Alternative Feeding During Shortages

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UNIVERSITY PARK (Centre) — A number of things should be considered if there is a shortage of home-grown forage on a dairy farm due to drouth or other conditions. Should hay or other forage be purchased, or should forage intakes be kept at a minimum and roughages or high-fiber feedstuffs be used? The economics of the situation, including affects on cash flow and interest charges should receive top priority. In addition, the palatability of the items considered and their suitability for use in your feeding system should be considered.

A minimum amount of normal forage dry matter is needed to keep cows healthy and the composition of their milk reasonably normal. The longer particle-size found in hay, pasture and properly made silage or haylage helps maintain proper rumen function. Normal forages may also be higher in vitamin A and E activity.

At least 40 to 50% of the total dry matter intake should be in the form of normal forages. The lower figure should be used only for periods of about 90 to 120 days. When forage is held to a minimum because of cost and availability, high-fiber concentrate ingredients and some roughages may be needed to maintain the fiber content of the ration. The acid detergent fiber (ADF) content of the ration should be 20% or higher on a dry matter basis. Forage dry matter intakes in conventionally fed herds should be at least 1.35 to 1.55% of bodyweight daily. Heifers over 6 months of age should receive at least 50% of their total ration dry matter from forages. Forage dry matter intake should be at least 1.1% of bodyweight daily.

Dairy farmers should closely estimate the extent to which they may be short of forage. If they will need to buy considerable amounts to meet even minimum needs, forage feeding rates should be reduced to near safe minimum levels as soon as possible. Also they should consider planting emergency forage crops such as small grains, for use in late fall and early spring. Further they should check costs and supplies of various qualities of hay, roughages and high fiber ingredients. Often hay prices may be lower earlier in the season. In addition, it is best to obtain least-cost formulations to keep feed costs at a minimum while meeting the nutritional and physical needs of their herd.

If the supply of home-grown forage is inadequate consider these alternatives and important points as follows.

1. Check prices and availability on several types and qualities of hay.

Some relatively low protein and energy hay or straw often may be used to good advantage. If only 4 to 6 lb are needed per head daily for milk cows. Such hay also may be more economical for use in feeding dry cows and heifers. If more purchased hay needs to be fed, average to higher qualities hay should be used for milk cows. Avoid paying unreasonably high panic prices for forages.

2. Protect yourself when buying silage, haylage or high-moisture grain and similar items.

If possible pay on a dry matter basis and periodically test samples for moisture to use in payment. When buying on a volume basis, such as a silo, agree ahead of time on the amounts present. Various tables or charts differ in their estimates of material present in various types of silos.

3. Check costs and availability for various roughages such as corn stalklage, corn cobs, corn cannery waste, lima bean or pea-vine silage, straw, and apple pomace with or without hulls.

4. Obtain costs and check supplies of various high-fiber feedstuffs such as beet or citrus pulp, dehydrated alfalfa, wet and dry brewers grains, distillers grains, malt sprouts, oat mill feed, soyhulls or soybean mill feed and whole cottonseed.

5. Check costs and availability of various energy and protein sources for use in concentrate feeding.

Barley, oats, mids, corn gluten feed, whole soybeans (raw or heat-treated). Added fat and oil products also may be considered, if these can be handled in mixing or feeding. Don't assume that shelled corn and soybean oil meal are your best buys. Ear corn often is a better buy than shelled corn and provides more fiber when forage feed is limited. Consider harvesting corn grain as ear corn if you are short of forage. Often barley and sometimes oats are a better buy than corn, especially shelled.

Whole cottonseed often may not enter least-cost rations unless forage is severely restricted.

Also get prices on suitable manufactured dairy feeds and protein concentrates to use in least-cost formulation of rations.

6. Choose a course of action based on least-cost formulation of rations.

Most dairymen should get professional help with this to make certain that rations meet the nutritional and physical needs of the cattle. Such service is available from Merkle Laboratory at Penn State, and some county agricultural extension offices, among other sources.

