant with **NOP** regulations. The **OMRI** seal can help farmers determine what is approved for use. It's important to note that not all suppliers pay to have the OMRI seal but the materials may still be allowed. It is essential for organic livestock producers to always check with their certifying agency to verify if a specific brand name or formulation is approved for organic production. It is also possible to have brand-name products reviewed by individual certifiers, and while cumbersome, it is free; however, advertising of such certifier-approved products is generally not allowed by an Accredited Certification Agency (ACA).

It is essential for organic livestock producers to always check with their certifying agency to verify if a specific brand name or formulation is approved for organic production.

Conventional veterinarians tend to think that none of the treatments available in their toolbox is useful on an organic or alternative farm. As you (carefully) read through this list, make note of those **allowed items** that you might already use on a regular basis, including:

- Vaccines
- Electrolytes
- Flunixin
- Vitamin and mineral supplements
- Calcium borogluconate
- Dextrose
- Xylazine
- Lidocaine

## Synthetic substances

Synthetic substances are generally prohibited in the National List of Allowed and Prohibited Substances, except for those allowed below.

From CFR 205.603, accessed 22 June 2022.

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### [§ 205.603 Synthetic substances allowed for use in organic livestock production.](#)

In accordance with restrictions specified in this section the following synthetic substances may be used in organic livestock production:

- (a) As disinfectants, sanitizer, and medical treatments as applicable.
  - (1) Alcohols.
    - (i) Ethanol – disinfectant and sanitizer only, prohibited as a feed additive.
    - (ii) Isopropanol-disinfectant only.
  - (2) Aspirin-approved for health care use to reduce inflammation.
  - (3) Atropine (CAS #-51-55-8) – federal law restricts this drug to use by or on the lawful written or oral order of a licensed veterinarian, in full compliance with the Animal Medicinal Drug Use Clarification Act of 1994 (AMDUCA) and [21 CFR part 530](#) of the Food and Drug Administration regulations. Also, for use under [7 CFR part 205](#), the NOP requires:
    - (i) Use by or on the lawful written order of a licensed veterinarian; and

(ii) A meat withdrawal period of at least 56 days after administering to livestock intended for slaughter; and a milk discard period of at least 12 days after administering to dairy animals.

(4) Biologics – Vaccines.

(5) Butorphanol (CAS #-42408-82-2) – federal law restricts this drug to use by or on the lawful written or oral order of a licensed veterinarian, in full compliance with the **AMDUCA** and [21 CFR part 530](#) of the Food and Drug Administration regulations. Also, for use under [7 CFR part 205](#), the NOP requires:

(i) Use by or on the lawful written order of a licensed veterinarian; and

(ii) A meat withdrawal period of at least 42 days after administering to livestock intended for slaughter; and a milk discard period of at least 8 days after administering to dairy animals.

(6) Activated charcoal (CAS # 7440-44-0) – must be from vegetative sources.

(7) Calcium borogluconate (CAS # 5743-34-0) – for treatment of milk fever only.

(8) Calcium propionate (CAS # 4075-81-4) – for treatment of milk fever only.

(9) Chlorhexidine (CAS # 55-56-1) – for medical procedures conducted under the supervision of a licensed veterinarian. Allowed for use as a teat dip when alternative germicidal agents and/or physical barriers have lost their effectiveness.

(10) Chlorine materials – disinfecting and sanitizing facilities and equipment. Residual chlorine levels in the water shall not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act.

(i) Calcium hypochlorite.

(ii) Chlorine dioxide.

(iii) Hypochlorous acid – generated from electrolyzed water.

(iv) Sodium hypochlorite

(11) Electrolytes – without antibiotics.

(12) Flunixin (CAS #-38677-85-9) – in accordance with approved labeling; except that for use under [7 CFR part 205](#), the NOP requires a withdrawal period of at least two-times that required by the Food and Drug Administration (FDA).

(13) Glucose.

