

Section 5

NUTRITION

What feeding system should I use?	48
What is the feed cost of production?	48
Are there other ways to reduce feed costs?	48
What should I be looking for in a sheep premix?	49
Should I mix my own feed?	50
Should I do a ration formulation?	51
Should I do a feed analysis?	51
What should I consider when planning feeder space and design?	51
How important is water?	52
What nutrients should I need to make sure the sheep receive?	53
What do sheep eat?	54
How should I feed for a healthy rumen?	55
How should I feed a gestating ewe?	56
What is flushing?	58
How should I feed a lactating ewe?	58
What is the importance of colostrum?	58
How should I feed lambs?	59
What is creep feeding?	60
How should I feed creep feed?	60
What should be in a creep ration?	61
Can I feedlot finish lambs?	61
Can I pasture finish lambs?	62
How should I feed replacement ewe lambs?	62
What are the nutrient requirements of rams?	62
References	63
Additional resources	63

What feeding system should I use?

- Employ safe feeding practices. Avoid any feeding system that requires the animals to be underfoot or in contact with machinery during forage or concentrate delivery.
- When choosing a feeding system it is important to consider: labour efficiency, animal diets, bunk space, and number of head to be fed.
- Since forage forms the bulk of the diet by volume, weight and feeding time, efficient delivery of the forage component should be a primary goal.
- What form will you feed forage – will it be bales or bulk; silage or dry hay?
- If you choose to feed bales – are they big or small; round or square?
- These decisions will impact feeder choices and designs as well as delivery method.
- Walk-through or drive-through feeders are the most time and labour efficient.
- Feeding time (forage only) should be no more than eight seconds/ewe. This is the time from storage to delivery completion.
- Concentrates should be delivered faster than forages, one second/ewe or less of actual feeding time, and allow an extra few seconds per animal staging time (e.g. the time to fill carts or pails used in feeding).



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What is the feed cost of production?

- To gain an accurate picture of your costs, you should monitor feed use, animal numbers, and your income every month.
- You can also monitor feed inventories. All these numbers will not only give you what you need to calculate feed costs, but will enable you to plan your feed requirements for the next cropping season.
- Price all ingredients accurately, including your home-grown forages; update ingredient prices regularly.
- Remember, most feed ingredients are priced on the commodity market: when grain prices go up, by-product feeds such as distillers grains follow; if oilseed values go up, protein meals will not be far behind.
- Know what you are feeding – are you getting value for price paid?
- There are really no good feed-costing guides out there.
- If you have trouble estimating your current feed costs, ask your local agricultural office, banker or accountant for some help.

Are there other ways to reduce feed costs?

- Ensure there is feed and fresh water available to the ewes 24 hours a day.
- Clean the mangers daily.
- Make sure that the farm's 'feeder' is extremely reliable and uses accurate scales.
- Run dry matter tests on all wet ingredients once a week, or regularly, to ensure that you are not under-feeding or over-feeding.

- Analyze all forages; feed a well-balanced ration.
- Forage quality is an important management tool. Those who produce and feed high-quality forages are rewarded with increased animal performance, reduced feed costs, and a rising return on the time and money they invest in this critical feed ingredient.
- It is not enough to grow quality forages; you must also preserve that quality by harvesting the plants at their optimum maturity; this is especially critical with alfalfa, to gain top productivity.
- Know what is required, what you are feeding and how much you are feeding.
- Proper culling program should be used to ensure you are not feeding freeloader ewes. A poor ewe eats as much as a good ewe.



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What should I be looking for in a sheep premix?

