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KSU COOPERATIVE EXTENSION PROGRAMS
Kentucky State University

What-About Those Feed Prices!!

Goat Producer's Newsletter

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Dealing with High Feed Costs

Terry Hutchens, UK Extension Goat Specialist

Kentucky meat goat prices have been outstanding this year and future prices may be even better. The profitability of the meat goat industry seems certain; however, the cost of feeds is also on the increase. The price of corn and soybean meal is beneficial to Kentucky grain farms, but grain prices can impact profit margins for livestock operations. The price of these basic commodities affects the price of all feedstuffs.

Kentucky producers frequently ask, "Can we afford to put feed into weaned kids"? If so, which feeds are the most economical and produce an acceptable rate of gain?" With these questions in mind, in 2010-2011 a study was designed by the University of Kentucky, Kentucky State University and Purdue University that evaluated two diets differing in starch and fiber content. The starch-based diet was composed primarily of corn and soybean meal, and the fiber-based diet was formulated with soybean hulls and distillers dried grains. Differences in growth, performance and carcass traits were observed in this study.

Methods

Thirty-two (32) Boer x Kiko crossbred, intact male kids were used in the study. The kids had been weaned for 30 days prior to the start of the trial and were individually fed and housed until reaching the target weights of 60 pounds. The test diets were equal in energy content and crude protein (see Table 1). The kids were fed hay and all the test diets they would consume.

Results

The results of this study found that the kids goats fed a diet based on soybean hulls had a 27 percent higher average daily gain and a 21 percent higher feed intake and tended to have a higher (gain:feed) ratios than the kids fed the corn-based diet. The gain to feed ratio is a measurement of efficiency of gain for the amount of feed fed. The fiber-based diet was more efficient than the corn-based feed.

Neither the corn-based nor the soybean hull-based diet had an effect on carcass dressing percentage. However the hot carcass weight for the soybean hull diet was higher than for the corn diet.

Conclusion

These results show that feeding the soybean hull-based diet (high fiber) as the primary dietary energy source resulted in a higher growth performance than the corn-based (high starch) diet. We know from previous work conducted at the University of Kentucky that when hay is a significant part of the diet, fiber feeds tend to be more efficient. At this time the cost of commodity feeds are less than corn and soybean meal.

Parasites in Your Future **Ken Andries**

Animal Science Specialist, KSU

As spring comes along and the forage turns green we know that parasite season is just around the corner. We also see more and more issues each year with resistance of the parasites to chemical dewormers. Now is the time to start thinking and planning to help reduce the problems and impact that parasites may have on your herd this year. Here are some practices and strategies that you can use to reduce the impact parasites may have on your animals this year.

If you are not already doing so, you should switch to selective deworming programs. The use of the FAMACHA system is popular and can be done quickly. You will need to be trained to get a card, and you should not rely on the images you can find on the internet as the colors may not be true. Along with selective deworming, you should check the effectiveness of your products at least every two years and not rotate dewormers until the product is no longer effective. You should also check the effectiveness of any non-chemical or alternative treatments you may be considering using.

Chemical cocktails are becoming more popular each year as well and these can be dangerous if not done properly. The main issue is that you must have some refugia (untreated animals) in the system or you will find you become

resistant to all products and cannot find anything or any combination that will work. If you use one of the combinations be sure to use the recommended dose of each product and use a different syringe to give each product. Also test the effectiveness of the combination to again be sure you are getting the job done.

Other options for reducing parasite problems include using rotational grazing and alternative forages. Rotational grazing can help reduce exposure to parasites and promote better quality forage. It has been shown that improved forage quality can help reduce the parasite problems by providing more protein to your animals. Also grazing height is improved and better managed with rotational systems, and this can show some benefit to your animals. Remember, though, that it takes 14 days for *H. contortus* to go from egg to infective stage larva and 60 to 90 days to reduce the parasite load on pasture, so rotational systems may not impact larva numbers although they can still benefit your animals.

Alternative forages are another good method to reduce parasite problems. Annual forage especially will reduce the exposure as they provide a clean pasture to put animals on and provide high-quality forage during the time when fescue is at its lowest

production level of the grazing season. You can also manage these forages well in rotational systems as they often have rapid regrowth. Other alternative forages such as Sericea Lespedeza and chicory have shown to help control parasites, but they must be in very pure stands to be effective. These can be used as part of a rotational system where animals are moved into these areas to remove parasites and boost nutrition before moving back to more regular pasture types in a total system.

