NIR system formulates on the go

By **SARAH MUIRHEAD**

GLOBAL positioning systems recently changed crop production, and now, near-infrared (NIR) technology has the potential to influence feed quality right on the farm.

A global leader in NIR feed measurement systems for livestock, dinamica generale US Inc., has developed a new system by which the chemical composition of raw materials like feeds and silage can be predicted in real time to make more accurate on-farm ration formulations.

The dg precisionFEEDING System includes DTM Professional Feed Management Software that can be installed on one or multiple computers, a Top Scale Weighing Indicator to receive the information on dry matter and other nutritional components and an IRM NIR Forage Analyzer that mounts in the bucket of a front-end loader.

The system is designed for both beef and dairy producers.

The dg precisionFEEDING System starts with setting the default value for each nutrient in the DTM Feed Management Software based on the laboratory baseline obtained for each feed component. The feeding ratio, as defined by a nutritionist, is then entered. Feeding data are transferred from the software to the Top Scale indicator on the mixer.

During the loading of each ingredient, the system's NIR Analyzer, which is installed inside the bucket of the front-end loader, performs the NIR analysis in real time to obtain the actual value of dry matter, starch, crude protein, acid detergent fiber, neutral detergent fiber, ash and crude fat in fewer than 30 seconds.

Key Points

■ System predicts chemical composition of forages in real time.
■ Single-day variation significant.
■ Ration dry matter can be adjusted at each reading.

The analysis is displayed on the Top Scale indicator, which adjusts the as-is target weight for all of the ingredients based on "real" dry matter quantity, matching it with the ideal ration from the nutritionist.

During loading and preparation of the ration, the data are saved on the Top Scale and then returned to the office on the main computer via wireless connection or memory card.

The DTM software stores all data and

DISPLAY AND ADJUST: The ingredient analysis performed by the dg precisionFEEDING System is displayed on the Top Scale indicator, which adjusts the as-is target weight for all ingredients based on "real" dry matter quantity, matching it with the ideal ration from the nutritionist.

NIR ANALYSIS: The dg precisionFEEDING System's NIR Analyzer, which is installed inside the bucket of a front-end loader, performs a near-infrared analysis in real time to obtain the actual composition of each ingredient in fewer than 30 seconds.

IN REAL TIME: dinamica generale has developed the new dg precisionFEEDING System and AgriNIR Portable Forage Analyzer that can predict the chemical composition of forages in real time to help beef and dairy producers make more accurate on-farm ration formulations.

generates detailed statistical reports based upon quantities of all ingredients, costs, nutrients, manpower time and the benefits received from saved materials and labor costs, as well as nutritional performance.

It is a common practice for forage to be sampled on the farm at the storage site and then sent to an off-farm laboratory for testing. It can take 7-10 days to obtain results for wet chemistry analysis and three to five days to obtain results for NIR analysis at the lab.

The new offering from dinamica generale allows forages to be sampled and analyzed multiple times as feed is being loaded in the mixer. Dry matter in the ration can be adjusted on the go, so to speak, upon each reading. According to the company, this helps producers better manage forage variability.

Representatives of dinamica generale explained during a demonstration at the October World Dairy Expo that the biggest advantage to on-farm NIR technology is optimizing feed costs while maximizing feeding consistency and production.

Because forages are highly variable, the larger range of sampling and the immediate availability of analysis results lead to fewer errors in terms of ration adjustments and allow for greater consistency in the feeding process.

For dairy producers, the representatives said, failure to manage variability can have a negative effect on short-term milk production.

The U.S. Department of Agriculture's Forage Research Center has studied the effects of a single-day changes in feed composition and feed allowance on milk production due to weather events using on-farm NIR evaluation. That work showed that day-to-day dry matter variation in forages is unavoidable and can be large.

In fact, the center's work has shown that a 2.2 lb. decrease of dry matter intake in a single day can lead to 1.76 lb. of milk lost per cow in each of the following two days.

CST Storage of DeKalb, Ill., is the North American distributor for dg precision-FEEDING Systems and the manufacturer of Harvestore Systems, XL Unloaders and Slurrystore nutrient management systems.

As a new branch of Poggio Rusco in Italy, dinamica generale US Inc. is a global supplier of load cells and innovative electronic weighing systems. ∎