MANAGEMENT PRACTICES FOR
RAISING DAIRY BUCK KIDS FOR MEAT

Success from the start!

Ontario Goat

Introduction

Demand for goat meat is on the rise in Ontario and the provincial goat industry is struggling to meet it. Surplus dairy buck kids represent an underutilized resource; increasing the number raised for the meat market may help to meet this demand and increase revenue streams for dairy goat producers. This booklet discusses the management and feeding practices necessary to successfully raise dairy buck kids for meat. Prior to purchase, producers should consider whether dairy buck kids will be marketed year-round or only for specific ethnic holidays, and at what weight these kids will be sent to market.

What are "high risk" and "low risk" operations?

There are two main categories of operations that raise and market meat kids: those that raise their own kids or single-source kids directly from their farm-of-birth, and those that purchase kids from multiple sources. While either system may experience problems with kid health, operations that source kids from multiple farms have a higher risk of disease in their animals.

High risk operations usually buy and commingle kids from various dairy goat farms, and often know few details of the health status of the supplier's herd. Commingling kids from multiple sources usually results in kids being exposed to infectious agents against which they have little immunity. Additionally, the stress of transportation, dietary changes, or mixing of animals may impair the kid's ability to effectively manage infectious agents, even those that are "farm bugs". Knowing the health status of the supplier's herd can help producers mitigate some of the risk by avoiding certain farms. Also, it is important to implement proper disease control programs once kids are purchased.

Herds that do not mix kids from different sources are usually at lower risk of disease. These include dairy goat producers who raise the buck kids born on their farms for meat and producers who purchase and raise buck kids from a single, known farm that is "closed" (i.e. does not purchase animals from other farms). When the health status of the herd is known, usually health management can be changed in response to a disease problem, and biosecurity practices can be implemented to limit the spread of disease within the herd.

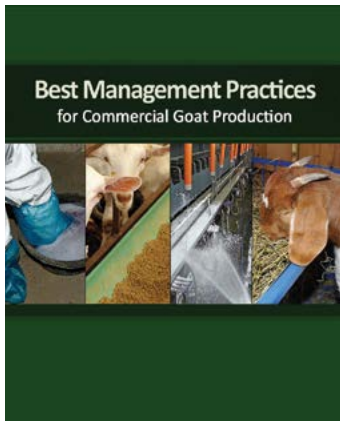
Before purchase and transport of kids

It is recommended that dairy buck kids not be transported until they are at least seven days of age. This means that for those operations that purchase kids, the early management practices that ensure the kids are off to a healthy start are the responsibility of the supplier.

To lower disease risk, the buyer should have a close relationship with the supplier and avoid purchasing animals through a third party. The benefits of this relationship are many:

- Kids can be assembled and transported quickly without commingling or exposure to inclement weather, etc.;
- Feeding changes can be minimized by synchronizing the timing of feeding and type of milk replacer fed;
- Herd vaccination and prophylactic medication programs are known as well as on-going disease issues relevant to kid-rearing; and
- Records of treatments given to the kids can be shared with the buyer to ensure best management practices have been followed and that withdrawal times can be observed when necessary.

Appropriate record keeping forms can be found in Ontario Goat's *"Best Management Practices for Commercial Goat Production"* (BMPs). The buyer should also try to gain information on the health status of the supplier's herd to minimize the number of pathogens entering their own herd.



Only healthy kids should be transported and care must be taken to minimize stresses associated with transport. Federal livestock transportation regulations must be met[1]. Additionally, there are guidelines for transportation published as a Code of Practice[2]. These guidelines contain "must dos" and "recommended" practices. When loading and unloading, transportation guidelines require that kids be handled gently, and that the vehicle should be routinely cleaned and sanitized between loads. It is also important to note that when moving goats, dogs should not be used as they tend to cause the animals more stress during loading.

1 http://www.inspection.gc.ca/animals/terrestrial-animals/humane-transport/transport-requirements/eng/1363748532198/1363748620219
2 https://www.nfacc.ca/codes-of-practice/transport

Transportation requirements are of particular importance when hiring livestock transportation services. Kids should be segregated so that kids from different farms are not mixed in the trailer, they are of similar size and age, they are bedded in fresh, clean straw, and they are protected from inclement weather conditions – either cold or hot. Kids should always ride separately from adult goats or other livestock species to reduce the risk of kids getting hurt by larger animals and to reduce the risk of disease spread. Please refer to the federal livestock regulations and review all guidelines before transporting young kids.