(14) Glycerin – allowed as a livestock teat dip, must be produced through the hydrolysis of fats or oils.

(15) Hydrogen peroxide.

(16) Iodine.

(17) Kaolin pectin – for use as an adsorbent, antidiarrheal, and gut protectant.

(18) Magnesium hydroxide (CAS #-1309-42-8) – federal law restricts this drug to use by or on the lawful written or oral order of a licensed veterinarian, in full compliance with the AMDUCA and [21 CFR part 530](#) of the Food and Drug Administration regulations. Also, for use under [7 CFR part 205](#), the NOP requires use by or on the lawful written order of a licensed veterinarian.

- (19) Magnesium sulfate.
- (20) Mineral oil – for treatment of intestinal compaction, prohibited for use as a dust suppressant.
- (21) Nutritive supplements – injectable supplements of trace minerals per [paragraph \(d\)\(2\)](#) of this section, vitamins per paragraph (d)(3), and electrolytes per paragraph (a)(11), with excipients per paragraph (f), in accordance with **FDA** and restricted to use by or on the order of a licensed veterinarian.
- (22) Oxytocin – use in postparturition therapeutic applications.\*
- (23) Parasiticides – prohibited in slaughter stock, allowed in emergency treatment for dairy and breeder stock when organic system plan-approved preventive management does not prevent infestation. In breeder stock, treatment cannot occur during the last third of gestation if the progeny will be sold as organic and must not be used during the lactation period for breeding stock. Allowed for fiber bearing animals when used a minimum of 36 days prior to harvesting of fleece or wool that is to be sold, labeled, or represented as organic.
- (i) Fenbendazole (CAS #43210-67-9) – milk or milk products from a treated animal cannot be labeled as provided for in [subpart D of this part](#) for: 2 days following treatment of cattle; 36 days following treatment of goats, sheep, and other dairy species.
- (ii) Moxidectin (CAS #113507-06-5) – milk or milk products from a treated animal cannot be labeled as provided for in [subpart D of this part](#) for: 2 days following treatment of cattle; 36 days following treatment of goats, sheep, and other dairy species.
- (24) Peroxyacetic/peracetic acid (CAS #-79-21-0) – for sanitizing facility and processing equipment.
- (25) Phosphoric acid – allowed as an equipment cleaner, *provided* that no direct contact with organically managed livestock or land occurs.
- (26) Poloxalene (CAS #-9003-11-6) – for use under [7 CFR part 205](#), the NOP requires that poloxalene only be used for the emergency treatment of bloat.
- (27) Propylene glycol (CAS #57-55-6) – only for treatment of ketosis in ruminants.
- (28) Sodium chlorite, acidified – allowed for use on organic livestock as a teat dip treatment only.
- (29) Tolazoline (CAS #59-98-3) – federal law restricts this drug to use by or on the lawful written or oral order of a licensed veterinarian, in full compliance with the AMDUCA and [21 CFR part 530](#) of the Food and Drug Administration regulations. Also, for use under [7 CFR part 205](#), the NOP requires:
- (i) Use by or on the lawful written order of a licensed veterinarian;
- (ii) Use only to reverse the effects of sedation and analgesia caused by Xylazine; and,
- (iii) A meat withdrawal period of at least 8 days after administering to livestock intended for slaughter; and a milk discard period of at least 4 days after administering to dairy animals.
- (30) Xylazine (CAS #7361-61-7) – federal law restricts this drug to use by or on the lawful written or oral order of a licensed veterinarian, in full compliance with the AMDUCA and [21 CFR part 530](#) of the Food and Drug Administration regulations. Also, for use under [7 CFR part 205](#), the NOP requires:
- (i) Use by or on the lawful written order of a licensed veterinarian; and,



(ii) A meat withdrawal period of at least 8 days after administering to livestock intended for slaughter; and a milk discard period of at least 4 days after administering to dairy animals.

(b) As topical treatment, external parasiticide or local anesthetic as applicable.

(1) Copper sulfate.

