DAIRY

Managing Limited Forage Inventory & Low Starch Corn Silage

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While the 2019 growing season now behind us, we are left to manage the resulting forages to the best of our ability. For many farmers it was a struggle from spring through fall to harvest hay/haylage and plant corn at the optimal times, as well as harvesting corn at the ideal moisture and maturity. Some may be dealing with lower starch corn silage due to late planting and insufficient time to accumulate starch before a killing frost. Others may be dealing with decreased haylage inventories due to winterkill.

First and foremost, if you haven't done so already, create a current forage inventory so you can better manage feed going into winter. This allows you to determine appropriate feeding rates for each forage and which forage will work best for different animal groups. This will also determine if you'll have a forage shortage at current feeding rates and allow you to make dietary adjustments to extend the current feedstocks or determine if additional feeds (forage or byproducts) are necessary. Also, if current feeding rates result in the excess of a particular forage, it may be used to partially replace other forages in the diet that are running short. To establish a current forage inventory there are many tools/spreadsheets available from universities including the UW Team Forage website (fyi.extension.wisc.edu/forage/harvest/#inventory) to estimate forage amounts in different storage structures. Shrink (loss of feed during storage/feeding), an important factor often overlooked, can account for the loss of up to 5-20% of silage harvested. Reducing shrink by keeping the silage face smooth with minimal cracks, only removing enough silage for one day's feeding, keeping plastic well-maintained by patching holes, and reducing feed refusals can help stretch supplies.

Forage quality should also be considered to determine which forages to allocate to different animal groups. This is important as there is likely high variability in quality across hay/haylage harvests, as well as across corn silage fields (low vs. normal starch). It is advantageous to store different quality forages separately, as it allows you to feed the lower energy/protein forages to dry cows or pregnant heifers, and designate the higher-quality forages for lactating cows and pre-breeding heifers. If not stored separately, the forages in each structure can be tested to help identify which will best fit different animal groups. Regular testing during feedout will help make necessary feeding adjustments based on nutrient content.

Extending Forage Supplies

There are options to consider for extending forages depending on which forages are limited. Maintaining adequate forage fiber content is important to rumen and animal health and production of milk fat. Feeding a diet lower in forages is possible when diets are properly balanced for forage neutral detergent fiber (NDF) and starch content. Typically, when forages are in adequate supply, diets are 21-23% forage NDF (50-60% forage with 40-42% NDF), but when forages (haylage and corn silage) are limited we can dial this back to 16-18% forage NDF. This equates to ~40% of forage in the diet (assuming those forages contain 40-42% NDF). These diets are balanced to be higher in total NDF and lower in starch (20-22%) by using byproduct feeds (distiller's grains, brewer's grains, soybean hulls, corn gluten feed, wheat middlings, whole cottonseed) that are substituted for forage. These byproducts have high fiber digestibility, which helps maintain rumen fermentation and energy intake. Due to the lower diet forage NDF content, the use of dry corn is suggested to prevent issues with milk fat depression. The total mixed ration should not be mixed excessively in order to maintain adequate particle size and moisture content between 45-55% dry matter to prevent sorting. Make sure to monitor milk fat tests and make diet modifications if fat tests decrease.

If your haylage inventory is low, feeding higher amounts of corn silage in the diet can work. These diets will require less starch supplementation, as the starch in the corn silage will have higher rumen digestibility after a few months of fermentation. Any needed supplemental starch can come from dry corn. Some additional protein may be needed from soybean meal or a byproduct feed source. If corn silage is not in excess supply, the use of byproduct feeds also works well to replace a portion of the haylage. Inclusion of a few pounds of goodquality grass hay may also be an economical option as the price is typically lower, the NDF is typically more digestible, and protein is only slightly lower than alfalfa hay.

Low Starch Corn Silage

For those who harvested lower-quality/starch corn silage, there are some good options to consider. If there was high-quality corn silage harvested and kept separate, this should be designated for lactating cows while reserving the lower starch silage for dry cows or heifers. The lower starch silage will work very well in those diets. If only lower starch silage is available, the simplest option is to feed additional dry ground corn or high-moisture corn with it. The additional amount will depend on the starch content of the corn silage, therefore, testing is needed. Additional silage testing is suggested as starch content may be variable depending on hybrids, field conditions, and harvest timing as feedout progresses. Use of a high-fiber byproduct feed (soybean hulls, wheat middlings, beet/citrus pulp) is also an option to replace starch with research showing similar milk production to higher starch diets. However, this depends on whether the corn is already on-farm and the price of byproducts. Feeding of lower starch/higher fiber diets may reduce milk protein content due to lower rumen microbial protein production, though milk fat content is often increased. The FeedVal tool (dairymgt.info/tools.php) can help make decisions on which byproduct feeds are most economical based on nutrient content and price.

In any of these situations, working with a nutritionist will help you make the best feeding strategy decisions and get the most out of this year's forage.