Colostrum management

By having a good and trusting relationship with the supplier, specific health management practices can be encouraged or even required. This kind of relationship should include an understanding between the two producers prior to the purchase and transport of the buck kids that outlines the early life practices and procedures that will be performed to ensure the kids are started off successfully. One of the most important practices is proper colostrum feeding.

Because colostrum feeding is very time sensitive, the producer at the birth farm must ensure colostrum is fed to all kids when they are born. The buyer should ask the supplier about the farm's colostrum feeding routine. If inadequate, the buyer may wish to avoid purchasing kids from that supplier until the program meets their criteria.

For more information on colostrum management, please refer to Ontario Goat's resource *"Colostrum management for commercial goat production"*.

Management practices for raising dairy buck kids for meat

Newborn kid management

Other health management activities associated with birth will help to ensure healthier kids. Navels should be dipped with a 2.5 per cent tincture of iodine at birth for disinfection; all kids must be identified before leaving the birth farm and receive proper prophylaxis for vitamin E and selenium deficiency. For the latter, this includes information on the vitamin E and selenium content of the late gestation doe ration. Details on proper procedures are provided in Ontario Goat's *"Routine navel disinfection for kids"* and *"Supplementing vitamin E and selenium in milking goats and kids"* resources.

Housing

For any dairy buck kid operation, housing is an important factor governing their success. Housing requirements for rearing productive buck kids include maintaining:

- Ideal temperature range (under three months old, 10 to 18°C; over three months old, 6 to 16°C)
- Ventilation and relative humidity (60 to 80 per cent)
- Lighting
- Clean, dry bedding (use the 'kneel test')
- Supplemental heat to avoid chilling during cold months
- Feed and water device requirements, and
- Space allowances (over 30 kg, 0.3 to 0.5 m^2/head; under 30 kg, 0.7 to 0.9 m^2/head)

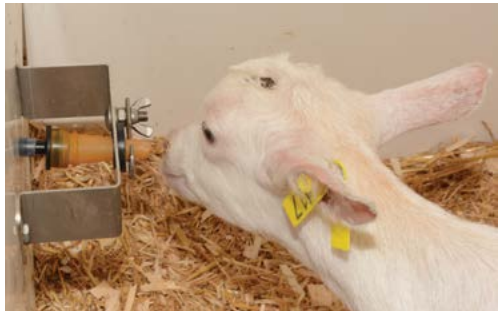
What is the 'kneel test'?

Did you know that using the 'kneel test' can help determine whether bedding is dry enough? To perform the kneel test, you should kneel in the bedding and if your knees become wet within 20 seconds, the bedding is too wet and clean, dry bedding should be added!

Specific requirements for housing can be found in the BMPs and in the *"Recommended code of practice for the care and handling of farm animals - Goats"*[3].

3 https://www.nfacc.ca/codes-of-practice/goats

Feeding pre-weaning



Pre-weaning feeding programs do not differ substantially between high and low risk operations. Typical feeding programs for dairy buck kids include:

- Transitioning the kids onto milk or milk replacer after colostrum feeding. This is usually done over three days. Transition milk (a combination of colostrum and normal milk) from the second to sixth milking after kidding or a commercial milk replacer product can be used. Usually, kids are hand-fed by nipple bottle unless they are strong enough for a nipple pail or self-feeding system. Buyers of buck kids should obtain information on the transition kid feeding program from all supplier farms.

- Feeding of whole milk, milk replacer, acidified milk or acidified milk replacer following colostrum and transition milk feeding.
    - Bovine milk is suitable to feed kids, but must be fresh and of a known source.
    - Milk replacers should be formulated for goat kids although a high quality bovine milk replacer is fine. Do not use lamb milk replacers as they are too high in fat and low in lactose.
    - Acidified milk can be left in feeding systems for longer periods than normal milk replacer; however, it can discourage kids from drinking due to cold temperatures or too much acid.

- Milk or milk replacer can be fed using different methods:
    - Limit feeding of milk:
        - Bottle feeding- each animal is fed individually, allowing for close monitoring of individual intake; this method is very labour intensive.
        - Bucket with nipples/mob feeders- animals are allowed to suckle milk from nipples attached to the container, often with tubes; multiple nipples are available at one time, usually one for each kid in the group.

