

# NUTRITION

There are two parts to a good nutrition and feeding program for your pack goat. One is calculating the nutrition score of the goat and the other is the decision of feeding grain or not.

## NUTRITION SCORE:

The nutrition score is a combination of the goat's lumbar score and production/activity level score. These two factors will most likely change throughout your goat's lifetime, so their feeding regimen will need to be changed accordingly.

An easy calculation to make as to how much food your goat should be getting is the following; Lumbar score nutrition factor added to the production/activity level nutrition factor equals the percent of body weight of the goat which equals the amount of food the goat should be getting on a daily basis. This is how this works.

## Lumbar Score:

Lumbar scores are 1,2,3,4,or 5.

Lumbar Score	Nutrition Factor (NF)
1 or 2	3
3	2
4 or 5	1

Example: If the goat has a lumbar score of 3 then the nutrition factor is 2 and that number is used in the nutrition score equation.

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## Production/activity score:

Production/activity levels of the goat also gives us a nutrition factor to use in our nutrition score equation.

Production/ Activity level	Nutrition factor (NF)
Under 2 years of age	3
Pack goat adult – not working Maintenance only	2
Pack goat adult – working	3

## Nutrition score equation:

Nutrition score equation is simply the adding of the above nutrition factors together. The total nutrition score then gives you a percentage of the body weight of the goat that is appropriate on a daily basis. Keep in mind this is not a perfect fit for ALL goats, but will give you a good place to start instead of over or under feeding you animal.

Nutrition Score	Percent of goat's body weight
3 to 4	3 to 4 %
4 to 5	4 to 5%
5 to 6	5 to 6%

Example: A yearling wether with a lumbar score of 2. This goat receives a nutrition factor of 3 from its lumbar score and nutrition factor 3 from its activity level. Therefore  $3 + 3 = 6$ , which in turn equates to a 5 to 6% of its body weight in food each day. If the yearling weighs 75 pounds this will mean it should be getting about 3.74 to 4.5 pounds of feed a day (75 pounds x 5% and 75 pounds x 6%). You may have to adjust this amount over time as the scores change.

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## Use of Grain:

The decision to use grain is usually when one needs to increase the protein level (to increase energy) and or to add some fat to your goat. Protein is needed for growth and for muscle use. This does not mean that if you used an alfalfa (not advised due to possible urinary calculi problems) or orchard grass type hay that the protein in those would not be enough to meet the demands of your goat. So, you should know two things: 1. What protein level should your goat be getting? 2. What type of roughage or hay are you using?

Protein baseline levels generally are the following:

Activity Level	Protein Level
Growing Kids	12% to 16%
Working pack goats	12%
Non working pack goats	9%

For more specifics on wether or not to use grain, please see the special on “Grain or no grain”.

Different grains give different protein levels, but you should be very careful with adult wethers. I am looking at the adult urinary system which is mature at 1 year of age as they can be prone to urinary calculi if the calcium to phosphorus ratio is not at least 2:1 or 3:1 in their feed intake. Looking at feed bag levels you will find that most “dairy” goat chows and supplements are not designed for wethers over a year of age and thus if fed these, the wether will most likely form urinary calculi. Using a COB (corn/oats/barley) mix is an excellent choice as it has no excess calcium or phosphorus and gives 9% protein. There are also livestock feeds that have a 2:1 calcium to phosphorus ratio can be 12% to 14% in protein. These are excellent choices if grain is needed. In growing kids and working pack goats I do recommend the use of an appropriate grain for the extra protein for bones, muscles and neurological development and continued health. With any grain, it is also especially important to provide plenty of clean, fresh water on a daily or twice daily time frame.

When using grain, it is important to note that in the nutrition score percentage of body weight fed, that  $\frac{3}{4}$  of that amount is roughage (hay) and only  $\frac{1}{4}$  of the amount is grain. Example, a 100 pound yearling whose nutrition score equals 3.75 to 4.75 pounds of food

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a day, you could start at 4 pounds and then this would equal 3 pounds (3/4 of 4 pounds) of hay and 1 pound (1/4 of 4 pounds) of grain a day.

Please remember when you are adding grain to your goat's diet or increasing the amount of grain, this should be done over a few days so that the goat's rumen can adjust to the change.

### **SPECIAL NUTRITION ITEMS FOR WETHERS AND BUCKS**

Remember that the different hays provide significantly different amounts of protein, calcium and phosphorus. This means that you should know the hay type you are feeding and what its composition is and then add or delete the supplements or grains.

Grain does not always have to be fed to keep a goat healthy. All goats are different in what they need to stay at the proper weight and lumbar score for their production, working or not and the season of the year. A good grass type hay is the basis for a healthy diet. Having available browse is even better for goats, but not always possible for many of us. Depending on the type of hay that is available in you area will also decide the feeding plan you choose.

When feeding a true "local grass" hay, which is normally about 6 to 9% protein and has little calcium or phosphorus in it, a supplement of grain and vitamins may be a good idea, especially during the working times of your goat or if your goat is still in its growing phase which can for some breed of goats be up to 4 ½ years.

The main basis of a good feeding program for most meat, buck, and pack goats that will keep them healthy is just a good grass hay, salt mixture (block or loose) and plenty of fresh, clean water.

Another reminder about feeding grain is if you do start a goat on grain or need to increase the grain do so gradually to allow the rumen to become accustomed to the change in protein level, bulk of food in the rumen and the possible change of ph of the rumen. An overload of grain can cause constipation, bloat or overeating disease. Remember to vaccinate you goats with CDT vaccine to help ward off possible overeating disease problems.

