

Using the Langston University Interactive Nutrient Calculator

Getting started

Example: calculate the nutrient requirements for a nonpregnant 3 year old mature ½ Boer cross doe that had twins 6 weeks ago. The doe has a 32 inch heartgirth and is under intensive grazing management. Her body condition score is 2.5.

Question 1 asks the biotype of goat. A drop down menu will give the choices of Boer, Boer cross, Spanish or indigenous (native) goat, dairy goat, or Angora goat. For Kiko goats, use the selection for Spanish and indigenous. Select “Boer cross.”

Question 2 asks the class of goat, and selections include suckling, growing goat less than a year and a half of age, mature goat including late gestation, and lactating goat including meat and dairy goats. If a lactating goat is selected, another drop down menu asks information needed to predict milk production. This information includes litter size (number of kids), week of lactation (weeks since she kidded), and age of doe at kidding in years. Milk production, along with fat and protein percentages, are then predicted. These figures can be edited, which is useful for dairy goat producers who are more likely to know the amount of milk produced and its fat and protein contents.

For the example, select “lactating goat”. Then in the subsequent menu, select the number of kids (twins) and input week of lactation (6) and age at kidding (2 - 3 years). The program predicts that the doe will produce 3.6 lbs of milk containing 3.6% fat and 3.3% protein.

Question 3 asks the gender of the goat, and the drop down menu has choices of doe, buck, and wether. Select “doe.”

Question 4 asks the body weight of the goat. If the weight is known or a good estimate is available, it should be entered in the box. If the weight is unknown, the heartgirth (chest circumference) can be measured to predict body weight. Check the box to estimate weight via heartgirth and enter heartgirth in inches. A menu will appear with choices of genotype (breed) of goat (Alpine, Angora, Boer, ½ or less Boer, ¾ or ⅞ Boer, La Mancha, Nigerian dwarf, Oberhasli, Saanen, Toggenberg, and Spanish). Some breeds require input of body condition score. Body weight is then estimated. Input “32” inches for a “½ or less Boer” and the estimated weight of the doe is 105 lbs.

Question 5 asks the desired amount of weight gain or loss expected in a 1 month period, with selections ranging from losing 5 pounds (-5) to gain of 30 pounds. This gain is in addition to any pregnancy weight gain. Select 0 lbs per month.

Question 6 adjusts nutrient requirements for the energy expended during grazing if goats have access to pasture. The drop down menu includes choices of stable feeding, intensive management, semi-arid grazing (goats on extensive ranges), and arid (desert) grazing. For the sample calculation select

“intensive management, temperate or tropical range.” This selection will be used in all the examples that follow.

Question 7 asks the percentage TDN of the diet being fed and uses a default value of 60. If the TDN level in the feed is known, this value can be adjusted. For dairy goats, the default value is 65%. Use the default of 60%. If you know the value of the feed you plan to use put it in here. This value is important in prediction of intake.

Question 8 asks the percent protein in the diet and the default is 12%. For dairy goats, the default is 14%. Use the default of 12%. If you know the value of the feed you plan to use, put it in here. This value is used to help predict intake.

Click on the “Calculate Requirements” button to calculate the energy and protein requirements, estimated dry matter intake, and calcium and phosphorus requirements. In this example, the requirements should be 2.5 lbs of TDN for energy, 0.34 lbs of crude protein, 6.65 grams of calcium, and 4.65 grams of phosphorus, with a predicted intake of 3.65 lbs of dry matter.

Providing needed nutrients

After calculating the nutrient requirements for goats, those nutrients must be provided using feedstuffs such as pasture, hay, concentrate, and minerals. For most goats throughout much of the year, nutrient requirements can be met by available pasture, a mineral supplement, and water. During times of limited forage availability or quality such as winter, or feeding poor quality hay or stockpiled forage, a supplement will be needed to supply deficient nutrients. The level of supplemental feeding should be adjusted with changes in animal requirements, such as increased needs of late pregnancy. Sometimes it may be preferable to put an animal in a lot and feed a complete diet or one high in concentrate such as with dairy goats.

There may be periods when nutrient requirements cannot be met, resulting in loss of body weight. This is acceptable at certain times in the production cycle if body condition is sufficient for the animal to draw upon body reserves and maintain the desired production level. An example would be weight loss during early lactation because sufficient nutrients cannot be consumed. However if the doe is in poor body condition, is a growing yearling, or has severe weight loss during this time, milk production will be depressed. During a drought, it may be acceptable for open or early pregnant animals that are not lactating to lose weight. During late pregnancy, inadequate nutrition can have adverse effects on pregnancy outcome and subsequent lactation. We can estimate what the projected bodyweight losses would be by reducing the bodyweight gains in question five and then calculating nutrient requirements until the energy and protein requirements match intake of those nutrients. Severe undernutrition can cause abortion, reduced livability of the kid(s), reduced milk production and adversely affect maternal behavior.