Researchers Predict Bright Future for Grass Silage

Farmers produced 23 million tons of grass silage in 1970, up from 8.2 million tons just 10 years before. And now, with dairy and beef herds becoming increasingly larger, there's an more and more interest in grass silage.

New silage additives of great interest to researchers loom on the horizon. Questions as to moisture limits and length of cut are being explored. And large-scale farmers are examining silage closely as they weigh labor versus mechanization costs in the harvesting, storing and feeding of forage crops.

Forage researchers forecast a bright future for silage. Clarence Hanson, USDA director of alfalfa investigations, thinks low-moisture ensiling and feeding may double by 1980. He predicts increases particularly in the Cornbelt, Lake and Northeastern states. One of the nation's elder statesmen of animal nutrition, University of Georgia's M E. McCullough, believes total put-up and fed silage of all kinds may double in the next 10 to 15 years.

North American beef and dairy herds are increasing in size and the popularity of stored feeds is on the upswing, according to McCullough As a result, silage fed to animals — particularly dairy — is increasing and will continue to rise. Moisture, McCullough believes, is the key word in the future of silage. He suspects, however, that right now farmers are concerned with too little of it as opposed to too much. Over-curing with too little moisture is often responsible for hot, moldy and low quality silage.

There is danger, too, with excess moisture which causes seepage. McCullough simply feels the concept of drier silage has been oversold.

Dr. John Baylor, Penn State agronomist, suggests a general aim now for low-moisture silage should be about 55-to65 per cent moisture rather than 50 per cent, the previously thought optimum level. There are inherent problems in heating at 50 per cent, even in tight storage, he adds. Dr. Baylor also feels silage-making may have gone a little too far on fine-chop. Too fine a chop can go through a cow's digestive system too fast and lower her butterfat production, he explains.

Moisture will become more and more critical as farmers move into systems where they're using the silo for something more than just preserving the material. If enzymes are added in some form for altering the fermentation; if the silage is supplemented with non-protein nitrogen; or if other elements are added as a means of developing an all-in-one type silage.

Research results definitely support the continued use of low-moisture silage, wilted to 35-to-40 per cent dry matter where this can be done successfully. But USDA researchers, D. R. Waldo and J. C. Derbyshire, warn that heat damage results all too frequently.

A Minnesota survey of low-moisture silage showed heat damage occured in 27 per cent of the cases studied. Much research activity is taking place in the field of new silage additives. Waldo notes that studies here and abroad have shown promise with formic acid, propionic acid and a combination of formaldehyde and formic acid.

The use of formic acid for ensiling increased tenfold in Norway between 1956 and 1958 and English farmers, though starting later than their Norwegian counterparts, are catching up and using about half as great a tonnage each year as Norway.

Researchers and farmers who are taking a long look into the future at all kinds of silage foresee a need not just for more mechanization, but for better mechanization as well. New Holland Division of Sperry Rand forage harvester specialist, Lester E. Ober, emphasizes quality and capacity as being the two most important factors with regard to mechanization. Ober feels any silage chopper or harvesting machine should have the ability to provide a uniform cut, and also give the farmer the option of cutting with or without a screen.

C. R. Hoglund, Michigan State University's veteran farm management specialist and economist, predicts the trend toward larger and more highly mechanized beef feedlots and dairy operations will boost total use of silage and increase the amount fed daily per animal. As dairy herds increase above the 40 cow size, it is generally more profitable to substitute harvested forage for grazing, he explains. Increased numbers of cattle fed on feedlots will likely increase the total silage fed.

Hoglund notes storage and handling costs are reduced when more than 500 tons of silage are harvested annually, reflecting the need for high capacity machinery. Labor time in feeding forage can be reduced by feeding a combination of corn silage and haylage, he adds. Dr. Samuel Guss, Penn State veterinarian, agress that such a combination of feeds helps provide adequate protein and energy and also maintains the right calcium-phosphorous ratio.

On the mineral-balance side of forage feeding, Dr. Guss feels the total mineral intake from both forage and grain supplement should contain not more than twice as much calcium as phosphorus. Quality hay or haylage is likely to contain four to six times as much calcium as phosphorus. In contrast, corn silage is higher in phosphorus than calcium.

In a recently completed survey of nearly 1,000 Michigan dairy farms, Hoglund and his fellow researchers found herds most likely to expand in numbers were those with 50 cows or more. Future plans of these dairymen include new free-stall housing, increased silage storage capacity, and purchase of larger choppers and self-propelled windrowers.

In view of these developments, silo manufacturers, machinery companies and all others associated with dairy and cattle feeding are prepared for a future emphasizing silage. To date, many farmers are not equipped properly to handle the silage demands of larger herds; whether a farmer is making 100 tons or 2,000 tons, curing time takes about the same number of days. Silage-associated manufacturers are geared up and ready to provide the equipment with the capacity required to harvest and store the feeds required to maintain and promote our nation's livestock economy.