# NEW YORK STATE 4-H DAIRY GOAT PROJECT FACT SHEET #12

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## FEEDS FOR GOATS

The feeds that are fed to dairy goats can be broken up into two different groups.  Basically, these two groups are roughages and concentrates.

Roughages  are high in fiber (18% crude fiber or more).  Fiber adds bulk to the goat's diet and keeps his digestive tract working well.  Fiber has a laxative effect.  It can also influence the butterfat content of a mother goat's milk.  Diets that are high in fiber tend to increase butterfat content resulting in creamy milk, while low fiber diets decrease butterfat content.  Most roughages are forages, that is, they come from the green vegetative parts of the plant, for example, blades of grass.  Forages tend to be low in energy.

In contrast, concentrates are low in fiber and high in either energy or protein.  They often come from the seeds of a plant.  Examples of concentrates include corn, oats, brewers' grains and soybeans.

Feed groups

1)  Dry forages - these feeds are cut and cured, usually in the sun.  This way they can be stored for later use.  Hay is forage that is cut before or at maturity.  It is either cut before it has formed seeds or while the seeds are still on it.  Straw is forage that is cut after it is past maturity and the seeds have already dropped or been harvested from it.

2)  Green forage and browse - examples of these are pastures or shrubs that your goat grazes fresh.  As well as grazing, goats can browse like deer and giraffes.  They can take a woody plant like a raspberry bush and use their mobile upper lip to select the tender, highly digestible new leaves from it and leave behind the less digestible branches and thorns.  Because of this ability to select and reject different parts of the plant, goats are called **selective eaters**.  Sheep and cows do not have mobile upper lips and thus, have less ability to pick and choose the parts of a plant they want  to eat.  Goats can get sick if they get too much green forage too suddenly.  Always introduce your goat to fresh pasture and cuttings gradually.  Do not feed her yew clippings, rhododendron clippings or prunings from cherry, apricot or peach trees (these are toxic when they wilt).  All of these are very deadly to her but she will eagerly eat them.  Before you cut and carry any fresh feed to her make sure it is not poisonous. You can order an excellent pamphlet (Information Bulletin #104) on **Common Poisonous Plants** from Cornell University Media Services by calling (607)255-2080.

3)  Silages - these forages have been cut and then "pickled" rather than dried to store them.  They are cut and then stored without air.  In the absence of oxygen, certain bacteria are able to ferment the forage and preserve it this way.  Silage can be made from grasses and legumes and also from corn plants.  Goats that have not grown up on silage take a little while to develop a taste for it.  If improperly fermented or stored, the silage can develop molds that are deadly to goats.

4)  Energy concentrates - as the name suggests, these feeds are high in energy.  They include feeds that have less than 20% protein and less than 18% crude fiber.  Energy concentrates include grains, flour mill by-products and certain root crops.

5)  Protein concentrates - these concentrates contain at least 20% crude protein.  They are often also high in energy.  They can be of plant or animal origin.  Examples include soybean meal, buckwheat middlings, dried whey, cottonseed meal and soybean meal.

6)  Trace mineral supplements - come in various chemical forms depending on what mineral is being added to the diet.  An example of a  trace mineral supplement that humans use is table salt.  Minerals should be added carefully to the feed as excesses can be toxic (poisonous) to your goat.  Some minerals, for example, Selenium, Copper, Magnesium, and Cobalt are best fed as salt blocks or mixed into the grain ration or complete diet as the goat may eat too much of them if fed free choice in the form of loose salt.

7)  Urea - is a source of nitrogen just as proteins are.  However, it is not a dietary protein and can be highly toxic if used to substitute for too much protein.  Always introduce goats to it gradually.  It should not make up more than 1% of the complete ration or 3% of a concentrate fed separately.  Commercial dairy concentrates that contain 1 to 2% urea are safe for goats.

Suggested Activities

1)  Have everybody in your 4 - H group bring different samples of goat feeds to a meeting.  Put the feed samples in numbered containers, keeping a list of what is in each container.  Then test yourselves to see if you can identify the feeds and which of the 7 feed groups mentioned above they belong to.  You can also divide your 4 - H group into teams and make this into a team competition using a time limit.

2)  Make a feed board to use as part of a public display or presentation.  Cut out a 16" x 20" piece of plywood or paneling.  Paint both sides of the board.  When the paint is dry, paint on your name, address and club name.  Select six or more feed samples for your board and put each of them in thick plastic bags that you can fold over and staple to board.  You can make your board up in several different ways,  for example, "The Feeds I Use in my Herd", "Energy Concentrates for Goats",  or "An Example Feed Ration for a High Producing Dairy Doe".  Type or print up a 3"x 5"index card for each feed that tells what feed it is,  what group of feeds it belongs to, and what nutrients it provides.  Staple or glue each card to the board next to the feed it describes.

3)  Visit a local feed mill.

[*] All these activities are suitable for Cloverbuds if presented in a simple form that asks them to identify feeds that are very obviously different.  For example, help them to see the differences between straw and hay or a timothy hay compared to alfalfa hay, and to understand that corn or popcorn has more energy than cornstalks, but that corn stalks have more fiber.  Let them examine and scrape fresh forages with a serrated plastic knife to identify the fiber (stringy stuff) in it.