



feed service

NUTRIFAX

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FINISHING LAMBS ON GRAIN RATIONS



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Some other considerations when feeding lambs

Rectal prolapse

This condition is most commonly seen in lambs on high grain diets. It is not a common occurrence but if it does occur, it is a serious problem, as the lambs most often have to be slaughtered.

There are a number of reasons that lambs prolapse:

- Excessive straining due to coccidiosis, urinary calculi, intestinal worms or constipation.
- Excessive coughing due to dusty feed, dusty environment, lung infections / pneumonia or lung worms.
- Tails docked too short and / or infection.
- Poor ventilation, high ammonia levels irritate the lungs and lambs cough more. The ammonia also predisposes lambs to pneumonia.
- Possible hereditary link.

Take steps to avoid the conditions that lead to lung irritation and coughing.

Respiratory disease / pneumonia / shipping fever

Lambs are susceptible to pneumonia and outbreaks can occur in a group of lambs. The incidence is higher in younger animals as well as animals for the first two to three weeks on feed. The more stressed the animals are the more likely they are to succumb to respiratory disease.

As many as 50% of a group can become infected very rapidly and as many as 10% of an affected group can die. Respiratory disease is serious – feed intake and lamb performance is depressed. The lambs typically have a fever, increased respiratory rate, depression and weight loss.

The following steps will help minimize the risk of lambs contracting respiratory disease.

- **Avoid stress.** Avoid stress on animals especially when animals are moved or first brought onto feed.
- **Timely antibiotics.** Antibiotics are helpful if administered early – check with your veterinarian for a suitable protocol.
- **Facility.** Provide animals with a clean, dry environment. Good ventilation is important but avoid drafts in the facility.
- **Clean feed and water.** Clean feeders and water troughs out more regularly. The mucus from sick animals contaminates the feed and water spreading the disease to other animals.
- **Separate the sick.** It may be necessary to separate out sick animals to avoid contact with uninfected animals. This will help stop the spread of the infection.
- **Biosecurity.** Always avoid mixing “new lambs” with animals already on feed. Avoid carrying the disease to healthy animals via people, feed or bedding.

Key factors to remember

Feeding and bunk management

- Excellent feeding and bunk management helps keep lambs on feed and promotes improved growth and feed efficiency.
- Lambs are fastidious and selective feeders and it is important to watch that all the feed is being consumed fairly consistently between feedings. Selective feeding can lead to digestive problems. Some selective feeding on a daily basis may be tolerated but if it is a serious problem then the ration must be changed. This can be changing the amount of the ingredient and / or adding molasses for example to “hold the ingredients” together so that it is more difficult for lambs to select.
- Never make lambs clean up all the fines. This can result in lambs being hungry and gorging when fresh feed is put out. It is preferable to clean out any fine material daily.

Provide adequate clean fresh water

- Make sure that all animals have unlimited access to clean fresh water.
- Ensure that the water does not freeze in the winter or become tepid in the summer.
- Make sure that the water cannot be contaminated with faeces or urine
- Clean water troughs regularly. Troughs become contaminated with feed and the water spoils, limiting intake.
- The importance of unlimited access to clean fresh water cannot be over emphasized! Lambs require 5 to 8 litres of water / head / day.

What is going on?

- Learn to recognize abnormal behaviour / symptoms and investigate the problem immediately. This is an extremely powerful tool that can help you keep the feedlot running as close to optimal as possible.
- Unusual behavior can tell you about environmental problems. Lambs will soon demonstrate problems with ventilation – they will indicate drafts by huddling together in some areas to avoid the draft (winter) or they will avoid “dead spots” (summer). Poor ventilation can lead to a build up of ammonia in barns and lambs will cough incessantly. This predisposes lambs to prolapse and pneumonia.
- Abnormal behaviour will also tip you off to feeding and / or watering problems. For example, not seeing lambs lined up at the water trough does not necessarily mean that there is not a problem with the water supply / access. This may relate as much to design issue as to placement of these in a facility. Critically evaluate these and animal behaviour to ensure that they are not limiting performance and / or resulting in excessive feed waste.
- Careful observation can also help identify disease problems. For example, urinary calculi, acidosis, pneumonia. While it is important to have your veterinarian involved and to get an accurate diagnosis, it can be really critical to notice changes as soon as possible so that steps can be taken to correct the situation before it turns out to be a major problem.