- The following is a list of items to consider when comparing supplements in order to choose the right one for your situation:
 - Mineral content:
 - Take a look at the guaranteed analysis located on the tag to find what minerals are guaranteed to be present and in what amounts.
 - Also consider the amount of desired consumption when comparing mineral concentrations. A product designed to be consumed at a rate of 14 grams per head per day needs to be twice as concentrated as a product designed for a consumption rate of 28 grams per head per day.
 - Be sure to compare 'apples to apples' when looking at mineral tags side by side.
 - Mineral form:
 - It doesn't do the animal any good if minerals are provided in a form that it cannot utilize.
 - Ask your feed company for a list of the ingredients present in the premix.
 - As a general rule of thumb, the sulphate forms of most minerals are more bio-available than the oxide or chloride forms. Therefore, as an example, zinc sulphate would be more desirable than zinc oxide on the list of ingredients; however, there are exceptions. For instance, magnesium oxide is a highly available form of magnesium. As the bio-availability of the mineral decreases, the total amount of mineral needed increases.
 - Palatability:
 - Are the minerals you are feeding fresh and inviting? Are there ingredients included that would increase palatability like molasses, salt or fat?
 - Many minerals are bitter and unpalatable to sheep in their natural forms, especially magnesium, and need to be mixed with other ingredients that encourage consumption.
 - Added flavourings are of little help in encouraging consumption.
 - They are usually included in a feed for the benefit of the human handling the feed; in addition, they wear off quickly.
 - When utilizing complete mineral supplements, it is important to remove all other forms of salt unless the label specifically states otherwise.



When utilizing complete mineral supplements, it is important to remove all other forms of salt unless the label specifically states otherwise.

- This is because salt is used to encourage consumption and if the sheep obtain salt from other sources, they will not receive the desired levels of essential minerals and vitamins provided by the complete supplement.
- Another factor affecting consumption is block hardness. Is the block so hard that the animals cannot consume the desired amount? Hardness is often used to regulate consumption in mineral blocks. Blocks can become harder when exposed to high heat or stored for an extended period. An opposite problem is over-consumption of mineral supplements. Is the mineral supplement block in question too soft so that sheep are eating too much?
- Be sure to periodically check the consumption rate per head per day after a period of acclimation (one to two weeks) to make sure that sheep are eating proper amounts of supplement. Wait for a few weeks, because it is not unusual for over-consumption to occur when minerals are first offered after a long absence without them.
- Sheep will typically consume from 15 to 50 grams of mineral supplement depending on the product (always read and follow label directions).
- If they are not consuming recommended levels, either make management adjustments or consider another mineral product.
- Weather resistance:
 - How weather resistant is your mineral choice? Will it dissolve in rain or snow? Will it blow out of feeders on windy days? Wastage can be a large production cost that must be considered.
- Feeding system:
 - What is your current feeding system? Would loose minerals or blocks be the best choice?
 - What feeding equipment do you have available?
 - Do you need something that you can put out for weeks at a time or are more frequent checks not a problem?

Should I mix my own feed?

- Some producers may consider mixing their own feed.
- **Before deciding whether or not this is an economical option for you, the following should be considered:**
 - Calculate the cost of a farm-made diet for the planned rations, then determine the cost of commercial rations.
 - Estimate the tonnage you would mix per year – the more the better.
 - Calculate the cost of the equipment required above and beyond what is needed for purchased complete feeds: commodity storage bins, augers, complete feed bins, feed carts, etc.
 - Decide on an amortization period for the extra equipment, it should reflect the lifetime of the machinery (e.g. 5 to 10 years).
 - Can I mix it accurately and consistently?

Should I do a ration formulation?

- To prepare a feeding program that meets the animal's nutrient requirements, ensure it:
 - Is properly balanced.
 - Is palatable.
 - Promotes or discourages intake (depending on the purpose of the ration).
 - Is suitable for a given management situation .
- There are a number of questions that need to be asked:
 - What type, age, weight of sheep is being fed?
 - What is the desired production level and rate of gain?
 - What feeds are available for use in the formulation?
 - Are these feeds home-grown or are they purchased?

Should I do a feed analysis?

- Evaluating and managing your feed resources will help to maximize farm profit and flock productivity.
- You should work with extension personnel and nutritionists to build a solid nutritional program that includes feed analysis and ration formulation to meet the needs of the flock.
- It is difficult to assess feed quality without performing a detailed chemical analysis to determine the quantity of nutrients present – 'looks good' is not always accurate.
- A basic feed analysis will provide the producer with information on the dry matter (DM), fibre (neutral detergent fibre and acid detergent fibre), total digestible nutrients (TDN), protein, vitamin and mineral content of the feed.
- Knowing the level of nutrients that are available in a given feed allows for the formulation of rations that meet the nutritional requirements of animals in a given stage of production.

