Supplemental Phosphorus Reduces

MILK FEVER

G. H. Stott

Basic research at The University of Arizona into the function of the parathyroid glands of dairy cattle has led to the discovery that a lack of nutritional phosphorus is a key factor in causing the disease commonly known as milk fever.

Known as the disease of many theories, milk fever has long puzzled scientists and put dread into the hearts of dairymen who have lost their best dairy cows through this malady. Occurring only in mature dairy cows which have lactated at least one time, the onset generally takes place within 72 hours following calving.

The first symptoms are twitching muscles or staggering, as if the animal had lost its equilibrium. But most of the time the sick cow is not discovered till in a coma, the final stages of the disease.

Low Calcium Level

Some 40 years ago, it was found that the calcium in the blood of milk fever cows was extremely low. When an infusion of calcium salts was administered, it would immediately bring about a cure. Since the parathyroid glands secrete a hormone which controls the level of blood calcium, it was theorized that their lack of secretion at the start of lactation was the cause of milk fever. Though the theory is based on circumstantial evidence, it is widely accepted.

To test the theory, the parathyroid glands were experimentally removed from dairy cows at The University of Arizona prior to calving and during lactation. It was expected, if the theory were true, that cows deprived of their glands would show symptoms of milk fever. No symptoms occurred.

Further studies of the parathyroid tissue and calcium and phosphorus metabolism in cows having milk fever led to the conclusion that dairy cows are predisposed to milk fever during lactation. The evidence indicated that the predisposing factor is a lack of available dietary phosphorus.

Dr. Stott is head of the Department of Dairy Science.

Extra Phosphorus Helps

Feeding supplemental phosphorus to a herd of dairy cows with a high incidence (74 percent) of milk fever during lactation demonstrated that this was true. None of the animals showed symptoms of the disease during the following calving period, while their controls continued at a high incidence.

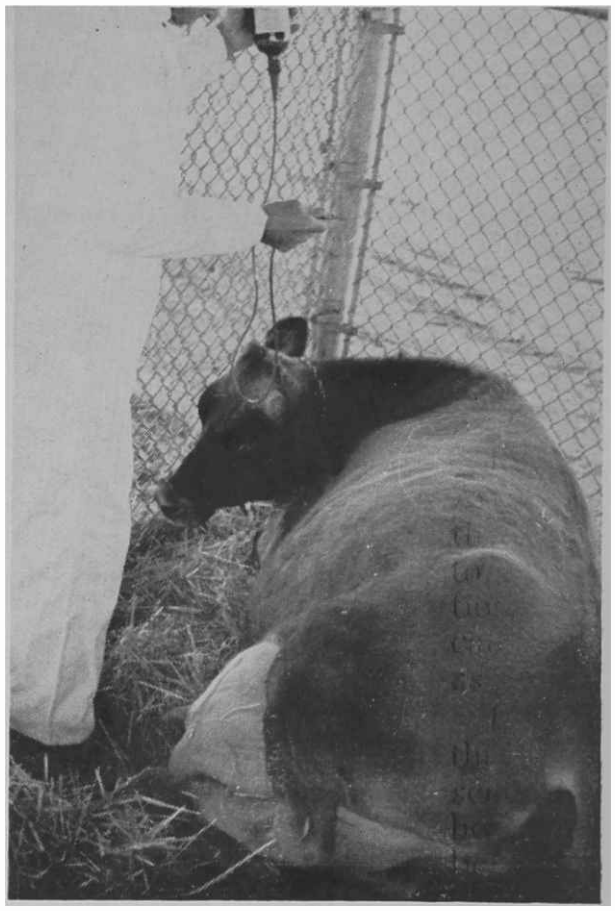
Evidently, the lack of available dietary phosphorus leads to excessive bone reabsorption in dairy cows during lactation, in order for them to obtain sufficient phosphorus for the high rate of metabolism and the secretion of milk. Calcium is reabsorbed, incidentally, at the same time, and the excess excreted with waste material. This results in a nutritional negative calcium balance, with bone stores being depleted.

This has led many nutritionists to believe that more calcium is needed in the dietary intake. Quite opposite is the case. Dairy rations, inadvertently, are relatively high in calcium content. The excessive amount of calcium tends to make the dietary phosphorus less available to the animal. The common practice of adding calcium to dairy rations is actually a detriment to dairy cattle under most conditions.

Abrupt Changes Occur

Normally, cows can regain their mineral bone stores during their dry period, but not so in milk fever cows. They continue to lose bone calcium and phosphorus. At parturition, as a cow freshens, there is a sudden change in many physiological conditions. No longer is there a need for calcium and phosphorus for fetal bone development; there are high estrogen levels, low parathyroid secretion, etc., all favoring a rapid restoring of calcium and phosphorus in the "mineral starved bone".

So rapid does this accretion occur, that the body fluids are deprived of essential amounts of calcium and phosphorus for normal function. The symptoms of milk fever result.



A TYPICAL CASE of milk fever. Notice the position of head which is typical of this malady. The veterinarian is preparing to infuse calcium salts intravenously.

Cleanliness, Sprays Control Carpet Beetles

Carpet beetles have increased in Arizona during recent years because of central heating and air-conditioned homes, warns Leon Moore, extension entomologist with The University of Arizona.

The beetles, which feed on carpets, over-stuffed furniture, draperies, stuffed animal heads, feathers, clothing and other items, are controlled in about the same manner as clothes moths.

Cleaning of carpets, furniture, clothing and draperies helps prevent infestations. It is also helpful to place movable items in the sun on warm afternoons.

"When damage appears in the carpets, spray with two per cent chlordane or 0.5 percent lindane. Spray walls of closets and chests of drawers thoroughly," advises Moore. Remove all clothing and other items and clean thoroughly before spraying.

He warns, however, that carpet beetles are hard to control. Be patient but persistent. Use of insecticides under carpets often is a big help, he says.

A circular on control of beetles and other household pests is available free at the county agent's office in your county.