



AGRI-FACTS

Practical Information for Alberta's Agriculture Industry

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Organic Lamb

What is organic?

Webster's Dictionary defines organic food as food produced using only feed or fertilizer of plant or animal origin without chemically formulated fertilizers, growth stimulants, antibiotics, pesticides or genetically modified organisms.

In practical terms, "organic" refers to a method of agricultural production that aims at being respectful of the natural environment as well as being a sustainable business. Organic production focuses on maintaining the health and diversity of the soils, plants and animals the environment needs to preserve its integrity.

Livestock production is a valuable resource for humans and an integral part of the whole organic farm ecosystem. Grazing livestock effectively recycle nutrients through their manure and contribute valuable organic matter needed for healthy soils (Figure 1).

Sheep, as ruminants, effectively harness solar energy by grazing and digesting plants that humans cannot utilize. Sheep are effective in grazing vegetation often considered to be weeds. For their bodyweight, sheep are efficient at turning plants into high quality protein that is readily digestible by humans. In addition, sheep are able to graze marginal land not suitable for cropping and are efficient in their use of water.

Breeding flocks are maintained on a combination of annual and perennial pastures, harvested forages and some grains as needed for supplemental energy in different stages of production.

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Figure 1. Grazing sheep contribute to a healthy ecosystem and utilize forages to produce high quality products for human use.

Principles of organic production

Here are the principles of organic agricultural production:

- Protect the environment, minimize soil degradation and erosion, decrease pollution, optimize biological productivity and promote a healthy ecosystem.
- Maintain long-term soil fertility by optimizing conditions for biological activity within the soil.
- Maintain biological diversity within the system.
- Recycle materials and resources to the greatest extent possible within the enterprise.
- Provide attentive care that promotes livestock health and welfare.
- Prepare organic products, emphasizing careful processing and handling methods in order to maintain the organic integrity and vital qualities of the products at all stages of production.
- Rely on renewable resources in as-locally-as possible agricultural systems.

For more information:

Organic Alberta (www.organicalberta.org)

Organic regulations

In Canada, organic food and all livestock feeds are provincially regulated under a series of federal regulations:

- The **Canadian Organic Regulation**, passed by the federal government, states that for a food product to be deemed organic, it must meet the requirements set out in the Canadian Organic Standard and Permitted Substances List.
- The **Canadian Organic Standard** is a set of criteria covering all methods and practices for producing and handling crops, livestock and processed food products.
- The **Permitted Substances List** identifies and supplies information on allowable substances that may be used in the production of organic products.
- **Organic Certification** is a system of regulations designed to ensure that organic products comply with Canadian standards of organic production and processing. Certification assures consumers that all organic products have followed strict quality standards from farm to plate. The reputation of all organic production is based on certification and audits that are above reproach.

A partnership between the federal government, via the Canadian Food Inspection Agency (CFIA), and the organic industry oversees organics in Canada.

Information to be found at: www.inspection.gc.ca/food/organic

- CAN/CGSB-32.310 “Organic Production Systems – General Principles and Management Standards”
- CAN/CGSB-32.311 “Organic Production Systems – Permitted Substances Lists”
- Canada Organic Office Operation Manual / Certification of Products / Certifying Body Requirements

Organic certification

In order to use the term “organic,” certification is required. Certified products are allowed to use the Canadian Organic label only when producers and processors do the following:

- meet all requirements as set out in the Canadian Organic Standard
- apply to a CFIA-Accredited Certification body
- are able to validate the complete traceability of their products
- are inspected by an independent third party

For information on organic production, how to get started and certification:

- Organic Alberta (www.organicalberta.org)
- Canadian Organic Growers (www.cog.ca)

In Canada, third-party, private companies are required to certify organic producers and processors. Some certifying agencies charge a levy, a percentage of gross sales in exchange for the use of their stamp or logo. Other agencies have fee schedules based on yearly farm income plus an application fee and yearly inspection costs. Annual re-certification involves a farm inspection and an audit of production and sales records. Certifying agency contacts can be located on the websites listed above.

Starting organic lamb production

This factsheet is a very basic overview for lamb producers on some of the key elements needed for a business in organic production. Additional information is available by searching the term “organic production” on the Agriculture and Forestry website (www.agriculture.alberta.ca).