What should I consider when planning feeder space and design?

- Before you begin, remember labour is an important cost component to your operation. Plan your feeding systems carefully so they are animal and labour friendly. Don't create unnecessary work.
- In confinement production systems, adequate feeder space is a must in order to ensure that all animals have an equal opportunity to consume their daily ration.
- Feeder space requirements vary according to sheep size, fleece length and type of feed.
- The amount of space required is lower when feed is available free choice than when sheep are hand fed.

- When hand feeding is practiced, feeder length should allow all the sheep in a group to feed at one time.
- When free choice feeding occurs, sheep have access to the feed at all times.
- It is recommended that 400 mm (16") of feeder space be provided for ewes and rams if all animals are hand fed.
- When free choice feed is offered, 150 mm (6") per animal is required for ewes and rams.
- Feeder lambs that are hand fed require 300 mm (12") per animal; whereas, when fed free choice the animals require only 100 mm (4") per animal.
- The type of operation and feeding space required will influence feeder design. Other considerations include:
 - Obtaining feed is natural and comfortable for all sheep.
 - Feed does not become contaminated by animals defecating or jumping into feeders.
 - Openings are sized to allow easy access to feed, but prevent sheep being injured or trapped.
 - The sheep cannot be injured by sharp corners, nails, etc.

How important is water?

- The importance of high-quality water cannot be stressed enough and sheep should be given all the water they can drink.
- Water is the number one limiting nutrient for all animals.
- Limitation of water intake reduces animal performance more quickly and dramatically than any other nutrient deficiency.
- Water constitutes approximately 60 to 70% of an animal's live weight and consuming water is more important than consuming food.
- Consumption of water may vary greatly depending on the kind and size of the animal, physical state, level of activity, dry matter intake, quality of water, temperature of water and the environmental temperature.
- The minimum water intake requirement is reflected in the amount needed for body growth, fetal growth or lactation and that lost in urine, manure or perspiration.
- Not all water must be provided as drinking water; feeds that are high in moisture, such as green chop, silage or pasture, will provide part of the requirement.
- Feeds such as grain and hay offer very little moisture.
- Typically sheep can be expected to voluntarily consume eight to 12 litres of water per day.
- Water in the body is involved in the performance of many functions including:
 - Elimination of waste products of digestion and metabolism (urine and manure).
 - Blood pressure regulation.
 - Milk and saliva production.
 - Transportation of nutrients, hormone and other chemical messages within the body in the form of blood and other blood components such as serum.
 - Temperature regulation affected by evaporation of water from the skin and respiratory tract, such as during perspiration and breathing.



Limitation of water intake reduces animal performance more quickly and dramatically than any other nutrient deficiency.

- Signs of dehydration or lack of water are tightening of the skin, loss of weight and drying of mucous membranes and eyes.
- Water sources should be easily accessible and large or numerous enough so that 'boss' animals cannot easily control them.
- Water quality is as important to animals as water quantity.
- Water quality may affect feed consumption and animal health since poor water quality will normally result in reduced water and feed consumption.
- Water access as well as quality can affect livestock performance.
- Pasture utilization can be greatly enhanced when animals do not have to travel far for water.

What nutrients should I need to make sure the sheep receive?

