Forage Research Updates

SOUTH DAKOTA - Corn Stalks Can Be Great Forage for Beef and Dairy Cattle

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As the harvest season is being completed, it is not uncommon to observe beef and growing (non-lactating) dairy cattle out grazing corn stalks. Corn stalks can provide a relatively inexpensive winter feed source for cattle. Corn varieties are generally evaluated on traits solely related to grain yield, yet nutritional quality of stalks can also vary considerably among varieties. The better the digestibility of the stalks the more nutrients (especially energy) will be available to the grazing animal, which can reduce supplementation costs.

Table 1. Range in yield and nutritional quality of stalks of 45 corn hybrids grown in Eastern SD, 2013

	Mean	Minimum	Maximum	Standard Error
DM yield, metric tons/ha	9.0	6.2	14.3	0.48
CP, % of DM	4.5	3.6	5.2	0.13
ADF, % of DM	47.7	44.0	51.0	0.54
NDF, % of DM	75.6	71.5	81.5	0.79
Lignin, % of DM	5.6	4.6	6.5	0.12
IVDMD, % of DM	42.7	49.9	36.1	0.94
Digestible DM yield, metric tons/ha	3.91	2.3	7.1	0.26

Research evaluating the potential to develop dual-purpose varieties has indicated that selection for improved stalk quality can be accomplished without negatively impacting grain yield. Performance of livestock fed corn stalks of varied quality indicate that digestibility is the main nutritional component affecting intake and weight gain. To evaluate variability in corn stalk quality, we collected whole stalks from 45 corn hybrids grown at the SDSU Volga Farm in Eastern South Dakota in mid-November 2013. Before grain harvest, six whole plants were collected from each of three replicated plots and weighed. Whole stalks were ground and analyzed for nutritional quality by near infrared reflectance spectrophotometry at a commercial laboratory. The variation observed is reported in Table 1. A large range was observed among varieties in nutritional quality. The range observed in vitro dry matter digestibility (IVDMD) was greater than 10 percentage units and yield of digestible dry matter in metric tons per hectare (the product of yield and IVDMD) ranged over 3-fold. This indicates a high potential for varied livestock performance and winter feed costs relative to choice of corn variety. Further evaluation can help provide information valuable for integration of crop and livestock operations.