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Cleaning of feeding equipment

Milk is a perfect medium for bacterial growth. Nipples, milk tubes, bottles, buckets and tanks should be cleaned daily using a sanitizing soap, hot water and bleach when necessary. Milk tubes require special attention; the inside of the tube needs to be scrubbed prior to sanitization. Bacterial growth in feeding equipment can lead to severe illness and death in kids.

    - Ad-lib feeding of milk:
        - A tank or large bucket is kept full of cool, fresh milk at all times; kids suckle from nipples attached to the container, often with tubes; while multiple nipples are used, there are fewer than the number of kids in the group. Individual intakes are not monitored.
        - Automatic feeding- a machine that mixes milk replacer on demand is used to feed kids allowing free choice access to fresh, warm milk, and is less labour intensive.

- For information regarding the frequency, amount and temperature of milk feeding please refer to Ontario Goat's BMPs.

- Free-choice hay and a grain ration that is balanced with salt, minerals and vitamins should be provided within the first week of life. Along with clean fresh water, solid feed will help encourage rumen development.

- Clean, fresh water should be supplied to all kids within 24 hours of birth; the water should be supplied at room temperature and should never be allowed to freeze.

For operations purchasing dairy buck kids, it is important to consider the feeding program used on the supplier's farm for each group of kids. Ideally, the feeding programs should be synchronized and gradually changed over time in order to prevent digestive upsets in the kids.

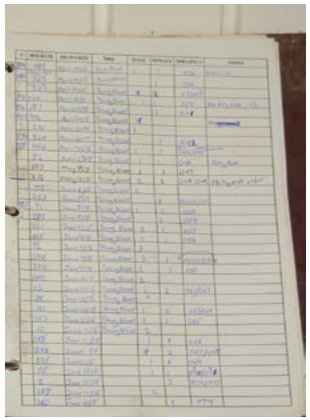
Feeding post-weaning

Post-weaning feeding programs for raising buck kids are not well defined at the present time and further research is required to determine the best way to feed these buck kids. The current feeding programs available suggest a grain-based pelleted feed that contains a balanced ration of nutrients, along with supplemental hay. Pellets prevent kids from 'sorting' feed ingredients, ensuring a consistent ration is consumed while supplemental hay helps to encourage more chewing and saliva production, preventing the rumen from becoming too acidic. When creating feeding programs for dairy buck kids, both pre- and post- weaning, it is essential to work with a nutritionist to ensure proper nutrition while minimizing the risk of kids developing diet-related diseases.

Vaccinations and treatments

Vaccinations and treatments are important for maintaining herd health. There are no licenced products in Canada for goats; therefore any treatments administered to the kids must be done in consultation with a licenced veterinarian. Some important considerations for vaccinations and treatments include:

- Obtaining records of any treatment for each kid at the time of purchase.
- Vaccinating kids against *Colostridium perfringens* type C and D (Pulpy kidney) and *C. tetani* (tetanus).
- Keeping records of vaccinations and treatments given to kids.
- Adding coccidiostats to feed is recommended if coccidiosis appears in the herd; you must consult with a veterinarian to receive a coccidiostat prescription for prevention and/or treatment of coccidiosis.



This is a list of some of the biggest diseases in growing meat kids and health management procedures that may be of help in controlling or preventing those diseases. However, it is critical that you develop a farm-specific program with your herd veterinarian.

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Neonatal diarrhea (scours):

The disease agents (there are many!) that cause neonatal diarrhea can be picked up in the kidding pen at birth, or anytime in the few weeks after birth (e.g. where kids are processed and fed colostrum, from feeding equipment or people doing the feeding, trucks, pens, etc.). Most of the agents are long-lived in the environment, particularly Cryptosporidia, the biggest cause of diarrhea in kids in Ontario. Control is done through proper cleaning and sanitizing of housing and equipment, as well as the people who care for the kids, and adherence to biosecurity practices. Do not purchase kids from a farm with a diarrhea problem. Do not mix scouring kids with healthy kids, and ensure that sick kids are fed last to prevent the spread of pathogenic agents to healthy, uninfected kids.

Pneumonia:

The disease agents that cause pneumonia are usually present in all herds, and the factors that determine kid pneumonia are usually environmental (e.g. stocking density, humidity, cold drafts, ammonia from urine and wet bedding, temperature fluctuations), from mixing of groups, and poor colostrum management. Respiratory Syncytial Virus (RSV) is contagious, as is *Mycoplasma mycoides*. Ask the supplier about pneumonia problems in the kids prior to purchase.