- **Energy:**
 - Required in the single largest amount by sheep.
 - Also the nutrient most likely to be deficient or in excess.
 - The largest expense in raising sheep is the supply of energy.
 - Energy needs of sheep are influenced by their body size (weight), the stage of production, the amount of exercise they get, fleece length and environmental factors (temperature, wind chill, etc.).
 - Sheep in dry lot or in small pastures need less energy than sheep grazing over large range or pasture areas.
 - In winter, sheep with short fleece need more energy than those with a full fleece.
 - The energy content of feeds is often described by the total digestible nutrients (TDN) content.
 - Grains have TDN values in the 70 to 80% range, while forages range from 50 to 60% TDN.
- **Protein:**
 - The amount of protein eaten is more important than the quality of the protein.
 - Sheep can take nitrogen or other low-quality protein from the diet and synthesize useable protein for the animal.
 - Most average-quality forages have an adequate content of protein for much of the ewe's needs throughout the production year.
 - The most common times when protein should be supplemented would be in times of high production, e.g. lactation.
 - Protein may also need to be supplemented when pasture or range plants are borderline in protein content, usually in early winter or after the plants have stopped actively growing.
- **Minerals:**
 - Mineral nutrition in sheep can be quite complicated.



The largest expense in raising sheep is the supply of energy.

- The mineral content of feeds is a direct reflection of the mineral content of the soil they were grown in. Thus, there are many regional differences in sheep mineral nutrition.
- Minerals are classified as macro or micro. The difference between the classifications reflects the amount needed in the diet and not their physical size.
- The macrominerals of practical significance for sheep include: calcium, phosphorous, sodium, chlorine and magnesium. These minerals often need to be supplemented to sheep.
- Good sources of calcium include; green forages, legumes, ground limestone, bone meal and dicalcium phosphate. Grains are very poor sources of calcium. Most grains have plentiful phosphorous, while forages are often low in phosphorous.
- The ratio of calcium to phosphorous is extremely important, especially with rams or wethers.
- The diet should contain at least two parts calcium to one part phosphorus to prevent a condition known as urinary calculi.
- If this ratio is not met, stone or crystal formation can occur in the bladder and kidneys of sheep and they can block the urethral tract and normal urination.
- Salt is easily supplemented, however, many sheep don't get enough.
- Magnesium is extra important when sheep are grazing high-moisture spring pasture or small grains such as wheat or ryegrass.
- Lack of magnesium can lead to a condition known as grass tetany.
- Microminerals with the most practical implications include: iodine, selenium and copper.

What do sheep eat?

- Sheep can utilize a wide variety of feedstuffs.
- Feeds are classified into groups based on their nutrient content and physical form.
- Producers should consult a nutritionist before feeding alternatives (for example, in drought situations).
- Most common feeds can be placed in one of the following groups:
- Grass forages (hay or pasture):
 - High in fibre (cellulose) and usually low to intermediate in energy.
 - Protein content varies, depending on the plant species and stage of maturity.
 - Lowest in fibre early in the growth period.
 - Examples include timothy, crested wheat and fescues, etc.
- Legume forages (hay or pasture):
 - Fibre dependent on stage of growth and leaf content (e.g. mature alfalfa has a high stem to leaf ratio).
 - Protein content is higher than grass forages.
 - Because of particular proteins in legumes, caution should be taken when first feeding legume forages (i.e. switching from grass hay, or turning onto pasture in the spring) to prevent frothy bloat.
 - Examples include alfalfa and clovers.



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- **Silage:**
 - Produced when green forage is preserved using fermentation.
 - The major advantage of silage is that the crop can be harvested when it is ready in almost all weather conditions.
 - When exposed to oxygen, silage may spoil.
 - Improperly stored silage may cause problems such as listeriosis.
 - Ensiling is not restricted to grasses and legumes; silage can be made from a wide range of crops including corn and barley, etc.
 - Compared to hay, harvesting, storing and feeding silage can require a greater capital investment in equipment and facilities.
- **Concentrates (grains and commercially mixed rations):**
 - High in energy and relatively low in fibre.
 - Fibre level depends on processing of the grain.
 - Grains that are pelleted or crushed will have a much lower fibre content than whole grains with the hull included.
 - Most have a moderate protein content.
 - Examples include corn, barley, oats and commercial mixes.
- **Mineral supplements:**
 - May be included in a commercially mixed ration or supplied by free choice access to mineral blocks or loose minerals.
 - Do not purchase cattle mineral supplements, as the copper is often too high for sheep.
 - See Nutritional Diseases subsection for more information.
http://www.cansheep.ca/User/Docs/PDF/T2-5_Nutritional_Diseases.pdf

How should I feed for a healthy rumen?