Using browse can also help reduce some parasite problems. This helps in several ways: it gets the animals onto new pasture areas where parasite larva populations are low; some of the browse species have chemicals that help control parasites; and they keep the goats grazing higher so they are not exposed as much to the parasites. However, when browsing, if they have access to pasture they can still pick up larva so it is not a 100 percent cure for parasites.

Regardless of how you manage parasites on your farm, be sure to keep updated on the latest recommendations. We are learning more all the time related to resistance and the impact parasites have on your animals. Also, keep track of the animals that have more parasites and other health problems than others in your herd and cull them to improve the overall health of your herd. In the end, selection is the only sure method to prevent parasite problems.



Part II: Common (and Uncommon) Causes of Abortion in Small Ruminants

Michelle Arnold

UK Extension Veterinarian

This article, the second in a series on small ruminant abortion, explores the causes of abortion and available options for control and prevention. Abortion outbreaks can cause serious short- and long-term economic losses, so it is of value to identify potential causes and how to reduce or eliminate them. Most outbreaks of infectious (caused by an organism such as a bacteria or virus) abortion are very contagious and usually zoonotic (contagious to humans). However there are many non-infectious (for example, nutritional) causes as well that may play an important role in a herd problem.

The best way to maintain a healthy flock or herd is to prevent problems before they happen. Basic biosecurity measures will reduce the risk of transmission of many pathogens and will aid in parasite control. These fundamental management issues include:

- Provide good nutrition, which includes clean water and feed, preferably off the ground and of sufficient quality and quantity to maintain good body condition scores.

- Reduce the amount of fecal-oral transmission of organisms by keeping a clean, uncrowded, stress-free environment.

- Use feed additives, such as decoquinolate, monensin and chlortetracycline, prudently.

- Feed high-quality forages, forage test hay and balance rations according to the results, renovate pastures regularly and do not overstock existing pastures.

- Keep the feral cat population in check. Neuter barn cats.
- Use sound preventive health strategies such as vaccination and parasite control programs, which are far more economical than treating a problem once it is present.
- Promptly remove females that have aborted and clean then disinfect the lambing/kidding area.
- Use sound practices for new purchases.
 - Buy from someone you trust, and ask for health records and a complete herd/flock history of any disease problems. Ask questions regarding preventive health measures such as what and when vaccines were given and how they were administered. If possible, visit the farm of origin and observe the animal care that takes place on a day-to-day basis.
 - Quarantine new additions for 30 days. Blood test for Johnes, CAE (goats), and OPP (sheep). Verify scrapie status.
 - Lamb/kid out new females separate from the home flock.

The list of potential causes of abortion is long but the top three organisms are responsible for the overwhelming majority of problems. The following list covers most of the possibilities but is by no means exhaustive. Remember that submission of fresh fetus and placenta to a diagnostic laboratory is your best chance to determine a cause.

Causes of Abortion in Ewes and Does (denotes zoonotic potential)**

Most Frequently Diagnosed Causes

*Chlamydophila abortus*** (formerly known as *Chlamydia psittaci*)—bacterial

*Toxoplasma gondii***—protozoan parasite

Campylobacter fetus subsp. *fetus*** and *Campylobacter jejuni***—"Vibriosis"—bacterial

Bacterial Causes

*Coxiella burnetii***—"Q Fever"

Salmonella enterica **—many serovars possible

*Brucella*** *melitensis*, *ovis*, and *abortus*

*Listeria monocytogenes***

Leptospira spp** (Hardjo)

Yersinia spp.**

Viral Causes

Bluetongue

Border Disease

Cache Valley Fever

Wesselsbron Disease (Africa)

Akabane (Japan, SE Asia, Africa)

Other Infectious

Neospora caninum-protozoal

Sarcocystis spp.-protozoal spp.

Anaplasma phagocytophilum

Mycotic (fungal) —*Aspergillus* spp.

Noninfectious Causes

Nutritional—Poor body condition score due to protein and/or energy deficient diet (abortion in the 90-120 day range)

Pharmaceuticals—Valbazen if used during the 1st trimester, Levamisole if used in the last month of pregnancy, steroids and/or prostaglandins used any time during gestation.