7. Recalibrate feed scoops and other equipment, if you feed by volume and you change formulas.

Concentrates containing a lot of bulky, high-fiber ingredients may weigh considerably less per unit of volume than a corn and soybean oil meal mix. A high-barley mix may weigh considerably more than one containing oats.

8. Balance rations for all groups of heifers and for dry cows as well as milking animals. It is important when trying to conserve forage not to waste feed by feeding unbalanced rations. If there are more heifers on the farm than you will need for replacement purposes, sell excess replacement heifers. There may be possibilities to farm out heifers to areas where pasture or other feeds are plentiful which may be cheaper than bringing feed to the farm.

9. Make sure cows are paying their way.

Are they covering feed costs, labor, utilities and testing fees? You may well increase total production by culling unthrifty animals and providing more forages for the more efficient cows that remain than by trying to maintain herd size. For example, if you are purchasing hay at $120/ton, it is probably costing about $2.40-2.50/day in feed cost for lactating cows. This amounts to about 24-30# milk needed to recover feed cost just to break even. This extra feed may well be utilized more efficiently and produce more milk by feeding it to cows who are efficient producers, but are held back by a lack of good feed.

The levels of major nutrients in selected feedstuffs and special considerations in their use may be found in Table 1. Some relative values for various forages and feedstuffs may be found in Tables 2 & 3. These are based on July 22, 1986 prices in Southeastern PA and would change under different price relationships. Convert farm grain prices per bushel to cwt or ton prices using factors given in Table 4. Consider using feeds that can be obtained at prices appreciably below their relative maximum worth, based on shelled corn prices. Use all feeds in accordance with usual restrictions for palatability, fat content and other reasons, as given in Table 1 and in more detail in DSE-84-56 (Programming Rations for Dairy Cattle) among other sources. Some feeds that are more costly than their maximum relative value indicates, may have to be used to meet nutritional needs. For example some purchased hay may be necessary to meet minimum forage needs or soybean oil meal to furnish part of the supplemental protein needs regardless of price.

Information in Table 5 has been provided to facilitate the buying and selling of whole-plant corn silage. The material obtained from weighing at 5 to 7 sites could be run through a harvester, or otherwise chopped for moisture determinations. This would enable pricing based on dry matter yield per acre. The value of the corn silage dry matter can be set, based on the market value of good grass hay on a dry matter basis, or current prices for normal corn silage.

Expected nutritive content of corn silage at various stages of maturity may be found in Table 1. Whenever possible let drought-stricken corn reach as much maturity (days from planting) as possible without allowing the moisture content of the whole plant material to drop below 60 to 63%. The plant will increase in sugar and energy content even if no kernels are forming due to lack of pollination.

Similarly, allow soybeans to get as much maturity as possible before ensiling drouth-stricken plants. Some pod or bean development enhances feeding value. However the plant should be ensiled before it drops below 65% moisture. Soybean silage will approach the nutrient content value of average mixed mainly legume silages. It may not be as palatable. If soybeans are high in moisture and lack pod or bean development, add 100 to 200 lb. of ground grain per ton when direct-cutting, rather than wilting to 65 to 70% moisture.

TABLE 1. NUTRITIVE VALUE OF SOME ALTERNATIVE FEEDSTUFFS, DRY MATTER BASIS FOR DAIRY CATTLE

FEED	%DM	%CP	%ADF	NE_1	CONSIDERATIONS
Shelled corn	85	10.2	4.4	.92	High energy, low fiber, high starch feed. Currently high price in many areas. Consider alternatives to replace some of the corn in the ration.
Ear Corn	85	9.0	11.4	.84	High energy, high digestible fiber concentrate; have analyzed, fiber will vary considerably depending on the amount of cob and husks included.
Oats	90	12.5	17.0	.79	Bulky feed. Limit amount fed to high producing cows to about 4 lb/cow/day or about 25% of the concentrate mix. Currently a good buy in many areas.
Barley	89	13.9	7.0	.87	Good substitute for shelled corn if the price is right. Can furnish up to 65% of the concentrate mix if gradually