The success of any new business, organic or any other type of production, is based on generating enough income to cover costs and to provide financial returns to management that make the business sustainable. The Farm Manager Home Page provides tools, information and resources for farm business management planning

(search “Farm Manager” on www.agriculture.alberta.ca). A solid, long-term plan is essential, particularly in organic production where there are limited market opportunities and additional costs.

Organic lamb – a niche market

There is a segment of consumers looking for organic products. Organic products are already a booming market in the European Union. Demand in the United Kingdom has grown by 5 per cent from 2015 to 2016. Market research undertaken by Nielsen found that 83 per cent of households said they had bought organic products in the past year, and organic use in food catering has increased by 15 per cent. In countries or regions where there is enough consumer demand, producing organic lamb offers a market opportunity.

In Canada, organic lamb production is a very small segment of a very small industry. It is a specialized type of lamb production requiring skillful management. There are limiting factors to be considered and addressed.

Of key consideration when starting organic lamb production is that any type of organic livestock production in Alberta is restricted by a limited supply of certified organic feeds. That limited supply means that the organically certified feeds are more costly as well as less readily available.

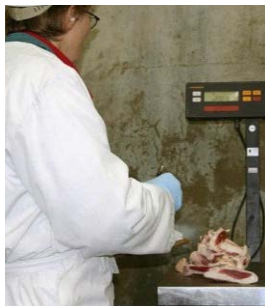


Figure 2. Only certified facilities can process organic lamb.

Another consideration is that organic lamb must be processed in an organically certified and federally or provincially inspected meat-processing facility (Figure 2). Setting up an organic lamb business in an area without local organic feed sources and processing will add significant costs for transporting inputs like supplements as well as for marketing the finished products.

There are certified organic feed suppliers and organic meat processors in many areas of Alberta. Prospective producers need to locate them and talk to them before setting up a flock.

In short, starting an organic lamb business requires knowledge and solid business planning. Be sure you can answer questions like these:

- What is your target market for organic lamb? How big is the market? Where is it? What type of lamb or lamb cuts does it want? Can you sell the whole lamb? What will the market pay?
- What is the competition? Who else is producing the same product? How much of the target market do they control? How long have they been in business? How successful has it been?
- What is the quality needed in the product you will produce? Exactly what do you have to do at each step (production, processing, transporting, marketing and sales) to meet that quality? Will your target market pay enough?
- Is there a certified organic lamb processor you can access? Where is it located? Will it take your lambs on a regular basis? How many? When? What kind of information is the processor able to track and record? Can the processor provide information for organic audits as well as for meat customers? What are the costs?
- Are there certified organic feeds in your area? What is the availability, are contracts required? What feeds are available, in what quantity, are they seasonal? Are they for pick up only at harvest or is delivery available at other times of the year? Is quality established or guaranteed via feed testing? What are the total costs (purchase, trucking, handling and storage)?

Organic lamb production

As noted above, a flock manager who decides to market organic lamb must comply with the Canadian organic production standards. Just because someone markets lamb in a local market and does not use any chemicals or drugs in its production does not mean it can be labeled “organic lamb.” Strict requirements must be adhered to before a food product can be called “organic.”

The organic lamb production standard is a forage-based system that revolves around grazing sheep, pasture management and providing appropriate feeds over the non-grazing winter period. Canadian organic lamb production systems have had to evolve and adapt to Canada’s climate.

Every lamb production unit, whether organic or commodity, must also be financially viable in Canada’s business environment. And when it comes to animal care, there are no trade-offs for organically certified lamb production. Every flock owner is responsible for the care and welfare of their animals.

Good flock management requires planning that spans 365 days of the year. A number of key management areas require specific attention and actions:

- **Marketing** – identification of a target market, product criteria required by the market, regular contact with the market
- **Flock nutrition** – year-round feed plans that meet the nutritional requirements of ewes and lambs,

feed testing and ration balancing, having access to nutritional advice

- **Flock health and welfare** – the care, preventative strategies, approved medications, strategies for health, having information and advice from a veterinarian
- **Cost of production management** – the focus on two major cost items: feed and labour, development of skills needed to manage the business, having a financial advisor as part of your business team
- **Facilities and efficient handling systems** – the design of systems that assist in efficiently managing animal movement through various production stages (i.e. lambing, lamb feeding) that consider both human and animal welfare
- **Back-up plans** – the ability to deal with unexpected issues (disease, predation, short grazing season, dry conditions, etc.)



