



Winter Feeding

by Steve Hart PH.D

Winter feeding of animals is critically important for subsequent kidding and lactation. While most of the year the animal can graze and seek out what food they need, usually during the winter our goats only have access to what feed we bring to them, be it hay, grain, molasses lick tub or protein blocks. The goat is totally at our mercy since they cannot seek out nutrition due to lack of available forage on pastures and/or the pasture is of poor quality due to being weathered or mismanaged.

The size of herd and herd objectives are often major determinants of winter feeding programs. With a very small herd, you may be limited to feeding small square bales and hand feeding a supplement whereas a larger producer may do such things as stockpile forage, use round bales or sow cool season grasses such as wheat, rye, oats, often with a legume to provide protein requirements. The cost of wintering an animal is a major factor in determining profitability since most feed must be purchased. Therefore, planning

on winter feeding is important both for the pocketbook and for subsequent animal performance.

When feeding hay, you should avoid feeding hay on the ground to avoid animals contracting coccidia or other infectious diseases, and to prevent hay being wasted. Put the hay in a rack if using small square bales. When feeding a round bale, use an elevated hay feeder that cradles the round bale. Savings in hay will pay for the hay rack in just a few years. Generally, one hay feeder can only feed about 30 goats, so have enough hay feeders for the number of animals feeding from it.

Hay should be purchased prior to the winter season and properly stored. Reduced ground contact and protection from the rain will reduce spoilage of hay. Hay should be analyzed preferably before purchase, but certainly before feeding it. Would you buy a sack of goat feed that was merely labeled as goat feed that had no feed tag or analysis of what was in it? A hay analysis costs about \$15.00 and tells you the protein and energy value of the hay, which will determine how much supplemental feed is needed to keep the

animal in good body condition. Your county extension educator can help you to sample and get an analysis on your hay. Sometimes hay brokers sell hay of unknown or poor quality to naïve, trusting goat producers.

How do you know how much of what to feed your goats this winter? First, we determine the current body condition our animals. Hopefully, we managed them to be in a body condition of at least 3.5 before winter (see tutorial on body condition scoring: <http://www.luresext.edu/?q=Body%20Condition%20Scoring>). If this is the case, animals only need to be fed enough to maintain this condition and provide for pregnancy. Pregnancy only requires additional nutrients in the last 6 weeks of gestation. To help with ration formulation, Langston has developed LINC (Langston Interactive Nutrition Calculator) to help producers estimate the amount of supplement to feed.

How to use LINC:

To use LINC, go to Langston web site <http://www.luresext.edu/?q=content/nutrient-requirement-calculator-and-ration-balancer>.

With this calculator, and answering 6 questions, we can:

1. calculate nutrient requirements,
2. select the feeds desired to use within the ration, and
3. then adjust the amounts of feed we want to feed the goat to see if we can meet the requirements.

Here is an example scenario to walk you through the process: assume we are feeding a mature Boer Doe weighing 130 lbs, on day 110 of pregnancy with twins.

Step 1: Answer the Questions

Question 1: select the biotype of goat from a pull-down menu. For Savannah select Boer/Boer cross. For Kiko, select Spanish or indigenous breed. For our example, we select Boer.

Question 2: select the class of goat, either growing goat or mature goat. For our example we select mature goat.

Question 3: select the gender of the goat from pull down menu (select female in our example) and select the box if, your goat is in late pregnancy.

When you click the box three questions drop down:

- a) How many kids is she pregnant with? We generally estimate 2
- b) Enter the birthweight of your kids. When the breed is selected in the following drop down menu, the average birthweight for that breed is automatically populated. You can enter your own birthweights if, you know what they are.
- c) Enter day of pregnancy. Enter the number of days of pregnancy of the average animal in your herd. The default is 95, because at less than 95 days of pregnancy there is little added nutrient requirement for pregnancy. In our example, we select 110 days of pregnancy and Boer breed.