Feeding whole grains to lambs

Feeding whole grains mixed with a protein mineral and vitamin supplement pellet generally results in superior performance compared to complete pelleted rations or rations containing roughage. Feeding lambs energy dense rations improves feed efficiency compared to feeding higher fibre diets. Both corn and small grains must be fed whole to finishing lambs. Fines and small ground particles predispose animals to acidosis.

It is generally accepted that creep feeds for lambs contain rolled or cracked grains. Lambs can be changed over to whole grain diets after weaning at about 35 to 40 lb weight. The whole grain ration can be mixed at increasing amounts in with the creep feed and lambs transitioned over 5 to 10 days depending on how well the lambs are adjusting to the new ration.

Some research reports indicate that lambs prefer corn to small grains and even suggest that the two grains not be fed together. However, with good feeding and bunk management, corn and small grains can be fed in the same ration. Feeding different proportions of these grains allows producers to alter the energy levels of diets to some extent and hence the deposition of fat on the carcass. Lambs fed whole corn, mixed grains and/or barley had higher rumen pH, longer rumination time, and carcasses with firmer outside fat than lambs fed the same grains but fed in a pellet or ground (mash feed).

Some of the whole grain is chewed when it is first consumed, the rest is regurgitated and chewed later. This process results in more saliva being produced and better buffering of the rumen. Whole shelled dry corn and barley are the grains of choice in whole grain feeding programs. Feeding whole grains is believed to reduce the need for hay.

The protein / mineral / vitamin supplement

Whole grain feeding systems from around the world have developed some ingenious products and feeding systems to help ensure the safe feeding of high grain rations that promote lamb performance and profitability. In Ontario, the most common supplement to whole grains is a supplemental protein based pellet. There are a number of important features to a pellet supplement product to help ensure success.

- 1. Pellet formulation.** The protein supplement is formulated to complement a corn / barley blend in the ration. Shur Gain lamb feeding products are designed to supply high bypass protein levels to promote rapid gains. They also only supply a blend of vegetable protein sources – no animal byproducts are used in any of the sheep products.
- 2. Amount of supplement fed.** Many producers want to feed as little supplement as possible. While this may seem desirable, there are some important disadvantages to this system. Firstly, it is more difficult to pellet a low inclusion / feeding rate product as the mineral content is relatively high making it more difficult to make a good quality pellet. Pellet fines, like corn fines end up at the bottom of the trough where they are less effective at supplying the nutrients when needed. Secondly, low inclusion supplements increase the risk of lambs being able to consume “only corn” and less than desirable amounts of supplement. Higher inclusion supplements help ensure that lambs consume sufficient supplement – the supplement contains the compounds that help modulate the rumen and keep lambs on feed.

- 3. Pellet quality.** Pellet quality is important to ensure a good and even mix with whole grains. Despite the best efforts at pellet quality, there are some feeding situations that are more likely to result in excessive fines. These include excessive handling of the pellet, particularly mechanical mixing the pellet with grains that are significantly wetter than the pellet and mixing pellets and grain a few days ahead of feeding.

Feeding hay?

Feeding hay to lambs on a whole grain ration is somewhat controversial. Opinions and recommendations vary from not feeding any roughage at all to feeding some hay. Either option can work provided some rules are carefully followed. We generally recommend feeding hay separately.