(2) Elemental sulfur – for treatment of livestock and livestock housing.

(3) Formic acid (CAS # 64-18-6) – for use as a pesticide solely within honeybee hives.

(4) Iodine.

(5) Lidocaine – as a local anesthetic. Use requires a withdrawal period of 8 days after administering to livestock intended for slaughter and 6 days after administering to dairy animals.

(6) Lime, hydrated – as an external pest control, not permitted to cauterize physical alterations or deodorize animal wastes.

(7) Mineral oil – for topical use and as a lubricant.

(8) Oxalic acid dihydrate – for use as a pesticide solely for apiculture.

(9) Sodium chlorite, acidified – allowed for use on organic livestock as teat dip treatment only.

(10) Sucrose octanoate esters (CAS #s-42922-74-7; 58064-47-4) – in accordance with approved labeling.

(11) Zinc sulfate – for use in hoof and foot treatments only.

(c) As feed supplements – None.

(d) As feed additives.

(1) DL-Methionine, DL-Methionine – hydroxy analog, and DL-Methionine – hydroxy analog calcium (CAS #'s 59-51-8, 583-91-5, 4857-44-7, and 922-50-9) – for use only in organic poultry production at the following pounds of synthetic 100 percent methionine per ton of feed in the diet, maximum rates as averaged per ton of feed over the life of the flock: Laying chickens – 2 pounds; broiler chickens – 2.5 pounds; turkeys and all other poultry – 3 pounds.

(2) Trace minerals, used for enrichment or fortification when FDA approved.

(3) Vitamins, used for enrichment or fortification when FDA approved.

(e) As synthetic inert ingredients as classified by the Environmental Protection Agency (EPA), for use with nonsynthetic substances or synthetic substances listed in this section and used as an active pesticide ingredient in accordance with any limitations on the use of such substances.

(1) **EPA** List 4 – Inerts of Minimal Concern.

(2) [Reserved]

(f) Excipients – only for use in the manufacture of drugs and biologics used to treat organic livestock when the excipient is:

(1) Identified by the FDA as Generally Recognized As Safe;

- (2) Approved by the FDA as a food additive;
- (3) Included in the FDA review and approval of a New Animal Drug Application or New Drug Application; or
- (4) Approved by Animal and Plant Health Inspection Service for use in veterinary biologics.

## [§ 205.604 Nonsynthetic substances prohibited for use in organic livestock production.](#)

The following nonsynthetic substances may not be used in organic livestock production:

- (a) Strychnine.



[Download the Allowed and prohibited Substances List](#)

\*Some organic markets prohibit the use of all synthetic hormones including oxytocin.

Use of prohibited substances (e.g. disqualifies the treated individual animal from organic production permanently. See Chapter 11 for more details.

One method for making sure that products are allowed (within the regulations) is that a producer can say that they will use any and all allowed substances in a given year if confronted with a challenge to an animal's health. This kind of statement would need to be updated each year.

## Record-keeping is critical for organic farmers

Livestock records must track each animal's birth, vaccinations, health issues and treatments, and events such as castration, weaning, and when they enter or leave a livestock grouping. Poultry is tracked by flock.

Good records are needed to document compliance with organic regulations. This makes the difference between USDA NOP certified organic farms and those that practice alternative agricultural practices with their animals. This is also an area in which veterinary technicians and other health professionals can be of great assistance to organic and alternative livestock producers. Good records also provide an invaluable management tool, giving farmers historical data on what worked well and what didn't, based on information gathered over the years. Livestock records must track each animal's birth, vaccinations, health issues and treatments, and events such as castration, weaning, and when they enter or leave a livestock grouping. Poultry is tracked by the flock. Livestock records can help the producer make herd health decisions with the veterinarian and other supporting animal health professionals. Many of these items are included in other labels, (e.g. non-GMO) that alternative agriculture producers may opt to certify with.

