

The Forage Analysis Laboratory – Partner or Antagonist Implications for CPM Dairy and Other Uses

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The recent proliferation in use of dairy nutrition modeling programs such as the Cornell-Penn-Miner (CPM) Model and the Cornell Net Carbohydrate and Protein System (CNCPS) have required the industry to provide more extensive laboratory evaluations of feeds than had been requested in the past. The summative energy equation of Weiss requires a number of analytical values that were not routinely run even five years earlier. The recently developed forage quality models such as Milk2000 and the Relative Feed Quality index utilize fiber digestibility information that can be provided by few labs.

Providing analytical information for these models and forage evaluation indexes has been a challenge for forage testing laboratory personnel. We are asked to provide an increasing number of laboratory tests using procedures that may not be fully developed and are often not geared for commercial use. There are problems in defining “standard” procedures that allow for generation of consistent analytical values across laboratories. The commercial forage testing laboratory is asked to add these additional tests to their lineup and to provide evaluation of feeds without extending turnaround times. The expectation is that the laboratory will provide significant analytical accuracy and that this information is to be made available at a price that is justifiable to the dairyman, the ultimate end-user of the information.

A number of these analytical evaluations of feeds and forages are new enough that good standard file values are not available. It is often difficult for the user of this information to recognize if values are correct and properly characterize a feedstuff. Laboratory values that vary from tabular values and across labs only add to the confusion. It is important for the user of laboratory information to have a basic understanding of laboratory methods and sources of error for those analytical values that are important in forage evaluation. This would include an understanding of variation that is incurred during sampling of a feed as well as in the laboratory.

Near-infrared (NIR) spectroscopy has gained acceptance as a tool of forage evaluation. It offers the opportunity to provide the large amount of analytical information required by the user of the nutritional models at a justifiable cost. Laboratories have been asked to develop calibrations for such things as lignin, fat, ash, neutral-detergent insoluble nitrogen, starch, sugar, fermentation end products, and various measures of forage digestibility. Large amounts of

reference method data are necessary across a wide variety of forages and forage quality to accomplish this task. Forage quality information generated by NIR may be made available to the end user who has little knowledge of quality or validity of the NIR equation that was used.

At times the parties involved in the process of providing nutritional support to the farm need to be more understanding of the challenges faced by others. Often, the forage laboratory is cast in the light of “not caring” about the quality and timeliness of the information provided. Instead of working together, asking and providing feedback, attempting to understand and work with the challenges involved, the nutritionist or dairyman may quickly deride the laboratory and not invest in a relationship that leads to a better service product. There may also be problems if forage laboratory personnel are not available and listening to the needs or perceptions of the users of the information in the field. Education of clients in understanding how analytical information is generated is important.

Additional information will be provided at the time of presentation.