- Ruminants are designed to consume and digest forage, and producers will generally have few problems if a high percentage of the diet consists of grass forages.
- Although high grain rations can be successfully fed, animals receiving this type of diet must be managed carefully to avoid digestive disturbances.
- Providing forages together with grains helps to ensure that the high energy feeds are not digested too quickly.
- A diet high in forages also aids in maintaining the rumen pH by increasing rumen motility and encouraging rumination.
- Feeding at regular intervals will help maintain continuous fermentation and prevent acidosis by maintaining a consistent population of bacteria (i.e. no sudden die-offs or explosions in microbe numbers).
- Ration changes should be made gradually over a two-week period to allow the rumen microbes time to adjust.
- This is particularly important when switching from a low-energy diet to high-energy feed (i.e. going from a grass forage diet to either a high-grain or high-alfalfa diet).



Rumen pH:

- ***The normal environment of the rumen is neutral (pH of 6 to 7) and most rumen microbes can only thrive in this type of environment.***
- ***Many of the digestive problems in ruminants occur when the mechanisms regulating the pH balance are disrupted and the rumen becomes too acidic (acidosis).***

- Making ration changes too quickly can lead to digestive disorders such as acidosis and bloat.
- A sudden intake of grain may cause digestive disturbance through a rapid decrease in the rumen pH (acidosis), causing rumen stasis.
- Feeding forage before grain or providing free choice forage helps ensure the formation of a rumen mat to slow the fermentation rate of grain and maintain rumen pH.
- Only feeding very low energy, fibrous feeds (e.g. straw alone) may also cause problems.
- With very fibrous feeds, the rate of passage is too slow to meet the energy requirements of the animal.
- Although there may be lots of feed available, the animal will be limited by the capacity of the rumen.

How should I feed a gestating ewe?

- Ewes that are fed well-balanced diets are more fertile, produce more milk and are more likely to wean a greater number of faster growing lambs.
- As well as producing more pounds of lambs per year, well-fed ewes are also healthier and, as a result, have a greater resistance to disease than ewes that are under nutritional stress.
- The nutritional requirements of a ewe, however, depend on her age and stage of production.
- A ewe's production cycle can be broken down into seven stages: maintenance, flushing, early gestation, mid gestation, late gestation, lactation and postweaning.
- Management, in general, and nutritional management, specifically, must change for each of these production stages if a producer is to have a successful lamb crop and, more importantly, good returns for market lambs. The following are feeding principles for each stage of production:
- Maintenance:
 - The maintenance period for ewes lasts from the time the lambs are weaned to approximately 23 weeks prior to breeding.
 - Pasture grazing, or if in confinement a mixture of hay and straw, should be sufficient to keep ewes in good condition.
 - The ewe's body condition score at weaning will largely determine the amount of feed that she will need during this time.
 - For example, animals that are over-conditioned should lose some weight
 - Those that are under-conditioned should be allowed to gain weight.
 - Each ewe should be assessed individually at weaning and penned or pastured with ewes in similar condition.
 - Midway through the maintenance period, ewes should be condition scored again and the leanest ewes separated for preferential treatment.
 - The goal for the producer is to have the ewes with a condition score of 3, three



Body condition scoring:

- ***Body condition scoring is an aspect of flock nutrition that is often overlooked.***
- ***It is important to condition score the flock in order to determine how it is responding to the current feeding regime.***
- ***If body condition scoring is not done, it is difficult to determine if the current feeding program is meeting the production needs of the flock.***
- ***For the body condition scoring formula, see Appendix 1 of the Code of Practice.***

weeks before breeding begins.