- 1. Limit the amount of roughage.** Given the choice, lambs will consume less than 10% of total diet as hay. The preferred method to feed hay, if it is part of the ration, is to feed it free choice but separate from the grain and supplement. That way lambs can individually select the amount they consume daily.
- 2. Roughage / hay quality.** The hay quality is not that important for this feeding system to work. A medium quality grassy hay is adequate – hay is only intended to be a very small portion of the total ration. But avoid very coarse stalky hay, poor quality hay / straw and moldy hay as lambs will not eat this roughage. Ideally, the hay only makes up 5 – 8% of the total diet so the nutrient contribution to the animal is relatively small.
- 3. Avoid selective competition between the hay and the supplement.** If the feeding system allows lambs to selectively consume corn and hay only, it will result in serious digestive upsets, acidosis and potentially the loss of animals. When feeding hay to lambs, feed it separately (round bale feeder or along a fence-line feeder for example) and mix the pelleted supplement and the grain. This way, every time the lambs eat corn they automatically also consume the supplement.

SHUR-GAIN feeding program

Creep feed the SHUR-GAIN 18% Lamb Creep Pellet to lambs from birth through to weaning. Feed this creep to lambs under stress such as groups where there are twins and triplets or in accelerated lambing programs with early weaning. Creep feed the SHUR-GAIN 16% Lamb Creep Pellet or Textured rations to lambs from birth through to weaning.

Feed the creep in an area where only the lambs have access to the feed. Clean out the feeder daily and always ensure that the creep ration is fresh to encourage intakes. Creep feeding is an important part of the nutrition program – it helps with the smooth transition to feedlot grain diets.

SHUR-GAIN lamb feedlot rations can be fed following the creep ration. Mix increasing amounts of the feedlot starter ration in with the creep and feed this for 7 - 10 days to ease the transition to the new ration. Once lambs are adapted to the feedlot whole grain ration: continue to feed both the appropriate feedlot ration and hay free choice but separately.

Heavy lamb breeds.

Start lambs on a 16% crude protein grain ration with limited hay (generally assumed to be about 200 - 500 g/lamb/day) Feed the lambs from 15 - 25 kg (30 - 55 lbs). Grow lambs on a 15% crude protein grain ration with limited hay (generally assumed to be 100 - 200 g/lamb/day) Grow lambs 25 - 35 kg (55 - 80 lbs). Finish lambs on a 14% crude protein grain ration with minimal hay (generally assumed to be about 100 g/lamb/day). Feed lambs from 35 kg (80 lbs) through to finish.

Light lamb breeds

Start lambs on a 16% crude protein grain ration with limited hay (generally assumed to be about 200 - 500 g/lamb/day) Feed the lambs from 12 - 20 kg (25 - 45 lbs). Grow lambs on a 15% crude protein grain ration with limited hay (generally assumed to be 100 - 200 g/lamb/day) Grow lambs 20 - 30 kg (45 - 65 lbs). Finish lambs on a 14% crude protein grain ration with minimal hay (generally assumed to be about 100 g/lamb/day). Feed lambs from 30 kg (65 lbs) through to finish.

Producer preference

Producers may decide to start lambs at slightly heavier weights. Lighter breeds may be fed the 16% lamb starter ration for longer than indicated here and then follow with the 15% lamb grower through to finish. The particular feeding program that a producer would follow, is influenced by the type of lamb being fed, as well as the desired end weight and carcass finish.

SHUR-GAIN products formulated specifically for feedlot finishing lambs.

SHUR-GAIN 36% Sheep Supplement (200) (3.3% ECP)

SHUR-GAIN 18% Lamb Creep Pellet (0% ECP)

SHUR-GAIN 16% Lamb Creep Pellet (0.66% ECP)

SHUR-GAIN 16% Lamb Creep Feed (0.66% ECP) Textured

SHUR-GAIN Premium Sheep Mineral

The SHUR-GAIN lamb feeding rations are based on average nutrient values for feedstuffs and are designed to meet the nutritional requirements of the growing and finishing lambs. SHUR-GAIN products contain high levels of bypass protein to promote protein deposition in the carcass of rapidly growing lambs. The rations are high energy, promoting rapid growth. All SHUR-GAIN lamb feeds are supplemented with optimum levels of minerals, trace mineral and vitamins to help promote growth and health. These products do not contain any animal byproducts.

