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Knowing Hay Quality Affects Supplementation Strategy

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Cattle producers in many areas have been fortunate this summer to receive timely rains. Many big round bales of hay have been stored for winter feeding. Meeting the supplemental protein needs for the cows and replacement heifers consuming that forage must be done properly and economically. Protein is a vital nutrient for the ruminant because protein is necessary for the multiplication of, and the feed digestion by the microbes in the rumen. The microbial population in the rumen of cows is largely responsible for digesting cellulose in standing or harvested forages.

Higher quality forages are more readily digested in the rumen and have higher rate of passage through the digestive tract of the cow than do lower quality roughages. Therefore, the cow can consume more of the high quality forage on a daily basis and receives more total digestible nutrients (TDN) from each pound of feed consumed. If adequate protein is available to cows consuming lower quality roughages, then the rate of passage and the digestibility is improved compared to cows that are inadequately supplemented while consuming the same low quality forage.

Producers may be surprised to know the large differences in protein supplement needed to meet the cow's requirement depending on the quality of forage that makes up the majority of the diet. Below is a table of the pounds of 40% protein supplement needed daily for moderate-sized (1100 pound) beef cows in different stages of production and consuming differing quality of grass hays. (Table is adapted from Richards, Lalman, and McKinney; *Cattleman's Management Record Book.*)

Needed 40% protein supplement (lb/hd/day) to meet protein requirement of 1100 pound mature beef cow

	Hay Protein Concentration (%)		
Stage of Production	4%	6%	8%
Mid Gestation, Dry	2.2	1.1	0
Late-Gestation, Dry	3.1	1.7	0
Early Lactation	4.7	3.3	1.5
Late Lactation	3.5	2.1	0.4

Larger cows and cows that produce above average milk production will consume more forage and need even more supplement to match their requirements. The table above describes the protein-only needs of the beef cow. Energy deficiency may occur and result in some weight and body condition loss. Energy needs will be increased if cows are already in thin body condition and must be improved before calving next spring. Also winter weather conditions can greatly increase energy needs. In many instances, the energy requirements can be met with lower protein supplements (for example 20% protein range supplements) fed at about twice the rate as noted in the table above.