Clostridial diseases (pulpy kidney and tetanus):

These diseases are best controlled through vaccination of the dams and passive transfer of the protective antibodies to the kids through the colostrum. The dams need a primary series (two vaccinations about four weeks apart) and an annual booster – usually done about one month prior to kidding. Kids kept longer than four months of age will need to be vaccinated. If the supplier does not vaccinate the herd or the vaccination program is not sound, encourage adoption of a better program. Kids given a colostrum replacement product likely have insufficient antibodies against clostridial diseases. Consult your herd veterinarian for guidance.

Coccidiosis:

Coccidiosis is a common disease in goat kids four weeks of age and older. The kid becomes infected by ingesting oocysts (coccidia eggs) from the contaminated environment, such as the kidding pen, manure-contaminated bedding, or feed. The most contaminated pens are those that have housed or are housing growing kids. Each infected kid will shed millions of oocysts daily in its manure. Oocysts are very difficult to kill; they build up in the environment until the infection overwhelms new kids being moved into the pen. Although maintaining an all-in, all-out program may help by reducing exposure of the naïve kid to the heavily infected one, more control is required. Removal of dirty bedding alone is insufficient; washing and sanitizing of the pen and equipment are necessary to reduce the number of oocysts. No coccidiostats are licenced for goats in Canada, but many different types are available and may be advisable for use to ensure control. These require a veterinary prescription to use. Consult your herd veterinarian for the best control program for your operation.

Gastrointestinal parasitism:

Kids reared indoors or in a dry lot are at a reduced risk of infection with gastrointestinal parasites. Weaned kids on pasture, particularly if pasture is shared within the same grazing season with adult animals, may be at risk. Before treating any kids, a fecal egg count should be done by a veterinarian or veterinary diagnostic laboratory (e.g. the Animal Health Lab at the University of Guelph). An infection with low levels of parasite eggs should not be treated; only significant infections should be treated and only individual animals that need it. No anthelmintics (dewormers) are licenced for goats in Canada. Goats metabolize anthelmintics differently than sheep or cattle and therefore they must be used with caution - consult with your herd veterinarian before using any product.

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Urinary calculi (stones):

Buck kids on a high grain diet post-weaning are at a high risk of becoming "blocked" with urinary calculi or stones. Signs usually include straining (looks like constipation), dribbling urine, and crying. If the bladder ruptures (water belly), the abdomen will swell with urine and the kid will become depressed and die. The stones can block at the end of the penis, but also anywhere up the urinary tract to the bladder. The most common type of stone (called struvite or triple phosphate stones) looks like gritty sludge.

To lower the risk of urinary stones, make sure you work with your veterinarian and nutritionist and:

- Offer fresh, clean water at all times. If using a nipple or button system, make sure all the kids can operate it. Pay special attention if there is a "line-up" at the waterer. This may signify a problem such as a frozen water line or contaminated water supply.
- Provide a ration that is properly balanced for calcium and phosphorus. Most kid rations are high in phosphorus (from the grain component). Calcium needs to be added so the calcium to phosphorus ratio is not lower than 2.2:1 to 2.5:1.
- Ensure salt is freely available to encourage water consumption. It is best incorporated into the kid ration at a level of at least one per cent (not higher than four per cent). Nutritionists also recommend providing a salt block for buck kids post-weaning as a preventative measure.
- Provide adequate vitamin A in the diet for urinary tract health.
- Monitor magnesium levels carefully so they do not get too high.
- Use urinary acidifiers to help lower the pH of the urine and dissolve the stones. Ammonium chloride is the most effective urinary acidifier, included at 0.5 to one percent of the total ration. Urine pH is normally approximately eight to 8.5. The goal is to get the pH below seven, ideally 6.5, to dissolve the stones.

Acknowledgements

Ontario Goat wishes to thank all those who contributed to this important industry initiative. Your expertise and willingness to help are greatly appreciated.

Project contributors:
Ontario Goat staff
Dr. Jocelyn Jansen, Ontario Ministry of Agriculture, Food and Rural Affairs
Dr. Paula Menzies, University of Guelph

Photographs:
Courtesy of Jillian Craig and Kendra Keels, with an additional thank you to all the farms and businesses that helped with the photography for this project.

The Ontario Farm Innovation Program is funded through *Growing Forward 2 (GF2)*, a federal-provincial-territorial initiative. The Agricultural Adaptation Council assists in the delivery of *GF2* in Ontario.

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