From livestock management to equipment cleaning to seed selection, there is a lot of information to manage. Each farmer needs to find their own easily accessible system to track this information. Some farmers find it works well to carry a pocket-sized calendar or notebook to record dates and brief details of activities for each animal group. Then transfer the notes to a handwritten ledger or computer record-keeping program. Farmers can develop their own system or use one from their certification agency. Free downloadable template forms for organic record keeping are available from the Sustainable Agriculture Project at the National Center for Appropriate Technology (NCAT), Appropriate Technology Transfer for Rural Areas (ATTRA) at: [attra.ncat.org](http://attra.ncat.org).

# 10. Practicing medicine on O/A operations

In this section, we will discuss traditional and non-traditional veterinary services on organic and alternative (O/A) operations and important considerations when working with these farms. We also present alternative medical terminology and briefly introduce different treatment options that might be used on these farms.

## Opportunities

Many **O/A** producers operate economically viable small farms that could benefit from veterinary, extension, and other animal health involvement. Some of the services needed are outside traditional livestock practice. Increasing your understanding of the service needs options can strengthen your relationship with O/A ranchers and farmers. Delivering new services can build relationships and build revenue. The information introduced below will be elaborated upon in future chapters of this continuing education series on organic and **alternative** livestock health.



G. Jodarski DVM assessing pasture with farmer

## Traditional service offerings

Listed below are services that veterinarians likely already provide to livestock operations. O/A operations also require these services, though perhaps to a lesser degree than conventional farms. There are benefits to working with O/A operations, but the manner or type of service offered may differ. For example, due to the restricted options for therapeutics such as antibiotics, the role of the veterinarian on an O/A farm may focus more on consultation rather than disease diagnosis and treatment.

### Traditional Veterinary Service Offerings

- Diagnostics
- Reproduction
- Nutrition, nutritional deficiencies, and local conditions
- Livestock handling
- Facilities design and modification for animal health and comfort
- Species-specific expertise (in particular- sheep, poultry, goats, swine)

## Non-traditional service offerings

Listed below are some non-traditional services that veterinarians can provide to O/A livestock farmers. Importantly, farmers need to be reminded that an animal can be culled due to mastitis, lameness, infertility, and occasionally due to using prohibited substances. With the “requirement to treat with all means necessary”, when to revert to an antibiotic during an active case is always an individual animal issue where veterinary input can be invaluable.

## Non-traditional veterinary service offerings

- Nutrition consulting on high forage, high fiber diets
- Grazing
- Natural weaning
- Role of soil health and pollinators
- Preparing for welfare certification
- Organic record keeping
- Employee training
- Decision-making using organic treatments
- Consulting on FDA concerns
- Parasite management including the use of **FAMACHA** scores for small ruminants
- Guiding producers through the requirement “to treat with all means necessary”

## Treatments on O/A farms

There are two very important caveats about livestock treatment on O/A farms. The **first** and most important thing to know about treatment on **USDA** certified organic operations is the National Organic Program (NOP) requirement to **treat with all means necessary**. “The producer of an organic livestock operation must not withhold medical treatment from a sick animal to preserve its organic status. All appropriate medications must be used to restore an animal to health when methods acceptable to organic production fail. Livestock treated with a prohibited substance must then be clearly identified and cannot be sold, labeled, or represented as organically produced” (7 CFR 205.238(c)(7), USDA NOP). This is where much of the challenge to veterinarians and producers comes in. The loss of organic status for an animal is very serious (especially on small farms that do not have ready replacements) and can lead to waiting too long to treat with conventional therapies. Animals that lose organic status because they have been given a prohibited substance must be recorded. The certifying agency is notified. The animal must be clearly marked, separated from the production string, and sold/removed once the withdrawal times have passed.

**To treat with all means necessary** – The producer of an organic livestock operation must not withhold 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.

