Feeding dairy calves calls for special care

UNIVERSITY PARK — Feeding the young dairy calf is an important and critical aspect to raising replacements animals.

During the first two months of life, the dairy calf functions primarily as a monogastic (simple-stomached) animal. After about two months of age, the calf functions as a full fledged ruminant.

During these first few weeks of life the rumen, reticulum and omasum of the calf are relatively small in size and are quite inactive compared to the abomasum or "true stomach." For this reason, the young dairy calf has very special requirements for protein, energy and vitamins.

The newborn calf cannot utilize vegetable protein due to its limited digestive enzymes before its rumen is functional. Therefore it is very important that following colostrum feeding, whole milk, fermented colostrum or milk replacers containing milk protein or specially processed soy concentrates be used. By the time calves are weaned, they can utilize most vegetable proteins efficiently.

Young calves cannot digest starch or some sugars such as sucrose (table sugar), again because certain digestive enzymes are not present. The calf also is limited on the type of fat that they can utilize. Calves can digest saturated fats such as milk fat, coconut fat, lard and tallow. they are limited in their ability to digest unsaturated fats such as corn oil and soybean oil.

The major sources of energy for the newborn should be derived primarily from lactose (milk sugars) and milk fat. It is very important that the calf has adequate energy as their metabolic rate (rate at which energy is used) is greatest during the first two weeks of life.

Within two weeks the calf develops the ability to digest starch and shortly thereafter developes the ability to digest complex carbohydrates. The rate of rumen development dictates how rapidly the young calf is able to digest complex starches and carbohydrates.

The calf requires many of the same vitamins as do monogastrics. They require the water soluble B vitamins — thiamine, riboflavin, niacin, choline, biotin, pyriodoxine, folic acid, B_{12} and panothenic acid - which are found in colostrum, fermented colostrum, whole milk or good milk replacers. Rumen microorganisms are able to produce these when the calves rumen begins to function.

The calf has a requirement for the fat soluble vitamins A, D & E. These are in short supply at birth but are found in colostrum. Whole milk, fermented colostrum or milk replacers plus some sunshine will normally supply an adequate amount of these vitamins to the young growing calf.

Dairy calves require the same minerals for growth as do other animals. Milk, fermented colostrum and milk replacers generally supply adequate amounts of minerals necessary during the first few weeks of life.

An important point to remember is that colostrum and milk may be low or deficient in certain minerals depending on the mineral status of the diet of the animals producing the milk or colostrum. An excellent example of a mineral that may be reduced in the milk because of a dietary deficiency is selenium. Therefore it is often recommended to supplement certain minerals for the young calf.

Keep in mind that the newborn calf is the only simple-stomached animal on many dairy farms and must receive special considerations.

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Check concentrate levels for cows

UNIVERSITY PARK — Dairymen must consider many factors when deciding how much concentrate to feed dairy cows. The bottom line is response of the cows. Does the extra milk produced more than pay for the extra feed consumed?

Generally, it appears that dairymen tend to overfeed concentrates. The average DHI herd in Pennsylvania produces 15,410 pounds of milk and probably is overfed grain by about 1300 pounds per cow yearly. The average herd in Pennsylvania ships about 12,434 pounds of milk/cow and each cow receives 1,800 pounds of concentrate more than should be needed to attain such production.

Ration balance is more important in determining cow response than level of concentrate itself. Does the ration contain the proper levels of protein, minerals and vitamins? Is the particle-size of the silage and haylage adequate? Has the grain in the concentrate portion been properly prepared? Is it fine enough for good digestibility of the total ration dry matter?

Like underfeeding, excessive concentrate intake may result in larger than normal drops in milk production from one month to the next. It may reduce milk production by 1,000 pounds or more per cow and result in more infertility and milk fat test depression problems.

Most cows should not be fed concentrate at a level which exceeds 2.5 percent of bodyweight on an air-dried basis. Cows with extremely good at least equals that from concentrate for an extended period. Concentrate may furnish 55-60 percent of the total ration dry matter for periods not to exceed 90 to 120 days.

At any level of milk production, milking heifers need extra concentrate for growth. First-calf heifers should be fed two to three pounds more per head daily and second-calf animals need one to two pounds extra concentrate daily.

As a guide most large breed cows may need concentrate at a rate of one pound per three pounds of milk produced; while small breed cows may need a ratio of 1:2 1/2 - 2 3/4. Often appreciably wider ratios may be used for cows that have been fresh for over four to five months. To avoid sharp drops in milk production, concentrate intakes should be reduced gradually over a period of two to three weeks.

Dairymen should test forages and obtain professional help with feeding programs. Such assistance is available at Penn State as well as other sources. Savings from reduced concentrate feeding could amount to nearly $100 per cow on many farms.