Knowing what you need for your goat before you go to the feed store makes for a better and easier choice of feeds. Grains that are acceptable for wethers and bucks include: COB (corn, oats and barley) mix that comes dry (with out molasses) or wet (with

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molasses). Either of these is okay for pack goat wethers. A livestock blend consisting of pellet feed plus some grain such as Farm Blend, Livestock Mix, Beefy's and perhaps a store local brand, just check the label for COB. Avoid feeds such as "goat chow" or "goat feed" as these are generally NOT acceptable feed for wethers and bucks as the calcium to phosphorus ration is not correct and could cause urinary calculi in the goat. Do not depend on the feed store employees to be knowledgeable about all feeds for all livestock, check the labels for your specific requirement.

Generally speaking, supplements added to dairy doe feeds is not necessary and could cause problems for your meat goat wethers, bucks or pack goat wether. Be sure to check out the ingredients of a supplement to be sure it is an acceptable addition to your goat's diet.

Speaking with a goat knowledgeable veterinarian or experienced goat breeder, a feed dealer nutritionist is an excellent way to obtain more nutrition information for you and assist you with your goat's health.

### SUPPLEMENTS AND OTHER ITEMS IN YOUR GOATS NUTRITION REGIMEN

There are some other supplements that can be an important help in keeping your goat's nutrition regimen at its best. One is some sort of **trace mineral salt** with selenium added, which can be either in block form or loose salt form. There are some specialized salts available for goats that work very well. You can ask your local feed store (be sure to look at the label) or go the internet and lookup "goat supplies". **Baking soda** is another supplement that is important especially during the springtime when the new grasses are just coming out. If a goat eats too much of thee greens at one time, this can cause bloat, which can be deadly in kids and adults. The baking soda helps relieve the gas produced by the greens in the rumen. Leaving free choice baking soda allows the goats to use it when necessary as they feel the need. Other supplements that can be used for your goat are horse vitamins that generally have the correct amounts of calcium to phosphorus ratio (check that label). If your goat seems to lack energy or shine in their coat perhaps it is due to lack of enough vitamins for wheat his system is using. For kid goats a calf starter pellet feed is an excellent choice to keep their protein, calcium and fat level up while they are growing, especially after you have weaned them. This type of ratio is not acceptable when they reach the age of 1 year. Another recommended supplement is a **probiotic**. This comes in a paste or powder form. Probiotic means good bacteria. A probiotic provides beneficial bacteria and enzymes that then provide optimum digestive tract function, enabling the animal to reach its activity potential. I use

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a powder type probiotic that is added to their feed or water. The paste form is for more medicinal needs.

Another important part of your goat's nutrition is **water**. Clean, fresh water in a clean container is a must for a healthy goat. Goats are fussy about their water and if they do not drink well then their chances of urinary calculi (stones) is increased. The more water a goat drinks, the more the urinary tract system is kept flushed and free of problem calculi build up. I also add to the water, **ammonium chloride**, one ounce every 2 to 4 weeks as a preventative measure against possible urinary calculi. Ammonium chloride, as it does not taste good, can be flavored with a little lemonade to help the water taste better and insure that the goats are getting the ammonium chloride. Ammonium chloride makes the urine more acid and thus does not allow the crystal/stone components to bind together but keeps the urinary track more soluble for a free flow. Depending on your feeding regimen, water mineral content, the herd history for urinary calculi, your veterinarian may advise on a more often ammonium chloride regimen.

Good snacks for your pack goats on the trail include peanuts, pretzels and even a peanut butter sandwich.

Other supplements may sound good and be used by the dairy breeders for their does, but these are usually not appropriate for pack goats (wethers). These include kelp and beet pulp that have the incorrect calcium to phosphorus ratios in them and therefore could create urinary stones if fed to your pack goat wethers.

Your goat's nutrition is something you should follow as the goat ages. Spend time with your goats on a daily basis so that you will notice changes in their lumbar score or their general health sooner than later.

## VITAMINS AND WHAT THEY DO

ITEM	FUNCTION	SOURCE
Vitamin A	Bone growth, vision, tissue health	Green leafy hays
Vitamin B	Helps the body use Calcium and Phosphorus, bone development	Sun cured hays
Vitamin E	Muscle structure and reproduction	Green hays, wheat germ

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Vitamin B Complex	Necessary for neurological function	Produced generally by rumen bacteria
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### WHAT'S IN THE FEED

Protein	Growth, repairing body tissues, milk production	Hays, grasses, pasture
Carbohydrates	Energy for body maintenance, growth, milk production	Grains, hay, silage, pasture
Fats	Energy source	Grains
Minerals	Skeleton, enzymes and hormones	Trace mineralized salt, calcium in hays, phosphorus in grains
Vitamins	Growth, reproduction, general health	A-green leafy forages, Corn B-produced in bacteria in Rumen C-produced in digestive Tract D-sunlight E-grains

### COMPOSITION OF COMMON ROUGHAGE FEEDS

FEED	PROTEIN	CALCIUM	PHOSPHORUS
Alfalfa	17%	1.5%	.20%
Grass hay	9%	.40%	.25%
Clover	13%	1.30%	.20%
Meadow grass	8.5%	.40%	.30%
Oat hay	8%	.20%	.20%
Orchard grass	10%	.30%	.20%
Timothy hay	6.5%	.40%	.15%

The above percentages may differ for different cuttings.