

QUALITY MEASUREMENTS OF FORAGES FED ON DAIRIES

On a return visit to many of the dairies surveyed, a sample of forage was collected and chemically analyzed. The objective was to determine the quality of the forage being fed on the dairy.

1. Coastal bermudagrass hay.

A. Quality index.

Sixty-two separate lots of coastal bermudagrass hay were core sampled and analyzed using NIR technology at the Agricultural Research and Education Center at Ona, Florida. A quality index (QI) rating was assigned to each sample based upon its chemical composition. A QI of 1.0 indicates the forage will maintain the body weight of a mature cow when eaten without any supplementation. In other words, the forage does not contain enough nutrients to support any production (body weight gain or milk yield) by the animal. The higher the QI, the better the quality of the hay.

In our survey, only 19 percent of the sampled hay which was being fed to cows had any potential to support production (QI's > 1.0). In addition, 31 percent of the hay (QI's of < 1.0) would cause the cow to lose weight if she received no supplementation.

B. Total digestible nutrients (TDN)

The total digestible nutrient content of the hays are listed below and arranged according to their QI.

Total Digestible Nutrients (Dry Matter Basis) of Hay Sampled on Dairies ¹			
Quality Index	Average (%)	Range (%)	% of Total Samples
0.8	44.3	43.3 - 45.4	3
0.9	48.5	46.1 - 50.6	28
1.0	52.4	46.6 - 53.0	50
1.1	53.3	50.0 - 55.9	16
1.2	56.7	56.5 - 57.0	3

¹Based on 62 samples of Coastal bermudagrass sampled from October and November of 1990.

C. Crude Protein.

The crude protein (CP) contents of the hays ranged from 2.9 to 13.7 percent (dry matter basis). As QI increased from 0.9 to 1.2, the average CP content increased from 7.0 to 13.4 percent. However, the table illustrates that a forage's CP content is not a good indicator of quality. Some forages which had a QI of 0.9 contained 11.2 percent CP which is a concentration suggesting a forage of higher quality. Likewise, some forages which had a QI of 1.1 contained 8.1 percent CP, suggesting a lower quality than actual. While a forage's CP is important information when formulating a diet, it is a poor indicator by itself of quality. The amount of nitrogen used to fertilize and the frequency of spreading it has a greater influence on a plant's CP content than its maturity.