Cow Food and Digestion

Source: Pages 7 -10 of the Welcome to World Dairy Expo Guide

Ruminant Relay Races:

Make copies of the three sets of four cards. You will need one set for each group of 3 students. Cut out the cards. If you laminate the cards and put Velcro on the back, you can have the students hang them up on a board. Another option is to have them just lay out the cards in the correct order. Divide the students into teams of 3.

1st player – run down and put the numbers in the correct order
2nd player - run down and put the stomach compartments in correct order
3rd player – run down and put the correct descriptions in order

Rumen	Reticulum
Omasum	Abomasum

Large pouch the food passes into when the cow swallows	Where food moves to and rolls into balls which the cow coughs up- cud
Does more digesting	Finishes the digestion
1	2

3	4

True or False

___ 1. Cows nibble their grass and horses pull it from the ground.

___ 2. Cows have teeth on the top and bottom.

___ 3. Cows chew food about 30 times/minute.

___ 4. You can tell the age of a cow by their teeth.

___ 5. Cows have 14 teeth.

___ 6. Some of the digested food enters the bloodstream and travels to the udder.

___ 7. Cows will drink about a bathtub full of water each day.

___ 8. Cows will eat about 10 pounds of feed and hay and 70 pounds of silage each day.

___ 9. Goats and deer are ruminants but not giraffes.

___10. Unchewed food that is coughed up is called cud.

Dairy Farmer or Feed Specialist Visit:

Have a dairy farmer or feed specialist visit your classroom. If possible, have them bring in various types of feed samples of those listed on pages 9 and 10 of the guide. Have the feeds put in ice cream pails. Cut out the following feed types and descriptions and have students place them by the correct buckets.

Have the guest speaker discuss how they determine how much feed cattle should receive and how they "balance" their diets just like humans need to eat a balanced diet. They could also show equipment and harvesting methods so students understand how these feeds are obtained.

Hay
Grass, clover, alfalfa, etc., cut and dried for use as forage.

Haylage
Silage of about 40 to 50 percent moisture made from forage stored in a silo.

Grain
Small, hard seed of a food plant such as wheat, corn, rye, oats, rice or millet.

Silage
Coarse food for livestock, composed of entire plants, including leaves, stalks, and grain, of such forages as corn and sorghum preserved through fermentation in a silo; ensilage.

Beet Pulp
Beet pulp is the residue from manufacturing sugar from sugar beets. It is a very palatable and bulky feedstuff, containing about 85% of the energy value of corn. The higher level of fiber is helpful in maintaining milk fat percent in cows on low roughage rations.

Citrus Pulp
Citrus pulp is a mixture of peel, inside portions and cull fruits of the citrus family (orange, grapefruit, etc.) which have been dried to produce a coarse, flaky product. It is relatively high in energy, calcium, digestible fiber and low in protein and is similar to beet pulp in feeding value.

Bakery By-products
Bakery by-products is a term used to refer to a variety of products containing about 11% crude protein and 80% TDN (total digestible nutrients). The products contain various combinations of bread, crackers, cookies, doughnuts, cakes, and so forth, which are usually dried and ground together.

Cane Molasses
Cane molasses is the most common liquid supplement fed to dairy cattle. More recently a variety of molasses products are available to livestock feeders. Among them are cane molasses, citrus molasses, beet molasses, masonex and a number of products resulting from the production of alcohol.

Whey
Whey is the residue from cheese production and consists primarily of lactose, minerals and water. It can be fed dry or as a liquid. The liquid is termed sweet whey and acid whey. Sweet whey comes from the manufacture of cheddar and mozzarella cheese and acid whey results from the production of cottage cheese and is less palatable than sweet whey. Lacto Whey is similar in appearance to molasses but has a higher viscosity.

Hominy Feed
Hominy feed is a by-product from the manufacture of pearl hominy, hominy grits or table meal from corn. It is similar in appearance to ground corn, has slightly more energy and protein, and has similar feeding characteristics.

Peanut Skins
Peanut skins consist of skins from processed peanuts, broken nuts and nuts that may have been rejected during the preparation of peanuts for human consumption.

Rice Bran
Rice bran is composed of the bran layer and germ of the rice which are removed in milling rice for human consumption.

Soybean Hulls
Soybean hulls are a by-product of soybean processing for oil and meal production. Since soybean hulls have urease activity, a problem may develop in rations containing urea. Heat treatment destroys the urease activity. Soybean mill run is heat treated soybean hulls.

Wheat Millfeeds
The wheat millfeeds (bran, millrun, middlings, shorts, red dog) are by-products produced during the milling of wheat for flour. They consist of varying amounts of bran, germ, and flour. Wheat middlings (also called midds) are a common ingredient in cattle feeds.

Ricemill By-Products
Rice mill by-product is a low-energy, high-fiber (28%) feedstuff that consists of rice hulls, rice bran, rice polishings and broken rice grains. In contrast to soybean hulls, the fiber content is low in digestible energy.