Figure 3. Canada's environment requires year-round planning to comply with organic certification standards.

Critical activities

Here are critical points for organic certification in lamb production in Canada:

- feeding the sheep flock certified organic feedstuff
- practicing pasture management in accordance with organic requirements
- ensuring there is no exposure to substances prohibited by organic standards
- slaughtering in a certified organic abattoir.

Quality organic lamb for consumers requires planning, recording and maintaining control over the following elements:

- Rations, including those for finishing lambs, must be at least 30 per cent forage at all times.
- Sheep must have access to pasture during the grazing season.
- Salt and mineral must be certified organic.

- Straw used for bedding must be certified organic though local supplies can be limited.
- Preservative-treated wood is prohibited for use in new fencing or structures in contact with the sheep certified as organic.
- Organically certified animals, feed, bedding and meat products must not contact non-organic materials or animals during transportation.
- Vehicles or trailers that also transport non-organic produce must be thoroughly cleaned between loads.
- Any trucker hired by an organic farm to haul feed or produce must sign a declaration that the truck, trailers and augers have been cleaned to organic specifications.
- Processing and handling finished products (labelling, food safety) must meet organic standards.

Keeping track of business

All lamb businesses need good financial and production records. Organic lamb production goes a step beyond by requiring extensive and detailed record keeping. Some certifying agencies supply standard forms. Where no forms are available, producers may design their own. All necessary information must be accurately collected, safely stored and easily audited.

Here are examples of what may be required as basic information by a certifying agency:

- a three-year field history for every acre of land in organic production
- acreage maps
- a description of crop and pasture rotations
- individual animal identification linked to production and medical records
- records of sources of off-farm inputs like feed, supplements, milk replacer
- compost facility and methods used in composting (manure, dead stock)
- methods and products used for pest, weed and disease management
- the types of storage systems for all inputs
- the types of equipment used

Under the Canadian Sheep Identification Program (CSIP), all Canadian sheep and lambs must have a CSIP radio frequency identification tag applied before leaving their farm of birth (Figure 4). For organic lamb production, this individual identification and accurate record-keeping are required. To maintain identity for good records, lambs often have a CSIP tag in the right ear and a second tag in the left.



Figure 4. All Canadian sheep and lambs must have a CSIP tag.

Substances prohibited in organic lamb production

The Canadian Organic Permitted Substances List is a list of allowed and prohibited substances associated with organic farming. Producers must familiarize themselves with the list and not make assumptions about any farm inputs or processes (see information resources listed previously).

Potential sources of contamination, like pesticide drift from neighboring farms, must be identified and recorded. Farming practices that reduce the risk must be recorded.

Buffer zones are required between organic fields and areas that may contaminate the crop with prohibited substances, such as conventionally farmed fields or highways. Producers applying for organic status must notify adjoining farms of their intentions. Organic farmers depend on the goodwill and co-operation of their neighbours to help prevent contamination and preserve their organic certification. Clear signage can also help.

A meat animal treated with antibiotics does lose its organic status. To comply with Canadian Organic Standard 6.7.4, organic farmers must recognize that “medical treatment for sick or injured livestock shall not be withheld to preserve their organic status.” The animal’s welfare is more important than keeping its organic status.

A treated animal must be clearly tagged, its treatments recorded and be in compliance with the withdrawal period for the medication. Treatments should be done in consultation with a veterinarian.

For further information:

- Canadian Organic Standards section 6.7 Livestock Health
- Code of Practice for the Care and Handling of Sheep (www.nfacc.ca)
- Humane Handling Guidelines for Sheep (www.ablamb.ca)

Farms can produce both organic and non-organic crops at the same time if they are of different production types. For example, a producer may raise organic crops and non-organic livestock. However, a farmer cannot have both organic and non-organic sheep, unless the non-organic flock is in the transition process towards organic certification.

Applying for organic certification

The process of organic certification for crop and hay land may take three years from the application date. There must be at least three full years between the last use of a prohibited substance and organic certification. There must be good records that provide a clear, auditable paper trail.

Some of the supporting documents that must be available include soil and water tests or receipts for the purchase of organic feed and breeding stock. If organically produced inputs are unavailable, then records must be kept of attempts to source organic suppliers. All the labels from all purchased supplies should be kept for the audit process.