SHUR-GAIN formulations for feedlot finishing lambs.

The SHUR-GAIN 36% Sheep Supplement (200) (3.3% ECP) can be mixed to make up a number of on-farm rations for feeding lambs.

	16% Lamb Creep Starter	15% Lamb Grower	14% Lamb Finisher
SHUR-GAIN 36% Sheep Supp (200)	200	175	150
Barley	500	450	400
Corn	300	375	450
Total	1000 kg	1000 kg	1000 kg

	16% Lamb Creep/Starter	15% Lamb Grower	14% Lamb Finisher
SHUR-GAIN 36% Sheep Supp (200)	200	200	200
Barley	325	240	140
Corn	400	500	600
Molasses	50	50	60
Soybean meal	25	10	
Total	1000 kg	1000 kg	1000 kg

	15% Lamb Grower	14% Lamb Grower/Finisher	13% Lamb Finisher
SHUR-GAIN 36% Sheep Supp (200)	200	175	150
Barley	350	275	200
Corn	400	500	600
Total	1000 kg	1000 kg	1000 kg

SHUR-GAIN Premium Sheep Mineral can be fed to lambs as a top dress or mixed in the ration. Feed lambs up to 15g per head per day. Always provide free choice salt to lambs. Ensure that there is adequate fresh clean water available at all times.

SHUR-GAIN Feedlot Lamb Finishing Products*

		18% Lamb Creep Pellet	16% Lamb Creep P or TR**	36% Sheep Supp 200	Premium Sheep Mineral
Crude Protein	(%)	18	16	36	
ECP	(%)***	0	0.66	3.3	
ADF	(%) (max)	10	10	10	
Calcium	(%)	0.9	0.9	45	14
Phosphorus	(%)	0.4	0.4	0.7	12
Sodium	(%)	0.25	0.25	1.25	6
Manganese	(mg/kg)	50	50	250	2,700
Zinc	(mg/kg)	90	90	450	4,500
Iodine	(mg/kg)	0.4	0.4	2.0	200
Cobalt	(mg/kg)	0.1	0.1	0.5	46
Vitamin A	(IU/kg)	10,000	10,000	50,000	600,000
Vitamin D	(IU/kg)	1,000	1,000	5,000	75,000
Vitamin E	(IU/kg)	40	20	100	1,000
Added Selenium	(mg/kg)	0.3	0.3	1.5	36

Notes:

* These products do not contain animal byproducts or added copper.

** P or TR refers to pellet or textured ration.

*** The ECP is from ammonium sulphate, not urea.

FINISHING LAMBS ON GRAIN RATIONS

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Feeding lambs for optimum gain, feed efficiency and profitability can be a challenge. There are several essential components to help ensure success. These include the facility where lambs are to be fed, the feeding and management of animals and potential diseases that may occur during the feedlot finishing of lambs. There are a number of very important aspects to consider when feeding lambs.

Key facility requirements

1. **Lamb feeding facility.** Lambs need a comfortable environment, well ventilated to remove the stale air, but free of draughts. Protect lambs from the cold by providing shelter.
2. **Pen space required for lambs.** Lambs require 0.6 - 0.75 square meters (6 - 8 square feet) floor space. Lambs on dirt require 1.5 to 2.5 square meters per lamb (15 to 30 square feet). Lambs require less space in well drained pens or slated floor pens, but up to 5 times as much on dirt. Floor space required depends on the temperature, (sunlight) and moisture. Pens must be stocked at a level that keeps them dry but dust free.
3. **Trough or bunk space.** Lambs must have at least 10 cm (4 inches) feed trough space per lamb. The feed trough must be thoroughly cleaned once per day to avoid stale or moldy feed buildup. Forcing lambs to clean the feed trough will result in slower, variable growth.
4. **Water requirements for lambs.** Lambs must have at least 1 cm (about 0.5 inch) water trough space per lamb. There should be at least two water points per group of lambs. The water must be clean and fresh at all times.
5. **Grouping lambs.** Feed lambs in groups no larger than 30 - 50 animals. Group lambs by size/weight. Uniform groups help reduce the negative effects of social dominance and promote more rapid and even gains.
6. **Hot and cold weather.** Lambs hyperventilate to help cool body temperature in hot weather. Provide shade in hot weather to help relieve the effects of heat and keep feed intake up. Provide protection against cold – too much feed energy is wasted just keeping lambs warm.

