Late-Season Cover Crop Nutrition

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over crops can be a tremendous source of bulk forage for ruminant livestock as well as reasonably priced dietary crude protein and energy. However, in a typical grazing situation, most cover crop use is during late-season, as a strategy to extend the grazing season into late-fall and early-winter. In this situation, the typical cover crop is used primarily as bulk forage and less as a primary or supplemental dietary crude protein source. This article discusses expected nutritional value and quality of late-season cover crops in different situations.

When the cover crop is seeded as the primary forage crop, initial planting date largely determines quality during late-season. In a study at the University of Minnesota North Central Research and Outreach Center (NCROC) near Grand Rapids, Minnesota, turnips and annual ryegrass were planted on June 1 and July 15. Quality was sampled on both treatments on October 15. Crude protein (CP) content of available forage seeded on June 1 was 10.5% and total digestible nutrients (TDN) was 54%; CP content for July 15 seeding was 17% and TDN was 59%. Results suggest that although sufficient forage was available to graze regardless of initial planting date, the earlier seeding grazed in mid-October needed supplemental protein to meet livestock needs.

In a Cow Camp Research Station study in South Dakota, two cover crop mixes were planted following winter wheat on August 1. Mix 1: Purple top turnips (3 lbs/acre), Graza radish (1 lb/acre), and Mustang cereal oats (1 bu/ acre). Mix 2: Winfred (2 lbs/acre), Graza radish (1 lb/acre), and foxtail millet (10 lbs/acre). Both were drilled into standing wheat stubble using a Great Plains no-till drill and sampled for forage quality on November 15. Crude protein content of mix 1 was 16.5% and TDN was 61%. Crude protein content of mix 2 was 9.8% and TDN was 54%. Research concluded the use of a summer annual in a mix intended for use in late-fall or early-winter resulted in exceptionally poor quality grazing requiring protein supplementation for grazing cattle. The summer annual froze-out at first frost (October 12) and forage quality declined rapidly. However, the quality samples were taken bulk. In an actual grazing situation, cattle would likely select higher quality brassica species, refusing lower quality summer annual species. Similar cover crop forage quality results have been observed when following corn silage harvest. Yields will certainly be lower due to fewer growing days prior to frost.

In areas where cash crop residue grazing is popular, seeding cover crops into standing cash crops (primarily corn) to improve residue grazing quality has become prevalent. Generally, the cover crop is seeded just prior to cash crop canopy using aerial seeding or a land application with a floater. Seed lies on the soil surface or germinates and grows very slowly until the cash crop is removed. Since germination has occurred or is close, only a week or two of good growing conditions are required to get a good stand and enough high quality forage to supplement bulk crop residue.

In a study near Brookings, South Dakota, two cover crop treatments were seeded into standing corn prior to canopy closure to determine cover crop yield and quality and bulk available diet (including corn stover). Treatment 1: Annual ryegrass (15 lbs/acre) and Purple top turnips (2 lbs/acre). Treatment 2: Winfred (1 lb/acre) and Dwarf essex rape (2 lbs/acre). Treatments were sampled on November 1. Standing corn residue yielded 2,750 lbs/acre, CP content was 7.1%, and TDN was 54%. Treatment 1 cover crop yielded 865 lbs/acre, CP content was 19.5%, and TDN was 59%. Treatment 1 bulk available forage yielded 3,615 lbs/acre, CP content was 10%, and TDN was 55%. Treatment 2 cover crop yielded 980 lbs/acre, CP content was 17.1%, and TDN was 65%. Treatment 2 total bulk available forage yielded 3,730 lbs/acre, CP content was 9.63%, and TDN was 56.8%. Results suggest that using cover crop species to improve crop residue grazing quality can be effective and will support mature cows without supplementation. However, growing cattle will likely need supplemental dietary protein and possibly energy depending on performance goals.

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