Stress—Cold weather, overcrowding, predators

Mineral deficiencies—Iodine, manganese, copper (excess sulfur, iron, zinc, or molybdenum can decrease copper availability)

Plants that are nitrate accumulators (especially when drought stressed) —Sweet clover, oat hay, sorghums, Johnsongrass, pigweed

Rough handling or fighting

A Review of the Top Three Causes of Abortion

Chlamydophila abortus (formerly called *Chlamydia psittaci*) is a Gram (-) intracellular bacteria that causes “enzootic abortion of ewes (EAE)”, “ovine enzootic abortion (OEA)”, “Chlamydiosis” or simply “enzootic abortion” in goats. It is characterized by late-term abortion (generally in the last month), stillbirths, and weak lambs/kids that do not survive. Ewes/does may be slightly sick before aborting and some exhibit behavior changes. It is important to remember the organism is shed in the vaginal discharge (birthing fluid) for up to three weeks following the abortion, and other ewes/does become infected by getting the organism in through the mouth (orally). If infected early in her pregnancy (in the first 90 days), she will likely abort five to six weeks later. If infected later in her pregnancy or after lambing/kidding, she will likely abort the following year. Lambs/kids born to infected dams can be infected at birth then abort their first pregnancy. Rams and bucks can become infected as well. This organism is capable of causing abortion in pregnant women.

Control of chlamydial abortion in the face of infection is long acting tetracycline (LA-200) administered six and three weeks before lambing/kidding. Consult your veterinarian as to dosage recommendations because this is an extralabel use and must only be given with a valid veterinary client patient relationship (VCPR). Prevention is best achieved with vaccination prior to breeding; the initial vaccine is given at six weeks prior then a booster at three weeks prior to breeding with annual revaccination given three weeks before breeding. Ewes will acquire a strong natural immunity after abortion; it will last approximately three years, but does may abort the following year.

Toxoplasma gondii, the second most commonly diagnosed cause, is an obligate intracellular protozoan that depends on cats for its life cycle. Cats eat infected mice or feed contaminated with the organism then the protozoa undergo the sexual phase of reproduction to produce infective oocysts. These are ingested by the ewe or doe, and results depend on her stage of gestation and dose (how many she swallowed). If infected in the first two months of gestation, the fetus will be reabsorbed. Infection in the third or fourth month of gestation can result in mummies, stillbirths, abortions, weak lambs and kids, or a combination of a live lamb/kid and a mummy. If infected at approximately 110 days of gestation or later, a normal lamb/kid will result. Ewes and does appear normal with no clinical signs of disease except possibly a short fever. Once exposed to this protozoa, the ewe or doe is considered immune.

Control and prevention is based on controlling the cat population (spay, neuter, reducing the number of feral cats) to keep cat feces out of feed and water. No vaccine is available in the United States. The feed additives monensin for goats (Rumensin©) and decoquinate for goats and sheep (Deccox©) are approved for prevention of coccidiosis in young animals but have an observed corresponding effect of suppressing the reproduction of the *Toxoplasma* tachyzoites. There is a simple, inexpensive blood (serum) test for toxoplasmosis that measures antibody response, but it may take up to a month after infection before it is positive and she will remain seropositive at least six months following infection.

Rounding out the top three, found more often in sheep than goats, is “vibriosis” caused by the bacteria *Campylobacter fetus*

subsp. *fetus* or *Campylobacter jejuni*. Historically most ovine *Campylobacter* abortions have been caused by *C. fetus*, but the predominant bacteria in the United States has shifted to *C. jejuni*. *Campylobacter* can be carried in the intestines and gall bladder of healthy sheep without causing clinical disease. Often it is brought into a flock via a purchased infected animal. In susceptible ewes, initial exposure causes placentitis and fetal infection, leading to abortion in the last six to eight weeks of pregnancy. Ewes usually do not show clinical disease, but the aborted lambs, placenta and vaginal discharges are extremely infectious because of the huge number of organisms present in them. *C. jejuni* is also a leading cause of food-borne bacterial gastroenteritis in humans and can cause abortions, stillbirths and neonatal deaths in pregnant women.

