



When should I start thinking about managing harvest variability?

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Dairy One and Chestnut Laboratories have recently opened a new 17,000 square foot state-of-the-art milk lab facility next door to the Dairy One headquarters in Ithaca, New York.

As I was driving around New York and looking at crops recently, **variability** is a word that came to mind. Variation in corn can be seen among and within fields. High rainfall and differences in soil type have the largest influence on the variability we see among or within a field. The moisture content of the soil influences many of the conditions we see in growing corn: yellowing, curled leaves, or stunted growth. Yellowing of corn can occur from cold temperatures, wet soils, or nutrient deficiencies in nitrogen or sulfur. Curled leaves appear when the soil is too dry and stress is occurring. The differences among and within fields can be a challenge to manage as we get closer to harvest.

What can be done to manage variation during harvest?

Variability across fields will be more manageable at harvest. But there are some challenges to this – how much storage area do you have? How many different piles of feed or storage areas can you manage? What is your feeding rate? Is there a need for different types of forage on the farm? Variability across fields can be managed by staggering harvest or by separating harvested feed based on quality. Now is the time to start looking at fields with your agronomist and your nutrition consultant to determine how to manage variability at harvest. A few things to remember for forage quality and weather are that wet weather will increase neutral detergent fiber (NDF), yellowing of corn will decrease crude protein (CP), and all weather and nutrient stresses on corn can decrease ear size and fill, which will decrease starch concentration.

A pre-harvest forage sample can be useful for monitoring crop dry matter and for determining if you should segregate your harvest based on quality. Pre-harvest fiber (NDF) and starch are good numbers to use. The NDF of the forage will not change during the fermentation process, so if it is high, a pile for heifers or low producing animals could be a plan. While the starch content of the feed will not change, it has been shown that the digestibility of the starch will increase the longer the feed is ensiled.

An important part of deciding how to manage variability is how much of the feed you will have. If you have only a small amount of a very different type of feed, mixing it in may be the best answer. Work with your harvest records from past years, your crop consultant, and nutritionist to calculate potential yields and uses of the different feeds.

A common scenario is where soil types on different parts of the farm resulted in variation in planting dates. In this case, segregation by maturity may be an option. An obstacle to large gaps in planting dates is harvest dry matter; harvesting all of the crop when the first fields are ready will result in later-planted fields being too high in moisture and poor fermentation. While waiting for later-planted fields to dry down will result in early fields being too dry, having to leave harvested feed uncovered, or opening a covered storage to complete harvest, all of which can lead to spoiled feed, dry matter, and nutrient loss.

Planning to reduce variability next year

Again, weather and soil type are the two biggest contributors to variability of crops, both of which we have little control over. However, there are some management practices that can be considered to reduce variation across the farm. Tillage, drainage, field layout, crop rotation, and zone management can be used to reduce variability. Tools like aerial imagery, yield monitor data, soil type maps, and topographic maps are useful for determining how and where to implement management practices. If managing crop variability at harvest is not an option due to the amount of available storage, using this year's harvest records and field observations can help you reduce variation in coming years.

Corn Stalk Nitrate Test

Mid to late season nitrogen applications are often used to mitigate the effects

of weather and soil type on corn growth, and evaluating your management decisions at the end of a season is an important management tool. One test that is helpful for the evaluation of your corn crop management is the Corn Stalk Nitrate Test (CSNT). This test intended to determine the N status of the corn plant at the end of the season. When the plant is deficient in N, it will mobilize N from the lower parts of the plant up to the developing grain. This results in lower concentrations of nitrate in the lower part of the stalk. Conversely, plants that take up excessive amounts of N will have higher concentrations of nitrate in the lower part of the stalk.



The results of the CSNT reflect the availability of N during the season. The interpretation of the results is most beneficial after a few years of testing history has been accumulated for a field. The results in the first year can give some insight on how weather impacted your management decisions or to help diagnose crop performance concerns. After a few years of results are available, you can use the tests to make decisions about N application rates from manure or fertilizer. Having good records of manure application, planting dates, fertilizer application, and harvest dates and yields will make the results of the test even more meaningful for management decisions.



Visit our website for more information on Agro-One soil testing or to print forms:

<http://dairyone.com/analytical-services/agronomy-services/corn-stalk-nitrate-test/> or call 1-800-344-2697 ext. 2172.