**Secondly**, regarding the various treatments discussed below – information on non-traditional medicine treatments termed Complementary and Alternative Veterinary Medicine (CAVM) by the American Veterinary Medical Association (AVMA) is given to provide background and knowledge of what veterinarians will encounter when visiting organic and alternative farms. This might be your first introduction to some of these treatments, or you and your family may already use them as they are included in the arsenal of human medicine as well. Some of these products/treatments work better than others (similar to conventional medicines). The use of some of these products goes back hundreds of years, e.g., the use of botanicals, homeopathy, and acupuncture. As such, they might be the precursors of pharmaceuticals used currently on conventional farms (especially botanicals). Alternative treatments have varying levels of evidence-based scientific validation.

Some practitioners working with O/A producers (or as livestock owners themselves) have experienced the positive benefits of **CAVM** and have become ardent believers in the utility of these approaches. Others may only wish to use conventional FDA-approved drugs. This information is not meant to encourage or discourage the use of alternative treatments, but to provide you with information to be able to meet O/A producers where they are and work with them in a way that respects their knowledge and experience. The ultimate shared goal is optimum health and welfare of the

animals. This may also serve to introduce you to treatment modalities you may wish to learn more about and possibly add to your toolbox.

## The terminology jungle

There are many different ways to talk about non-conventional health approaches and medicine. Below are some definitions to keep in mind as you read through these pages from the National Institute of Health's (NIH) National Center for Complementary and Integrative Health (NCCIH):

**Complementary** – When a non-mainstream approach is used together with conventional medicine.

**Alternative medicine** – When a non-mainstream approach is used in place of conventional medicine.

**Integrative** – When conventional and complementary approaches are used together to care for the whole individual in a coordinated way. (In human medicine, “integrative” refers to bringing together different approaches that emphasize the whole person and not just one organ system. For example, 2 or more interventions such as conventional medicine, lifestyle changes, physical rehabilitation, psychotherapy, and complementary health approaches in various combinations).

**NIH** researchers are currently exploring the potential benefits of [integrative health](#) in various situations, including pain management for military personnel and veterans, relief from symptoms in cancer patients and survivors, and programs to promote healthy behaviors. We provide these NIH definitions to help you navigate the terminology when researching non-conventional treatments.

## Natural treatments

Before World War II, we relied on natural treatments for humans and animals before the pharmaceutical industry and synthesized drugs became prevalent. Since then, we have discovered the mechanisms of action of many of these known effective products from nature. These products usually have few side effects and rarely result in resistance to natural antibacterial agents. They include:

Vitamins and minerals (Vit B, C, E, A&D, selenium).

Fluids

Electrolytes – calcium, saline, etc.

Dextrose

Aspirin (acetylsalicylic acid)

Topicals – iodine and alcohol (disinfectant), mineral oil, glycerin (teat dip)

Natural farmer treatments

Butter for frothy (pasture) bloat – oil as a surfactant

Sugar for retained placenta

Garlic

Whey products – usually from colostrum, include a protein fraction with immunoglobulins and peptides.

Cytokines – peptides that stimulate immune function, are stable to digestion, and absorbable. There are many

commercial preparations available. Labeled for oral use, sometimes given parenterally. Precursors to recent conventional products.

**Aloe Products** – Aloe vera is the juice of a desert plant. It can offset the cortisol effect by stimulating increased immune function when cortisol is present. Aloe vera has great healing effects on skin and epidural tissue. Aloe vera comes in pellets for feeding, liquified for drenching, jelly, liniment, and sprays for topical use. Safe and natural, aloe vera is economical and useful for organic dairy management. It has to be certified organic and not diluted and should contain 4000 to 5000 mucopolysaccharides per liter (Padgham 2006).

## Trace and macro elements

Calcium, phosphorus, and other macro elements are vital to life. Kelp is high in trace minerals and a tool for supplying some deficient items (Padgham 2006).

## Botanicals

Botanicals are one of the oldest known medicines. Botanicals are the actual plant that can be ingested orally, used in a poultice, or brewed in a tea. They can be prepared as tinctures, essential oils, glycerites, syrups, decoctions, and dried extracts. New botanicals are being constantly developed for use (Padgham 2006).