Each organic certifying agency has a specific process for producers to follow. Lamb producers should contact their chosen certifying organization before they make any management decisions, changes or new investments.

Converting a flock to organic production

Lamb production is a year-round cycle. Converting a standard flock to an organic flock takes a lot of advance planning.

A non-organic ewe flock can produce lambs with organic status if the transition is made before the third trimester of pregnancy. To meet organic requirements, the ewe flock must meet the following requirements:

- have unique individual animal identification
- have complete records (identification, breeding, lambing dates)
- switch to certified organic feed, bedding and supplements
- have records of feeding program conversion including dates, feeds, volumes, storage
- not have been exposed to any prohibited substances (e.g. dewormers, antibiotics, insecticides)
- have pasture or forage with a three-year history of continuous organic management

Lambs born to non-organic ewes can be marketed as organic, but the ewes cannot. Ewe lambs retained for

breeding from the first organic lamb crop will be organic for their lifetime so long as they are maintained according to organic standards.



Figure 5. Lambs from non-organic ewes can be marketed as organic, but not the ewes.

Building your business

Managing costs

The price for organic products in grocery stores and markets make organic production look very appealing. Flock owners look at organic lamb production as a way of increasing returns.

Converting from commercial to organic production often means making a shift in the farm operations. A common limitation for many lamb producers is that they often start with a small land base. That small, existing land base may not support flock expansion. It may not even support the same flock size with the added organic requirements for managed grazing or extended season grazing.

Investments in a new or expanding business venture or the purchase of land must be considered carefully. Find a financial advisor or lender who is willing to work with you.

The limited supply of organic feeds and the cost of organic feed are issues that producers have to plan for. To deal with limited local feed supplies, flock owners may decide to start growing their own organic crops. With the demand for organic feed growing, these feeds can improve cash flow by providing incomes from both sheep and crops.

There will be different costs to consider. Cropping, in addition to the land requirements, can add equipment costs as well as the need for new or different management skills. Adding cropping to an existing operation can also reduce any economies of scale that the sole sheep enterprise might have had.

Managing costs that maintain positive margins is also a challenge in a global commodity like lamb. Commodity lamb market prices fluctuate. Large-scale operations

marketing large numbers of lambs over as much of the year as possible are one way of dealing with volatile commodity prices. Market contracts are another tool. Choosing to produce organic lamb can also help offset market volatility somewhat if secure organic consumer markets can be developed and maintained.

Even with some assurance for market returns, cost management is critical. Feed is the single highest input cost and makes up anywhere from 40 to 70 per cent of the costs in every lamb marketed. Certified organic feeds and supplements can add significant cost. All input costs have to be recovered, and there has to be a margin beyond costs for a sustainable business. Additional income can come from sales of wool or breeding stock, but market lamb sales are the basis of most viable lamb operations today.

The second highest cost of production is for labour. This is a cost that flock managers need to plan for and manage effectively. Planning labour needs means identifying every activity involved in the lamb production cycle (i.e. breeding, lambing, weaning, weighing, health care, shearing, feeding, grazing, pasture and predation management). The activities needed in each stage of production need to be organized to minimize wasted or duplicate effort.

Labour costs include the time as well as the value of all labour inputs. Consider what needs to be done, who will do it, how much time will it take and how much will each be paid. Labour includes hired people or family who do daily chores, contractors like shearers and corral cleaners, service providers like veterinarians and accountants as well as the managers who operate the lamb business.

Other costs that affect the organic flock business include fixed costs, guardian dogs, predation, building and fence maintenance as well as repairs, energy, product processing, marketing and transportation.

A study in France (Benoit, Veysset) calculated the price premiums required for organic lamb to offset increased costs and the effect of either increasing the land base or decreasing animal numbers to accommodate the reduced stocking rates required by organic agriculture. The study validated some key business assumptions about organic lamb production:

- organic lambs produced in an extensive system require a price premium over non-organic lambs
- feed and labour make up roughly 70 per cent of costs in a traditional single crop lambing system
- intensive production systems and accelerated lambing systems are not suited to organic production
- the productivity levels of sheep in intensive systems require more grain or concentrates than what is recommended for organic livestock

Irregular cash flow is often another problem facing lamb producers. Sales of market lambs often trickle in over a 6 to 10 or 12-month production period. By contrast, input costs, mortgage payments and living expenses arrive on a regular basis.