Lambs from off the farm

Lambs that have been trucked some distance to the farm feedlot will suffer varying degrees of the following problems.

- Dehydration – lack of water during transit
 - Rumen “shut down” from lack of feed during transit
- Increased susceptibility to respiratory tract infection and complications – shipping fever

The extent of these problems depends largely on the time spent on the truck. The longer animals are without feed and water, the more detrimental the effects. It is important to carefully assess lambs on arrival to help decide on the most appropriate treatment for the group of animals to ensure a smooth transition to feed and reduce morbidity and mortality. Here are some of the key steps to take with lambs on arrival at the farm.

1. Animals are often exhausted after a long trip. Pen the new arrivals together. Avoid contact between these new lambs and lambs already on feed. This gives them an opportunity to recover unhindered as well as limiting the transmission of disease between these animals and ones already on feed.
2. Consider injecting lambs with a long acting antibiotic prior to shipping to help prevent bacterial scours and respiratory disease. Consult with your veterinarian for appropriate medications and dose rate.
3. Offer good quality grassy hay free choice. Don't feed moldy hay! Don't force lambs to “clean up” stalky or coarse” hay. Clean the hay feeder out and keep fresh palatable hay in front of the lambs.
4. Provide ample cool clean water. Clean water troughs out daily. It will be beneficial to put out extra water points to ensure all lambs have easy access. This is especially important if pens are crowded. Consider electrolytes in the water for these lambs to help restore electrolyte balance as soon as possible.
5. Bed the pens to reduce dust. Dust can irritate of the lungs making lambs more susceptible to infection.

Prior to feedlot finishing lambs

There are important treatments that need to be considered for lambs prior to the start of grain feeding. There may be other treatments required for your specific situation – consult with your veterinarian for appropriate protocols.

Vaccinate lambs

Vaccinate lambs with Tasvax 7. The label directions indicate an initial dose 4 ml (SQ) followed by 2 ml (SQ) 6 weeks later. The second dose can be given 4 weeks after the first – veterinary script required.

Ideally, the first dose should be given at least 2 weeks prior to starting the lambs on grain in the feedlot. But it is also important not to vaccinate lambs less than a month old – this assumes that the ewes have been vaccinated and there is passive immunity passed on to the lambs. Prior vaccination of lambs ensures there is some measure of immunity developed by the time they are on grain. If this is not possible, vaccinate at the start of feeding followed by a second dose at 4 – 6 weeks later.

Follow label directions carefully – very important. If problems with pulpy kidney occur and / or persist, then have your veterinarian review the vaccination protocol and make more suitable recommendations for your particular situation. In addition, carefully review feeding and feed bunk management to eliminate the causes of acidosis in the lambs.

De-worm lambs

If lambs have been raised on pasture, de-worm just prior to trucking or bringing them in off pasture. This will avoid any possibility of re-infestation and ensure lambs are clean on arrival and / or in the feedlot. De-worming options are:

Safe-Guard (Fenbendazole) (Veterinary script required)

Suggested dose: 5 mg Fenbendazole / kg body weight (Indicated for lambs infected with roundworms).