- **Early gestation (15 weeks):**
 - Nutritional management in the first month is still important for minimizing early embryonic losses.
 - Ideally, the target for nutritional management in the first month of pregnancy would be maintenance to a slight increase in weight.
 - Early in pregnancy, ewes should be fed a similar ration to ewes on maintenance rations, with a slight increase in the amount offered.
- **Mid-gestation (up to 100 days):**
 - Any degree of under-nutrition will have greater impacts on ewes that are already in poor condition.
 - Over-feeding during mid-pregnancy can also be detrimental.
 - Increasing a ewe's body condition score above 3.5 at this time is wasteful, and increases feed costs.
 - In addition, excessive abdominal fat combined with the increased uterus size can physically restrict the ewe's feed consumption in late pregnancy.
 - In terms of total nutrient requirements, it is more costly to lose and regain weight than to simply maintain it.
- **Late gestation (last 4 weeks)**
 - Next to lactation, the late gestation period has the greatest nutrient demands for fetal growth, with approximately 70% of fetal growth occurring in the last six weeks of pregnancy.
 - This is also when the ewe starts to put nutrients towards milk production.
 - Inadequate nutrition, especially low energy levels, during this time will have detrimental effects on milk production of the ewe and the birth weight and vigour (survivability) of the lambs.
 - During this stage of production, the plane of nutrition should be increased gradually until lambing. Ewes should be fed good-quality hay or silage and grain rations should be increased.
- **Lactation:**
 - How much you feed a ewe will depend upon how many lambs she is nursing, her size and condition, her age, and the time of the year the lambs are born.
 - Ideally, ewes should be separated into production groups and fed according to the number of lambs they are nursing.
 - A general rule of thumb for concentrate feeding of lactating ewes is one pound of grain for each lamb nursing the ewe.
 - Protein and energy are both critical nutrients for milk production. If either nutrient is fed below the requirement, milk yields and lamb gain will be reduced.
 - Most ewes will lose weight during lactation.
 - Weight loss during lactation affects protein requirements. The more weight ewes lose, the higher their protein requirement will be.
 - After the first 60 days of lactation, the amount of feed you are feeding should be reduced because all it will accomplish is making the ewes fat.

What is flushing?

- See Breeding section (8) for information on flushing.

How should I feed a lactating ewe?

- This stage of production is the most physiologically demanding for ewes. Nutritional requirements are at their highest.
- A lamb in the first four weeks of life is totally dependent upon the nutrients provided by the ewe's milk, so optimizing milk production is critical.
- Even with an increase in dietary energy ewes will generally lose condition during this period.
- Additional protein should be added to the ration at this time to help the ewe's system recover from lambing.
- Good-quality hay should be available free choice.
- It is recommended that ewes nursing multiple lambs be segregated from the rest of the ewe flock, as their nutritional needs are significantly higher than ewes nursing singles.
- Milk production of ewes that are nursing multiple lambs peaks earlier and declines faster, and so it is also recommended that an effort be made to introduce their lambs to creep feed (see pages 60-61) as soon as possible.
- Providing ample amounts of fresh water is particularly important during this stage, as the ewe's requirement will increase significantly.
- During the first weeks of life, lamb growth and development is dependent upon the ewe's milk production.
- Lambs not receiving adequate milk during the first month of life are more prone to contracting infectious diseases and will show a poor overall growth performance.



A lamb in the first four weeks of life is totally dependent upon the nutrients provided by the ewe's milk, so optimizing milk production is critical.

What is the importance of colostrum?

- It is important that lambs receive fresh or frozen colostrum as soon as possible after birth.
- Lambs that do not receive colostrum will generally die.
- Colostrum is yellow and thick in appearance compared to milk that is produced later during lactation.
- Ewes will have a limited amount of colostrum that will gradually be depleted by the lambs during the first day after birth.
- Colostrum may be saved and frozen for up to a year for emergencies.
- Colostrum contains antibodies from the ewe, which will help protect the newborns from various diseases.
- Colostrum is also higher in energy than milk.



Lambs that do not receive colostrum will generally die.

- Orphan lambs or lambs that have been removed from ewes with multiple births (e.g. triplets), will either have to be fostered onto other ewes or raised on milk replacer.
- Lambs less than four weeks of age that are being bottle-fed require a replacer that is high in milk fat and good-quality protein.
- Since lambs at this age are essentially non-ruminants, it is the quality of protein, not the quantity that is important.
- Remember that the lamb actually has to suckle to prevent the milk from entering the rumen. Therefore, ensure the nipple opening on the bottle is small enough to force the lamb to suck, otherwise the lamb will not be able to digest the milk properly and will become bloated.