Setting up the business is just the starting point. Learning the business and keeping it operating while establishing markets takes time. Managing cash flow is critical. Professional financial advice is recommended for new agricultural ventures.

For more information:

Alberta Agriculture and Forestry, Farm Business Manager web page at ([www1.agric.gov.ab.ca/\\$Department/deptdocs.nsf/All/bus14419](http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/All/bus14419))

Alberta Sheep & Goat Producer Modules – The Business of Sheep (www.ablamb.ca)

Manitoba Sheep Production Costs (www.gov.mb.ca)

Market opportunities

The Canadian per capita lamb consumption has increased 10.6 per cent (0.1 KG) since 2000. However, total Canadian lamb consumption is less than 1 kilogram per person. Consumption is growing, but it is a small consumer market.

In Canada, the market for all organic food is roughly 2 per cent of food sales. Consumers of organic foods, many of them vegetarian, choose to eat organic foods based on perceptions about health, food quality and sustainable food production. Organic meats are purchased by a small segment of Canadian consumers. Many lamb producers have heard about the growing consumer demand for organic products. There can be opportunities to expand into this small niche market for a lamb producer who has been certified organic.

A study funded by the Alberta Livestock and Meat Agency in 2012 found that 21 per cent of Canadian meat consumers buy organic meat. Growing that organic meat market depends on quality products, production that follows the strict guidelines set out by the organics sector as well as retail consumer pricing.

The study showed that price was the most important criteria for Canadian meat consumers. Retail pricing for lamb is already higher than most beef, pork and chicken. There is a limit to what consumers are willing to pay. Organic lamb prices can limit growth in consumer markets.

A successful organic lamb production business depends on finding enough consumers in your area willing to pay a premium for organically certified lamb. There are

consumers who choose to eat organic meat because they are concerned about the environment and the negative effect of farming practices such as spraying crops. There are consumers who choose not to eat meat from animals that have been fed grains that have been sprayed. Many of these consumers realize that their choices come at a price, but there is a limit to what they are willing to pay.

Organic producers have to be creative marketers to be able to charge a premium on enough lambs to sustain their business. Capturing the opportunities in organic lamb production is possible, but it is not easy.

Planned marketing

The biggest challenge for organic lamb producers is marketing. For a viable business in any area, producers must find regular buyers and secure a reliable market with prices that provide cash flow and positive margins.

Direct marketing can be an effective way to sell organic lamb, especially if a producer is near a major center. There are some opportunities to sell to organic stores and markets as well as to some chefs in Alberta.

Since there is very little by way of a track record for pricing organic lamb, producers must individually develop their business, their market and the prices they can charge. A solid marketing plan deals with basic questions:

- Who will buy my product?
- Will enough customers buy my product for my business to be profitable?
- Will my customers pay more, enough, for organic lamb?
- Where would I find new customers?
- What do my customers want to buy? One freezer lamb per year? Just certain cuts of meat: roasts, chops? How much, how often?
- Do my customers want the unique look and taste of grass-fed lamb?
- Can I charge enough of a premium to cover the extra cost of organic production?
- Is there a certified organic meat processor available and willing to process lamb?
- What kind of packaging will the processor use? Will it maintain a pleasing appearance after being frozen and stored in a freezer? How will the cuts be labelled?
- Can the processor store frozen lamb? Is the processor willing to have consumer clients pick up their lamb? Is there alternative freezer storage that will maintain quality?
- What will it cost to process lambs and what can be expected as a final saleable weight of meat?
- What will handling, delivery and administrative costs be in getting the lamb to customers?

- Will there be advertising costs and point of sale materials to consider?

For more information:

Alberta Sheep & Goat Producer Modules – “Marketing Your Lambs” (www.ablamb.ca)

Production management

Breeds and breeding

A large number of sheep breeds and a variety of breed types are available in Canada. There is no one “best breed.” For organic lamb production, cross-breeding offers the benefits of different breed genetics plus hybrid vigour due to crossing.



Figure 6. Hybrid vigour from crossing breeds offers flock productivity benefits.

Ideally, the livestock on an organic farm are born and raised in an organic system. However, it may be virtually impossible to find a source of breeding sheep in any significant number from a certified organic operation. As a result, many organic operations start with as good genetics as possible and then follow the protocols for converting to organic production.