- Use 1g of 0.5% Safe-Guard crumble / kg body weight; Example: 20 g of 0.5% crumble per 20 kg lamb (44 lbs) or
- Use 0.5 ml of 10% Safe-Guard suspension / 10 kg body weight; Example: 1 ml per 20 kg lamb (44 lbs)

Suggested dose: 10 mg Fenbendazole / kg body weight (Indicated for lambs infected with roundworms and tapeworms).

- Use 2g of 0.5% Safe-Guard crumble / kg body weight; example: 40 g of 0.5% crumble per 20 kg lamb (44 lbs)
- Use 1 ml of 10% Safe-Guard suspension / 10 kg body weight; example 2 ml per 20 kg lamb (44 lbs)

Check with your veterinarian for withdrawal information when lambs are treated with Safe Guard (fenbendazole). This is usually not a concern when treated at the beginning of the feeding period.

Tramisol Sheep Wormer Oblets (Levamisole hydrochloride)

Dose ½ oblet for 10 to 15 kg body weight, 1 oblet for 20 to 25 kg body weight lambs

Valbazen (Albendazole) (Veterinary script required)

If tape worms and liver flukes are a problem in addition to the round worms, then dose with Valbazen (Albendazole)

Important feedlot lamb related problems

Feedlot lambs are susceptible to several economically important diseases related to the feeding and management of the animals. The most important are acidosis, coccidiosis, urinary calculi and enterotoxemia (pulpy kidney). These diseases have several characteristics that make them particularly problematic.

- These diseases accumulate gradually over time. The symptoms may only become apparent once the condition is well established. This also means that animal performance may have been compromised for some time. (example; urinary calculi, copper toxicity).
- Once the disease is detected in an animal, there are most likely many other animals in the group that are affected. (example; pulpy kidney, urinary calculi, coccidiosis and pneumonia).

The disease may be difficult to treat or there may be no effective treatment. So once the disease is present, mortality is high. (example; pulpy kidney and urinary calculi).

The occurrence of any of these diseases can be devastating and result in serious financial loss. Fortunately, there are effective feeding and management measures that help reduce the risk and incidence of these diseases.

Prevention is the key to managing the risk of any of these diseases occurring in feedlot lambs.

Acidosis

What is acidosis all about?

Acidosis can be either acute or chronic. Acidosis occurs as a result of excessive grain intake and / or consuming very rapidly degradable grain starch. This is generally seen in animals that are not adapted to grain, animals that gorge on grain or animals fed finely ground grains or very rapidly degradable starch sources.

Acidosis occurs when the rumen pH declines below the ideal range of 5.8 to 6.2. As rumen pH drops below 5.5 animals go off feed and the consequences are serious. At worst animals can die. Acidosis can predispose animals to founder, liver abscess and enterotoxaemia.

Measures to prevent acidosis

- **Adapt lambs to grain rations gradually.** It takes about 10 - 14 days to fully adapt lambs to a grain ration. Lambs already on a creep ration are easier to adapt. Some of the grain ration can be added to the creep to facilitate the change in grain ration with minimal disruption. Older lambs coming off pasture, for example, can be fed increasing levels of grain as pasture and/or hay is reduced to adapt them to grain.
- **Feed whole grain.** Whole grains digest more slowly than ground grains offering some protection against acidosis. This applies to corn as well as the small grains usually fed to lambs.
- **Avoid slug feeding grain.** Once lambs are on grain make sure they do not run out of feed. Also avoid making lambs “clean up” the bunk. Lambs are fastidious feeders and forcing them to clean up the bunk will reduce feed intake and predispose them to overeating when new feed is put out.
- **Include an ionophore in the ration.** An ionophore in the ration will help minimize the risk of acidosis and bloat. Ionophores such as Rumensin, Bovatec and Posistac also improve feed efficiency and lower the cost of gain. Ionophores can only be fed under veterinary prescription.
- **Access to hay.** Lambs that have access to hay free choice will consume some hay as part of their ration. This results in more chewing and saliva production, which in turn helps buffer the rumen.
- **Include buffers in the ration.** If necessary, buffers can be added to the ration. The most usual is sodium bicarbonate. However, buffers are somewhat unpalatable so both the level and method used to feed them is important. The most successful is likely to be in a complete ration and the least successful, concentrated up in a protein supplement. Lambs, correctly fed, on a whole grain ration should not require addition of a buffer.