How should I feed lambs?

- Lambs less than four weeks of age are non-ruminants.
- They will consume high levels of milk and very little in terms of dry matter.
- When lambs drink milk, the rumen and reticulum are generally bypassed.
- Suckling causes a reflex action bringing the walls of the reticulum together to form an esophageal groove leading directly to the omasum.
- This reflex is very important in newborn lambs to ensure that antibodies in the colostrum are transported intact to the abomasum.
- The esophageal groove generally does not form when lambs are fed milk by a stomach tube.
- Without the reflex, the milk will end up in the reticulum and may cause bloating, as the milk will be poorly digested.
- During the first few weeks of a lamb's life, the rumen is very small and has no microbes.
- The rumen will become functional as the lamb begins to consume more plant material and the rumen is 'seeded' with microbes.
- Follow these principles when feeding lambs:
- Pre-weaning:
 - It is important to introduce creep feed to the lambs.
 - Having lambs adapted to eating creep feed will greatly lessen the stress of weaning.
 - Always offer the creep-free choice to the lambs, but devise a means of preventing ewes' access to the ration (creep feeder).
 - It is also advisable to provide lambs with good-quality hay.
 - As lambs consume more dry feed their digestive systems develop further so they are better able to digest and utilize dry feed.
 - Once lambs are consuming at least ½ pound per day of dry feed, weaning can be considered.
 - Weaning usually occurs anywhere from eight to 20 weeks of age, depending on the type of reproductive management system.



Lambs less than four weeks of age are non-ruminants.

- **Post-weaning:**
 - Dry matter intake for feeder lambs varies between 3.5 to 4% of their body weight.
 - Actual intake, however, depends on several factors, including: age; size and condition; growth rate; amount of feed offered; competition for available feed; energy and fibre content of feed; ambient temperature and humidity; availability; and quality of water.
 - The nutrient requirements for lambs are influenced by the desire rate of gain, the lamb's weaning weight, their sex and their breed.
 - Lambs left on pasture will have a slower rate of gain, but feed costs will be minimal.
 - Supplementing a forage diet with concentrates will improve rate of gain; however, you should know the signs of rumen acidosis.

What is creep feeding?

- Creep feeding is a means of supplying extra nutrition, usually grain, to nursing lambs.
- It is especially beneficial for lambs managed in intensive production systems where early weaning is practiced.
- It is also advantageous for flocks that have a lot of multiple births or in flocks where milk production is a limiting factor.
- Creep feeding is usually of less value for lambs that will be developed on pasture in the spring and summer.



Creep feeding is a means of supplying extra nutrition, usually grain, to nursing lambs.

How should I feed creep feed?

- Lambs gain access to creep feed through a 'creep,' which is simply an opening in the fence or gate that is large enough for the lambs to get through, but too small for the ewes to enter.
- It is best that creep gates have multiple openings so the lambs do not think they are trapped. Ideally, the lambs should have access to the creep area from multiple sides.
- A small, used tire can also be used as an inexpensive creep gate. Feeders used in the creep area should be designed so that lambs cannot stand or play in them.
- Lambs should be started on creep feed between one and two weeks of age, though they will not eat significant amounts of feed until they are three to four weeks old.
- Providing early access to creep feed gets lambs in the habit of eating dry feed and helps stimulate development of their rumens.
- The creep area should be placed in a high traffic area where lambs will naturally find their way to it.
- A light in the creep area will help to attract lambs (e.g. a sunny spot in the barn).
- The creep area should be kept dry and well-bedded.

- Two square feet of space per lamb is recommended for the creep area. Each lamb should be allocated two inches of feeder space.
- Water should be available in the creep area, as well as high-quality hay.
- Creep feeders can also be set up on pasture.

What should be in a creep ration?