All of the recent studies have demonstrated the *C. jejuni* isolates associated with ovine abortion are resistant to tetracyclines—the only class of antibiotics currently approved for the treatment of *Campylobacter* abortion in sheep. Other potential alternatives include tilmicosin (Micotil—toxic to goats), tylosin (Tylan), florfenicol (Nuflor) and tulathromycin (Draxxin) prescribed in an extralabel fashion by a veterinarian. Enrofloxacin (Baytril) is not permitted for use in sheep or goats for any reason in the United States. A vaccine is available that can be administered before breeding (follow label directions). Chlortetracycline (CTC) in feed is approved as an aid in reducing the incidence of vibronic abortion in breeding sheep at 80 mg CTC/head daily. Although vaccination against *Campylobacter* is widely used, it still remains one of the major causes of abortion

worldwide due to genetic variation among strains and insufficient cross-protection that can result in vaccine failure.

Carter County Goats Improve Pastures for Cattle

Myron Evans¹, Terry Hutchens² and Ken Andries³

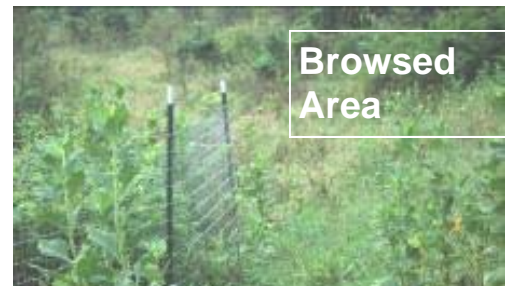
¹Extension Agent, UK, Carter County, ²Extension Specialist, UK, ³Extension Livestock Specialist, KSU

Carter County extension agent Myron Evans set out to investigate a measurable advantage for co-grazing of goats and cows. The study was conducted on the Mick Franklin cattle ranch in Carter County, Kentucky; Mick has been using goats to control woody brush and brambles on pastures for years. In many locations in Kentucky, mowing is not a viable alternative for weed control. A study was designed that specifically measured the effect of brush control and resulting pasture improvement in response to reduction in pasture canopy density. (See Graphs 1,2,3)

Procedure

A Boer x Kiko meat goat herd, 113 does with kids, was grazed with 70 Angus cows with calves on steep mountain pastures. Five 100-foot plots were placed randomly within a 100-acre paddock for the purpose of determining change in undesirable plant canopy. The change in canopy density was measured using the line-intercept method. Canopy measurements were taken in each of the five locations at 6-inch intervals along a 100-foot rope suspended 46 inches from the soil surface.

To measure change in canopy density as a result of goat browsing activity, a plum bob was dropped and plant contact beneath

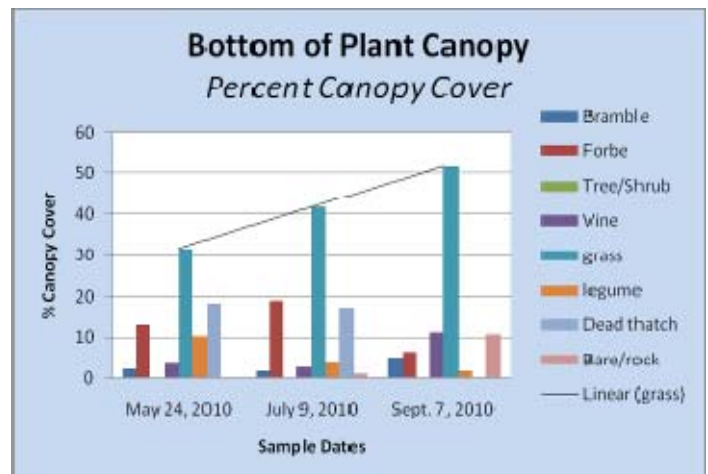
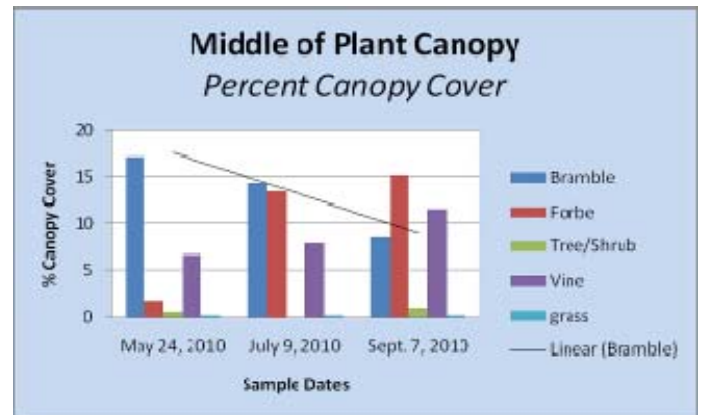