Coccidiosis

What is coccidiosis all about?

Coccidiosis is caused by an intestinal parasite. This microscopic organism invades the cells lining the lower intestine. The coccidia damage these cells and the extent of that damage depends on the level of infection, the coccidia species and the immune status of the lambs. New born lambs are initially quite resistant to coccidia but then become susceptible to infection if coccidia are present. Taking the normal length of the coccidia cycle into account, coccidiosis may first appear at about 3 weeks of age.

Coccidia eggs are resistant and survive well in both cold and heat but thrive in warm moist conditions. The disease is usually evident as a scour, often a bloody scour. Infected lambs develop immunity and rarely die. But left untreated, the lambs continue to shed serving as a source of infection for other animals. Coccidiosis is a serious problem for lambs.

1. The coccidia inflict chronic damage to the lining of the gut, which in turn reduces absorption of nutrients.
2. Affected lambs grow more slowly and tend to get that pot-bellied, big head small body look. They are generally unthrifty.
3. Treatment at this late stage rarely makes much difference as the intestinal damage is done.
4. Lambs with coccidiosis are also more susceptible to other diseases, particularly pneumonia.

Measures to prevent coccidiosis.

Since the damaging effects of coccidiosis are permanent, it is far more important to prevent coccidiosis than to treat the disease. The negative effects on animal performance reported means it is particularly important to take the measures necessary to prevent outbreaks of coccidiosis in flocks and especially growing finishing lambs. There are a number of steps that will help minimize the risk.

- **Keep pens dry.** Where possible allow sunlight in for part of the day to help dry out the pens. Watch for leaks around the water troughs. Remove or cover wet areas.
- **Avoid faecal contamination of the water and feed.** Clean the feed and water troughs out daily. The correct design of feed troughs and water points can help reduce faecal contamination and subsequent infection of the animals.
- **Keep the animals clean.** Animals can become infected by licking contaminated fleece. Pens must be kept clean, dry and well bedded.
- **Feed an ionophore.** Feed an ionophore / coccidiostat such as Rumensin, Bovatec or Posistac. Deccox can also be used as an aid in the prevention of coccidiosis in lambs. All these medications require a veterinary prescription for use in lamb rations. The choice of ionophore / coccidiostat product and the level of active ingredient depends to some extent on the type of lamb feed being used. For example, it may be advisable to select a product and level depending on whether a complete ration or supplement is being fed.
- **Confirm with your veterinarian.** Consult your veterinarian to confirm the diagnosis and get the appropriate treatment if you suspect clinical coccidiosis. The usual medications are the sulphas and amprolium. Again, these must only be used under veterinary direction.

Urinary calculi (kidney stones)

What is urinary calculi all about?

Urinary calculi are the formation of crystals in the urethra of male lambs and rams (these stones also form in ewes on the same ration but do not affect them as they are passed more easily in the urine). These calculi or stones make urinating more difficult. The crystals continue to enlarge over time and will eventually block the urethra completely. At some point the lambs can no longer urinate and typically the bladder ruptures and death follows.

This condition is usually found in lambs on high grain rations and where the minerals have not been correctly balanced. If water is restricted, this could trigger an outbreak of the condition. The initial symptoms are very subtle but evident on careful observation. Initially, lambs will “drip after they complete urinating”, very small crystals may be evident on the wool of both males and females. As the condition progresses males will be seen straining more to urinate until eventually the blockage is complete and lambs die.

Urinary calculi (the formation of stones) is cumulative over time so that deaths usually occur after the lambs have been on feed for some time. Prevention is absolutely key managing urinary calculi development in lambs.