When bringing in new genetics or replacement breeding animals, non-organic sources can be used if organic animals are not available. These animals cannot be resold as organic breeding stock if they have been owned and held for less than one year. They can never be slaughtered for organic meat. It is crucial that individual animal identification and accurate record keeping are done to track any non-organic animals in an organic system.

While there may be limited flocks of organic breeding stock for sale, there are numerous potential sources of sheep genetics. Visiting a number of different flocks is always wise. Be aware that you help maintain the biosecurity of the flocks you visit by taking disposable plastic boots and clean coveralls. Many producers selling breeding stock will supply boots for visitors to the farm.

Look at sourcing genetics from established flocks in your area or in an area with a similar environment. If

the source flock is not managed the way you would like to manage your flock or if the sheep do not look like you would like to have your sheep look, then keep looking.

To reduce the risk of multiple diseases from different flocks, choose all your sheep from a single flock. Under the right conditions, one limping sheep can become a flock of lame sheep. While there are no “disease-free” flocks, there are a number of well managed flocks with minimal problems.

Choose replacement breeding lambs that are selected for breeding, not from the feeder pen or slaughter lamb group. Flock dispersals with a range of age groups can be a good option for a breeding flock. Auctions do occasionally have flock dispersals. Be aware that once sheep from different flocks walk over the same ground or are mixed together, the health status has been affected.

Originally, all sheep were raised on grass. With selection for productivity of different kinds (wool, carcass, milk, etc.), some breed types do better on grass systems than others. Organic lamb producers may also place different emphasis on the genetic traits of their sheep. Traits that are economically important in a ewe flock in an organic environment are strong maternal traits:

- mothering ability
- hardiness and longevity
- thriving under organic production systems
- ability to forage, produce milk, maintain body condition on pasture
- reduced need for health treatments, increased resistance to disease and parasites

Buying rams is an annual event for nearly all flocks. Decide what your ewe flock needs to produce, either better replacement females or market lambs fitted for your specific market. That means you need to consider two types of rams: one with strong maternal traits and another with strong terminal or slaughter lamb traits. If your flock produces milk or wool, then again, different types of rams are needed.

Select a ram with records that suggest he could contribute the traits you are looking for to his offspring. For most operations, lamb survival (birth vigour) and growth rate are key factors. Rams that contribute to easy-keeping lambs that grow well on grass are worth money to your operation. Be willing to pay more for breeding animals from flocks with years of selection for quality. The best information source is often the producer who sells you sheep.

Terminal sires with genetics for growth and good carcass quality produce better market lambs. Maternal breed type sires produce daughters that improve your ewe flock’s productivity.



Figure 7. Choose sires with the genetics you need.

Generally, organic lamb production allows artificial insemination. It is costly, but it does provide the opportunity to acquire new genetics without the risk of diseases being brought in with animals from outside the flock, which can be particularly important for a well-established organic flock.

Organic standards do prohibit the use of estrus synchronization and embryo transfer. Since reliable heat detection is not possible with sheep, artificial insemination without synchronization of the ewes' heat cycles results in lower lambing percentages and higher costs per lamb born alive.

A ewe flock that thrives under extended season grazing can contribute to a viable organic operation. Flock resiliency is a combination of genetics and management.



Figure 8. It helps to have flocks that thrive under extended season grazing.

Feeding and nutrition

Forages are the basis of organic lamb production. Winter in Canada means there are seasonal limitations to grazing forages. Harvesting the forage during the growing season provides high quality forage after the growing season ends. With a winter feeding period of over 200 days long in many areas, adequate supplies of harvested feeds must be on hand.

Producers who do not grow their own organic feeds face several challenges: they may have difficulty buying it, are often faced with inconsistent supply and, of course, usually pay more. While sourcing organic feeds in some areas is more feasible, there is almost always competition for those feeds.

Access to organic feed often requires building a relationship with the feed producer or supplier. The relationship is usually based on on-going purchase contracts for set amounts, prices and delivery dates. For small organic lamb producers, contracting feeds can be challenging financially. Delivery and storage also add costs.

When considering a new feed source, producers should always consult their certifying agency first before including the new feed, supplement or additive to sheep or lamb rations.