Essential oils have been used since the Middle Ages for their antiseptic (bactericidal, virucidal), fungicidal, antiparasitic, and insecticidal effects. Essential oils also have medicinal analgesic, sedative, anti-inflammatory, spasmolytic, and local anesthetic properties. They have been used for food preservation and even embalment. Most essential oils are extracted by distillation from aromatic plants. The characteristics of essential oils remain unchanged, however more is presently known about their mechanisms of action. have not changed since then, but now more is known about some of their mechanisms of action. In nature, essential oils protect plants from bacteria, viruses, etc., and also protect them from herbivores by making them less palatable. They also attract insects that help disperse pollen and seeds and repel others that might be undesirable. Essential oils are complex mixtures of molecules and, when combined, can have synergistic effects. Essential oils are usually applied topically (Baakkali 2008). In animals, essential oils are often used as liniments for treating foot problems (Padgham 2006). It's important to use 100% therapeutic-grade essential oils. Quality and purity vary greatly between companies that produce essential oils.

## Tinctures

Tinctures are alcohol or glycerin-based extracts of plants or minerals. The alcohol or glycerin absorbs beneficial molecules that have medicinal properties in a concentrated form. Garlic tincture is commonly used as an antibacterial. Willowbark and St. John's Wort act as analgesics, comfrey heals bones, and arnica prevents bruising (Padgham 2006).

## Probiotics and Prebiotics

The normal bacteria in the **G.I.** tract make up the gut microbiome. A healthy microbiome supplies nutrients to the host, aids in digestion, and helps with food conversion. Antibiotic use is not the only thing that affects the health of gut microbes. Illness, injury, and stress can alter the normal bacterial population, pH, and digestive processes and contribute to further ill health and delayed healing (Shoen and Wynn 1998). Probiotics are living microbes that add good bacteria to the gut microbiome. Pre-biotics are not living organisms but are food for those gut microbes and help them multiply.

## Homeopathy

Homeopathy is a medical system based on the idea that the body can heal itself. Tiny amounts of natural

substances, like plants or minerals, stimulate the healing process. Homeopathy was developed in Germany in the 1700s and is more common in Europe than in the U.S.

The premise behind homeopathy is that like cures like. Thus, something that brings on symptoms in a healthy animal or person can treat an illness with similar symptoms when used in very small doses. It does this by triggering the body's natural defenses. This is similar in principle to desensitization used for treating allergic conditions.

Homeopathic remedies are often used in humans for allergies, migraines, depression, irritable bowel syndrome, rheumatoid arthritis, allergic skin conditions, arthritis, and high blood pressure. Research shows mixed results. The risks are few as the remedies are very diluted (WebMD). Because of the very small doses given, the possibility of residues is not a problem (Shoen and Wynn 1998). The starting materials for remedies are herbs, roots, minerals, fungi, and animal products cut, ground, or crushed into small particles and placed in a solvent (Dettloff and Dettloff-Meyer).

## Acupuncture

Acupuncture is an ancient form of medicine that encourages the body to heal itself. Fine, sterile needles are inserted through the skin and underlying tissues at specific locations, called points. Acupuncture stimulates the body to produce neurochemicals. Microtrauma occurs when the needle is placed into the tissue in a specific spot and stimulates a healing cascade through vessels and nerves. This activates cells that travel through the spinal cord, releasing healing factors and activating pain-blocking mechanisms. It also releases endorphins and hormonal chemicals. Acupressure can also be used by applying digital pressure to an acupuncture point.

Acupuncture has been used in beef cattle for reproductive issues (poor libido, decreased sperm production) and in beef cows for infertility and prolapse. Injuries, lameness, and wound healing are also common treatments. Acupuncture often requires several visits to see an effect. Certification courses take months; short day courses can introduce veterinarians to specific points and treatments to get them started (Shoen 2001). Check out [Beef Acupuncture Magazine](#) to learn more.