If urinary calculi are detected, the measures listed below need to be evaluated for the group of feeder lambs. Individual lambs can be treated / dosed with a urine acidifier for 2 to 3 days to help relieve the problem. This can be effective if the condition is diagnosed relatively early. Lambs (and rams) with severe urinary calculi problems need immediate attention; consult your veterinarian.

Measures to prevent urinary calculi.

- **Ration mineral levels.** Feed moderate to low levels of Phosphorus and Magnesium in the total ration. Calcium must be balanced to compliment these levels.
- **Calcium : Phosphorus ratio.** Feed a ration with calcium to phosphorus ratio of 2.2:1 to 2.5:1. This is a key requirement to help prevent calculi from forming.
- **Ration salt levels.** Feed moderately higher levels of salt to encourage higher water intake. This can be done by a slight increase ration sodium levels or offering salt free choice in the form of block salt. However, if salt levels are increased make sure that there is adequate fresh clean water available.
- **Feed a urine acidifier.** This helps prevent crystal formation and accumulation in the urinary tract. The most common compounds are ammonium chloride or ammonium sulphate. SHUR-GAIN 16% Lamb Creep and 36% Sheep Supplement contain a urine acidifier to help prevent urinary calculi developing.
- **Water supply is important.** Free access to clean fresh water is extremely important! The more water animals drink and the more urine that is produced the less likely animals are to developing crystals that block the urethra. It is also important that the water is not highly mineralized. Highly mineralized water adds to the total dietary mineral load. It is particularly important that rams get free access to the best quality water.

Enterotoxemia (Pulpy kidney)

What is pulpy kidney all about?

Pulpy kidney is caused by the toxin released from the bacteria, *Clostridium perfringens* type D. This bacteria is a normal inhabitant of the gut and rarely a problem under most feeding conditions. However, when lambs are fed high carbohydrate rations, and in particular are subject to acidosis, or moved onto lush pastures, the bacteria proliferate very rapidly and start to secrete large quantities of toxin. The absorption of this toxin causes kidney damage and eventually death.

Typically lambs are found dead. These are also usually the best, fastest growing lambs in the group. If lambs are seen prior to death then the symptoms include depression, staggering and down on their sides and usually convulsing. This condition is also more usual in lambs that have been on grain for some time.

Aureomycin or Terramycin can be fed as an aid in the reduction of losses due to enterotoxaemia in feedlot lambs. This would have to be fed for the duration of the feeding period except for a four day withdrawal prior to slaughter.

If the lambs do experience an outbreak of pulpy kidney while on feed, it will be best to take them off grain temporarily until the situation can be adequately assessed. There is no effective treatment and pulpy kidney is normally fatal. This makes it important to take all precautions possible to prevent the disease.

Measures to prevent pulpy kidney.

- **Vaccinate.** Vaccinate against pulpy kidney using a clostridial vaccine - Tasvax 7. Follow label directions carefully. Note that there is a 21 day withdrawal on the vaccine. Consult your veterinarian for advice on appropriate vaccination protocol – there are some adaptations to the label directions that may be appropriate for certain circumstances.
- **Adapt lambs to grain rations.** Adapt lambs gradually to the grain ration. Increase the grain by 70 - 100 g/head/day till lambs are on full feed. Lambs that have been on a creep feed and go directly onto the grain ration are likely to adapt very rapidly to the whole grain ration. Make sure there is sufficient bunk space so that all lambs can feed.
- **Bunk management is key.** Excellent bunk management is essential to ensure that lambs stay on feed throughout the feeding period and have a consistent grain intake. Sudden changes in rations can cause lambs to go off feed and then over consume – this predisposes lambs to pulpy kidney.
- **Feed an ionophore.** Ionophores modulate the rumen environment and rumen pH. It is less likely that pH fluctuations will be as great and therefore offers some protection against the development of conditions that promote the proliferation of the *Cl. perfringens* bacteria.