A good sheep nutrition program is based on knowing the quality of every feed. The only accurate way to determine the nutrient value of feeds is by sampling and testing feeds. Once the feed value is known, rations can be balanced to make sure all the needs of the sheep are being met. Companies that sell organic supplements usually have nutritional consultants. Organic lamb growers with some experience in feeding sheep may choose to develop their own rations, and some use ration balancing software available on www.sheepbytes.ca

All feeds must be certified organic. Allowances can be made by the certifier in the case of unusual circumstances such as drought or other weather-related situations. Make sure any feed exemptions are documented.

Genetically modified organisms (GMO's) are not compatible with the principles of organic production and are prohibited from use. Supplements using commercial plant proteins from canola, corn or soybeans must be grown using non-genetically modified plants. Milk replacers made from organic ingredients are also very hard to find. Whole milk from organically certified cows or goats is preferred for rearing orphan lambs.

Clean water is critical for animal health. Water used for livestock must be tested to ensure that it is free from contaminants. Nitrate levels in water must be below 10 mg/l. Mineral supplements and rations may need to be adjusted when water contains excess minerals.

Grass-finished lambs can grow more slowly and, as a result, are often older than grain-finished lambs. Feed as well as age have an effect on the sensory qualities of meat (taste, tenderness, moistness) as well as on the cooking smell. Grass-fed meats taste different than grain-finished meats. Producers have to defer to their customers when making decisions that affect lamb sensory qualities.



Figure 9. Grass-finished lambs may grow more slowly than grain-finished lambs.

Grazing

Organic certification requires that flock managers maximize the use of grazing and forages. As ruminants, sheep are efficient converters of plants to meat, milk and wool. A study done in Ontario benchmarking key performance indicators for traditional flocks found that there can be a strong connection between extensive pasture use and profitability. Pastures, grazing and forage management are a big part of organic lamb production.

Ewes with nursing lambs are commonly pastured until the lambs are weaned. At weaning, the ewes can be moved to lower quality pastures. The weaned lambs can be finished on grass if the pasture quality is adequate. It is critical that the nutrient requirements of both lactating ewes and growing lambs are being met by the pasture forages. Sampling and testing forages for nutrient content is one way of establishing quality.

In Alberta, the seasonal declines in the quality and quantity of cool season pasture plants often means lambs take longer to reach market weight. Good pasture quality contributes to efficient lamb growth and reduces the number of days to reach market weight, minimizing losses due to ill health, predation and death.

Alberta has a short growing season. Managing pastures to get the most forage for the longest period of time helps recover the cost of the land committed to grazing. Managers of grazing flocks also have to monitor soil fertility, organic matter and water resources.

Techniques used to extend the grazing season include stockpiling forages, swath grazing, bale grazing and rotations between annual and perennial forage pastures. Seeding crops like annual oats, triticale, pasture rape or beets is a good strategy for supplementing perennial forage pastures. Annual cultivation turns under parasite larvae, so annual pastures can be effectively used for finishing lambs.



Figure 10. Annual pastures can work well for finishing lambs.

Predation

Organic producers who graze their flocks in addition to managing the pastures, fences and sheep must also contend with predators. In Alberta, most predation losses of sheep and lambs are due to coyotes.

Managing predation is an integral component of virtually all Canadian sheep management systems. A combination of good fencing, guardian animals and regular monitoring of the grazing flock are effective in most areas, most of the time. Experience, research and education have built a wealth of information on practical predation management tools and options.



Figure 11. A combination of management strategies helps reduce predation losses.

For more information:

- Alberta Sheep & Goat Producer Modules “An Introduction to Managed Grazing” (www.ablamb.ca)
- “Coyote Predation and Control Manual and Study Guide - 2016” (www.agriculture.alberta.ca)
- Alberta Sheep & Goat Producer Modules “Predation Management” (www.ablamb.ca)

Flock health

On an organic farm, livestock management focuses on maintaining good health and minimizing health problems. As always, the emphasis is on the welfare of the animals. Appropriate nutrition, health management and good

animal care practices improve the ability of the livestock to fight off disease.

Here are basics tips for organic producers striving for a healthy flock:

- maintain a closed flock or limit the number of brought-in animals
- establish strict biosecurity protocols for the following:
 - new sheep (quarantine pen)
 - visiting livestock producers (provide boots and coveralls)
 - dogs that do not belong to the farm (keep them away from all sheep areas including pastures)
- provide balanced rations that meet the nutritional requirements for the production stage of specific groups of sheep in the flock
- good pregnant ewe nutrition and body condition help ensure that newborn lambs receive colostrum, which builds passive immunity to disease
- have flock management that promotes health, meets the needs of the animals and minimizes stress

Organic standards do not generally allow conventional medicines to be used to treat illness and disease. Even under the advice of a veterinarian, treated animals must be tagged differently than the other animals in the pen, so they are clearly identifiable and can no longer be considered organic. The routine use of drugs in feed or water is not allowed.