- Lambs prefer feeds that are finely ground and have a small particle size.
- Feeds that have high palatability for lambs include soybean meal, ground corn and alfalfa hay.
- Crumbled or textured rations are consumed better than pelleted creep feeds. The feed should be fresh and dry and should never be allowed to run out.
- The growth of young lambs is mostly lean muscle (protein) rather than fat, so the protein supply is critical.
- The creep ration should contain 18 to 20% crude protein.
- The protein in creep feed should be all natural; urea should not be fed to young lambs.
- As lambs get older, they prefer coarser diets and whole grains. Older lambs deposit more fat, thus their requirement for protein diminishes.
- The creep feed should contain a 2:1 calcium to phosphorus ratio to prevent urinary calculi (kidney stones) in male lambs.
- Inclusion of 1% feed grade limestone will also help to prevent urinary calculi.
- The creep feed should contain a coccidiostat to prevent coccidiosis.



Feeds that have high palatability for lambs include soybean meal, ground corn, and alfalfa hay.

Can I feedlot finish lambs?

- Grain feeding of lambs improves feed efficiency, increases average daily gain, and lowers overall feed costs per pound of gain.
- Pasture-reared lambs must be brought gradually from a high-roughage/low-concentrate diet to a high-concentrate/low-roughage diet. This transition should take place over several weeks.
- When finishing lambs on high-grain diets, acidosis, enterotoxemia and urinary calculi can be potential problems.
- Corn and soybean meal commonly form the basis of these feedlot diets. However, other grains and protein sources can replace all or part of the corn and soybean meal in the diet, depending upon availability and cost.
- The energy value of barley and grain sorghum (milo) relative to corn is 90%.
- Due to its higher fibre content, oats have only 80% of the energy value of corn. Wheat is equal to corn, but should not replace more than 50% of the corn or barley in the diet.

Can I pasture finish lambs?

- Though pasture-fed lambs will usually not grow as fast as lambs fed concentrate diets, pasture rearing is often more economical.
- It is a more natural feed and environment for lambs.
- Excellent pasture and grazing management is generally required to finish lambs on pasture.
- Lamb growth rate can vary greatly, depending upon the type and quality of pasture being grazed.
- As pasture quality declines, lamb gains decline.
- Rotational grazing systems, which result in lambs consuming plants in a vegetative state when they are the most nutritious and palatable, will produce the best pasture gains.
- Pastures containing legumes usually produce better gains than those containing grass alone.
- Legumes will also improve summer growth of pastures.



Though pasture-fed lambs will usually not grow as fast as lambs fed concentrate diets, pasture rearing is often more economical.

How should I feed replacement ewe lambs?

- They should be fed a high-quality, forage-based ration.
- The end goal is to have them at 75% of the mature body weight, with a body condition score of 3.5 at the time of their first mating.
- Although the diet must be sufficient to allow for optimal growth, it is not advisable to feed ewe lambs on high-energy rations.
- Very fast growth may decrease longevity and there are indications that high body fat during development may decrease milking ability later in life.

What are the nutrient requirements of rams?

- The breeding target for ram lambs is 75% of mature weight at a condition score of 3.5 to 4.
- Once rams are allowed to run with the ewes, they spend very little of their time actually eating. This can result in a weight loss of up to 12% of their body weight during a 45-day breeding period.
- In many cases, forage alone is not adequate nutrition for placing rams in proper body condition for the breeding season.
- At the very least, rams should be evaluated for body condition six weeks before breeding.
- Thin rams should receive grain supplementation as a means to increase body weight and condition.
- Mature rams can be maintained on pasture or wintered on good-quality hay.



Rams should be evaluated for body condition six weeks before breeding.

- Six to eight pounds of mixed grass and clover hay is sufficient to meet the daily energy requirements of a 250-pound ram.
- All rams should have fresh, clean water available at all times as well as salt and minerals.

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Additional resources

Nutritional Diseases

Information on types of nutritional/metabolic diseases in sheep as well as their treatment and prevention.

http://www.cansheep.ca/User/Docs/PDF/T2-5_Nutritional_Diseases.pdf