## Chiropractic

Chiropractic care is a complementary approach to treatment and healing with the goal of assisting the body in healing itself. Chiropractic modalities have this in common with acupuncture and many of the other complementary treatments that have been used for centuries. Hippocrates practiced spinal manipulation and is often quoted by chiropractors as saying, “look well to the spine for causes of disease” (Wardell 1992).

Chiropractic is one of the most commonly used forms of alternative treatment in humans and has gained popularity in animals since the early 20th century (Shoen and Wynn 1998). The focus of chiropractic care is on the relationship of the spinal column to the nervous system and the role of the spinal column in biomechanics and movement. The basis of chiropractic is the subluxation which can be described as the decreased motion of the joints by slight changes in the position of the articulating facets that result in abnormal biomechanical and neurological function (Homewood 1979,1962; A.C.B. 1986). The pathophysiology of subluxations includes compression of spinal nerve roots or the spinal cord, vertebrobasilar arterial insufficiency, somato-visceral dysfunction, and decreased mobility (Shoen 2001). Chiropractic treatments attempt to restore normal position and movement of joints.

Veterinary chiropractic research is limited. However, chiropractic care for animals has commonly been used for athletes (horses, dogs) as well as trauma, postoperative complications, excess weight, and conformation issues (all species, including livestock) (Shoen, 2001).



*Dr. Lainie Kringen-Scholtz provides chiropractic care to a show animal*



# 11. Practice management and communication skills development

## Practice Management/Communication Skills

Research shows organic and non-conventional clients are passionate about animal, environmental, and human health and acknowledge that this includes animal care. However, many of the encounters with veterinarians and others outside of their organic or non-conventional communities have left **O/A** producers feeling marginalized, misunderstood, and overlooked. This situation presents an opportunity for growth for animal health practitioners looking to expand and work with these producers. Bridging this gap centers heavily on effective communication. Fortunately, communication is a skill that can be improved with evaluation and practice.



The first step in expanding business to include non-conventional clients is to be open to different ideas. If you are not willing to consider alternative ways of doing things, it will be difficult to get and keep clients who practice **alternative** types of farming. Working with **O/A** farmers will require some research, creativity and outside-the-box thinking. Because they work with various species and different kinds of clients, animal health professionals are already skilled in this area. Expanding your skills to include working with non-conventional clients requires building on these foundational skills. Rising to this challenge can help foster productive, fulfilling, and lasting relationships.

After recognizing it's possible to do things differently, the next step is to learn about different options which you are already doing by taking the initiative and signing up for this course. However, beyond the information provided in this continuing education course, be willing to learn by doing your own research and learning from your **O/A** clients. Many have been living and farming with an organic or non-conventional philosophy for decades. Their knowledge from their experiences can be a great source of useful information in practicing in the organic and **alternative** livestock realm. This does not mean they will know everything, but they will be more receptive to your recommendations if you take the time to listen to theirs. Opening up to them will not be perceived as a weakness or lacking as a professional, but as a collaboration working towards mutual goals. This type of interaction between veterinarian and client builds more productive and long-lasting professional relationships.

Communicating with diverse groups is essential for any successful animal health professional. You have likely worked with people who have various levels of education, experience, beliefs, preferences, and more due to the diversity of farming communities. In most areas, **O/A** producers are a minority. Little to no education has been given to animal health professionals on **O/A** farmers' needs and requirements for maintaining animal health. As a result, communicating effectively with this group is of the utmost importance.



*Ducks in a Row Family Farm, Arena, Wisconsin*

Veterinary technicians are often the first face that clients see or the first voice they hear on the phone when they call for animal health information, or for emergencies. Communication that is clear, considerate, and sympathetic to the client's wishes and feelings is invaluable to maintaining a professional, welcoming and trusting atmosphere. Other animal health professionals such as extension specialists have the unique opportunity to develop lasting relationships with clients through good communication. The success of agricultural programs often depends on the ability of an extension specialist to communicate and coordinate with producers, veterinarians, and other extension personnel. Clarity and conciseness of a message are key. No matter the role, clear communication is key to successfully working with any type of producer, including those who raise organic and **alternative** livestock.