Question 4: enter the bodyweight of your animal. If you don't know, click on the square to estimate bodyweight. Weight estimations are made by measuring the heartgirth (chest) inches and the genotype of the animal. In some cases, it will ask for body condition. With this information, the calculator can estimate bodyweight of the animal. In our example, we input 130 lbs.

Question 5: enter how much weight you want this animal to gain (exclusive of pregnancy). If body condition score is a little low, you may put in 4-8 lbs/month to increase body condition score. For our example, we select 0. Basically, if the animal gains 10% of their bodyweight, that will increase body condition score by a half score (from 3 to 3.5).

Question 6: indicate if animals have access to pasture. From the drop down menu, you can select stable feeding or intensive management. Selecting stable feeding will increase energy

requirements by 10% to allow for minimal animal movement. Selecting intensive management increases energy requirements by 25% for movement which is the most appropriate for many conditions. For this example, choose "intensive management, temperate or tropical range".

Question 7 and 8 leave the defaults as they are.

Step 2: Click Calculate Requirements

If we did things correctly, requirements are 1.94 lbs. TDN (measure of energy equivalent to a lb. of pure carbohydrate such as sugar), .31 lbs. crude protein, 6.03 grams of calcium and 4.22 grams of phosphorous. Dry matter intake (how much we estimate the goat will to eat) is 2.93 lbs. Goats do not read the program and may eat significantly more or less feed than predicted. Goats can be picky.

Step 3: Select Feed Ingredients

The Selecting Feed Ingredients takes us to a lengthy screen, with various concentrate feeds on top, forages in the middle and special ingredients at the bottom.

Here at the bottom, we can select add/delete feed ingredients from the library. If we have a forage analysis or other feed, we can input the analysis here. *Only the starred rows are required.* For this example, we will select bermudagrass hay (winter) and 16% Dairy feed which is readily available (could also be a 16% meat goat feed).

Step 4: Determine the Amount of Feed

After selecting these two feed ingredients, we will click on Input These Feed Ingredients Into The Ration.

We are then faced with a spreadsheet type of screen that has our two ingredients. We then put amounts beside each one on the column amount fed and evaluate our results.

For example if we choose to feed 2.0 lbs. bermudagrass hay and 1 lb. of 16% dairy feed, click on any square to update totals. Then, look at the totals. Total feed intake is 2.67 and estimated is 2.93. This tells she can eat a little more feed than this. We are significantly low on energy and just meet protein requirements. So to

increase energy in the diet, we need more dairy feed and maybe a little less hay. So we try 1.5 lbs of dairy feed, and while we meet protein and energy requirements, we greatly exceed estimated intake. So we guess 1.8 lbs. for hay. The resulting diet is about 6% low on energy which is tolerable, not over on intake and meets protein, calcium and phosphorus. *This is a guess and try program.* Better to guess with the program than with your animals.

Generally, sweet feed is not a good choice for late pregnancy or lactating animals because of the low protein level. Since the amount of protein required in the diet is about 10.5%, we need some feedstuff that has considerably higher protein to supplement hay which may be of lower protein. So we would likely put out hay free choice and feed this doe 1.5 lbs. of 16% dairy feed. We would monitor her body condition and reduce the amount of supplement if she is getting too fat or cautiously increase it if she is getting too thin.

Conclusion

It is important to remember that this program does not have common sense and is a tool. Therefore, some general management practices to keep in mind are:

- Do not feed less than half of the diet as hay or forage.
- Since this program does not balance for minerals, and you are unlikely to have a mineral analysis for the feeds, provide a free-choice mineral for your animals, preferably formulated for your area.
- It is very important to follow body condition of your animals to fine tune the diet being fed. Goats may consume more hay than the program estimates, or may consume less.

Steve Hart PH.D. *has been a Goat Extension Specialist with Langston University for 26 years. He is a nutritionist and has conducted research on forages, weed and brush control and control of internal parasites*