Vaccinations are preventative practices used to increase the immunity level of the flock for specific diseases of concern. Vaccinations, for clostridia bacteria diseases as an example, are allowed where the disease cannot be controlled by other management techniques.

All medicines must be used correctly and stored according to label instructions. All medical treatments must be recorded. Correctly administered vaccinations increase flock immunity without damaging lamb carcass quality.



Figure 12. Vaccinations are allowed for certain diseases.

For more information:

- Alberta Sheep & Goat Producer Modules “Flock Health” and videos (www.ablamb.ca)
- Voluntary National Sheep on-Farm Biosecurity (www.inspection.gc.ca)

The parasite challenge

A number of different gastrointestinal parasites affect sheep and are readily picked up by grazing. The more infective larvae sheep pick up on pasture, the higher the numbers of internal worms and the more potential for production losses and disease.

In recent years, gastrointestinal parasites have had an increasing impact on lamb producers in Canada. Growing indications are that the decades-long reliance on chemical dewormers has resulted in sheep parasites that are resistant to nearly all commercial anthelmintics (dewormers). Studies in Alberta and Ontario have shown significant resistance on many farms. New research is studying the various sheep gastrointestinal parasites, their effect and the incidence of resistant parasites.

Organic farms must have a comprehensive plan to minimize parasite problems in livestock. The regular use of chemical anthelmintics (dewormers) is not allowed in organic systems. The Canadian Standard has a temporary derogation (exemption from or relaxation of a rule) that will allow for the administration of a certain dewormer under very specific circumstances when preventative measures have failed. Producers need to be familiar with the requirements of the standard and check with their certifying body if they are unsure.

The limited options for controlling internal parasites in organic production are a challenge. Some current parasite management practices include the following:

- Provide good nutrition and minimize stress. Research has shown that sheep provided with high-protein rations may be more resistant to parasites.
- Not all sheep are particularly susceptible to worm infections just as not all parasite infections cause disease in sheep. Studies in New Zealand show that the use of worm-resistant rams on non-resistant ewes increased growth rates in lambs. Select ewes that stay in good body condition due to lower worm loads. Cull ewes that are persistently thin and/or infected with parasites.
- Manage pastures in ways that reduce supporting the worm cycle:
 - Rotate sheep grazing on pastures on a yearly basis. Use cattle or horses to graze alternate years.
 - Use annual pastures, particularly for the most susceptible lambs and young lactating ewes. Cultivation turns under parasite larvae.

- Combine high-protein plants and those high in tannins, such as sainfoin or birdsfoot trefoil, which are non-bloating legumes. Tannins may have some effect on stomach worms.
- Reduce stocking density.
- Avoid overgrazing, leave taller forage residue, then graze as stockpiled forage after frost.
- Have well drained pastures to minimize parasite development. Graze when dew or rain has dried off forage.
- Time lambing to minimize exposing lambs on pasture to warm, wet weather, which promotes high levels of infectious larvae.
- Forward creep grazing gives lambs access to pastures before the ewes. It can also train lambs that fences are meant to be crawled through if the creep gate design is not well planned.
- Wean earlier, at five to six weeks of age, and move the weaned lambs to clean pastures as they begin to eat significant amounts of forage. Avoid grazing young lambs on contaminated pasture or on the same perennial pasture two years in a row.
- Be aware of and monitor weather conditions that contribute to parasite development. Be prepared to move lambs, feed out in corrals or deworm if necessary.
- Always work with your veterinarian to do accurate fecal sampling before and after deworming to assess the effectiveness of any anthelmintic.

For more information:

- “Handbook for the control of internal parasites of sheep & goats”, Univ. of Guelph (www.uoguelph.ca)
- “SCOPS - Sustainable worm control strategies for sheep”, 4th Edition, 2012 (www.scops.org.uk)
- “Living with Worms in Organic Sheep Production” Stockdale, 2012 (www.cog.ca)

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