Effective communication strategies can help ensure the best possible outcomes for all clients and animals involved. This skill has been shown to promote positive relationships, increase client satisfaction, adherence to recommendations, and increased job satisfaction for the provider (Shaw, Adams, et al. 2004; Janke, Coe, et al. 2021). Ultimately, this will improve animal outcomes and quality of life. Communication is a skill that can always be improved with evaluation and practice.

Effective communication is good for successful practice management. It increases job satisfaction overall. Who doesn't want to be happier at work? Improving your ability to communicate with non-conventional clients enables expansion into this realm. In addition, it is a skill that can be applied both professionally, with clients and co-workers, and personally in relationships outside of work and at home. Improving this skill is not only an investment in your work-life. It is an investment for your whole life. Future chapters in this series will detail how to develop and practice various communication strategies.

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## Resources

[American Academy of Veterinary Acupuncture \(AAVA\)](#)

[American Holistic Veterinary Medical Association \(AHVMA\)](#)

[Animal Normalization Therapy](#)

[Chi University](#)

[College of Integrative Veterinary Therapies \(CIVT\)](#)

[International Organic Inspectors Association \(IOIA\)](#)

[International Veterinary Acupuncture Society \(IVAS\)](#)

[Marbleseed \(formerly Midwest Organic Sustainable Education Services \(MOSES\)\)](#)

[Options for Animals](#)

[Organic Trade Association \(OTA\)](#)

[Practical Farmers of Iowa \(PFI\)](#)

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Chapter 7: Organic and alternative producers – who they are and why they do it – Katie Steneroden

Chapter 8: The Role of animal health professionals on organic/alternative operations – Katie Steneroden, Delaine Quaresma, Irene Nielsen

Chapter 9: Organic rules, regulations, standards, and Allowed and Prohibited Substances – Katie Steneroden

Chapter 10: Prevention – Proactive, practical measures that prioritize animal health – Katie Steneroden

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# Glossary

**ACA**

Accredited Certification Agency

**AGA**

American Grassfed Association

**alternative**

when a non-mainstream approach is used in place of conventional medicine

**AMDUCA**

Animal Medicinal Drug Use Clarification Act of 1994

**APHIS**

Animal and Plant Health Inspection Service

**ATTRA**

Appropriate Technology Transfer for Rural Areas

**AVMA**

American Veterinary Medicine Association

**CAVM**

Complementary and Alternative Veterinary Medicine

**CE**

continuing education

**CFSPH**

Center for Food Security and Public Health

**complementary**

when a non-mainstream approach is used together with conventional medicine

**CRP**

Conservation Reserve Program

**DMI**

Dry Matter Intake



**EPA**

Environmental Protection Agency

**EU**

European Union

**FAD**

Foreign Animal Disease

**FAMACHA**

a system for estimating the level of barber's pole worm among small ruminants

**FDA**

Food and Drug Administration

**G.I.**

Gastrointestinal

**GAP**

Global Animal Partnership

**GMO**

Genetically Modified Organism

**GMOs****integrative**

when conventional and complementary approaches are used together to care for the whole individual in a coordinated way

**IOIA**

International Organic Inspectors Association

**NCAT**

National Center for Appropriate Technology

**NCCIH**

National Center for Complementary and Integrative Health

**NIH**

National Institute of Health

**NOP**

United State Department of Agriculture's National Organic Program

**NOSB**

National Organic Standards Board

**O/A**

Organic and/or Alternative

**OMRI**

Organic Materials Review Institute

**Organic Livestock**

Certified by the USDA to carry the organic label

**OSP**

Organic System Plan

**plain community**

Amish and conservative Mennonites

**PMO**

Pasteurized Milk Order

**USDA**

United States Department of Agriculture

**VCPR**

Veterinarian-Client-Patient Relationship