the rope was recorded at three canopy levels, starting with the top at 44-34 inches of height and middle at 34-24 inches of height followed by a bottom reading at ground level. Data was collected in three sampling periods corresponding to spring, summer and fall.

First Year's Results

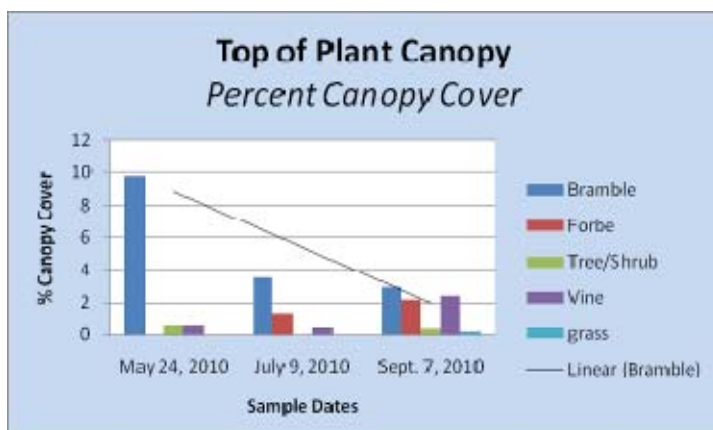
Plant canopies were composed of brambles, forbs, small trees, shrubs and vines. The top canopy elevation declined 30 percent during the grazing/browsing periods of spring, summer and fall. A 44 percent reduction was observed at the mid-level of observation for the same sampling periods. Brambles were not seen at the bottom of the canopy. As a result of the decline of bramble canopy cover, forbs and vines increased 90 percent and 42 percent respectively at the mid-level. The percentage of grass increased from 30 percent at the bottom in spring to 42 percent in summer and 52 percent in fall. Simultaneously, the forb component increase from spring, 14 percent to 19 percent, summer and declined to 5 percent in the fall. As bramble, tree and shrub canopies decline, grass and forb ground cover appear to increase with time for a single growing season. This method of control is likely preferable to mechanical or chemical when both economic and tractor operation safety is considered.

Graphs 1,2 and 3.



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Artificial Insemination of Goat Clinics

Artificial Insemination of Goat Clinics: Each A.I. Clinic is conducted on Saturday, with the morning session focusing on reproductive physiology of the doe (slides), estrous synchronization methods, equipment needs and formularization with actual A.I. equipment. Following lunch, the actual hands on portion, breeding of the does will begin. There is no charge for the clinic however each doe must be synchronized by following a specific protocol that will be made available to you by the Extension agent prior to the clinic. The cost for synchronization is ~\$20 per doe. I will have Boer semen on hand, if other semen is desired it must be supplied by the student. The clinics will start at 9 A.M. and conclude by 3:00 – 3:30 P.M. Numbers should be limited to 5 to 10 people. One doe per person is ideal. Each student will leave knowing the basics of artificially breeding the goat female.

Current A.I. Clinic Schedules:

Saturday, September 3, 9:00 A.M.-3:00 P.M. EST, Slatewoods Farm, Winchester KY, Contact: Kathy Jones, slatewoods@inthehills.com, Terry Hutchens, thutchen@uky.edu

Saturday, October 1, 9:00 A.M.-3:00 P.M. EST, Scott Co. Extension Office, 1130 Cincinnati Rd, Georgetown, KY 40324, Contact: Michelle Simon, Michelle.Simon@uky.edu , Terry Hutchens, thutchen@uky.edu

Saturday, October 15, 9:00 A.M.-3:00 P.M. EST, Trimble Co., 412 Leesport Rd, Milton KY 40045 Contact: Sonia McElroy, McElroyakers@hughes.net , thutchen@uky.edu



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