# Potential for Increased Use of Cereal Grain Forages

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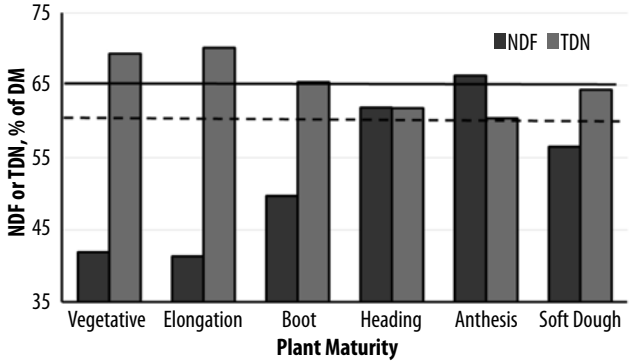
Farmers are using cereal grain cover crops (e.g., rye, wheat, triticale) to take advantage of additional early spring and late-fall growing days, reducing soil and nutrient losses, and providing opportunities for harvesting high quality forage and/or grain. The harvesting decision in the spring or summer dictates the subsequent crop.

If harvesting cereal grain crops as forage in spring or early summer, timing is important to obtain dry matter (DM) yield and quality balance. Marshfield Agricultural Research Station data (Table 1, Figure 1) show how plant maturity affects yield and quality of triticale forage. As plants mature, DM yield and neutral detergent fiber (NDF) increase, but other quality measures (e.g., total digestible nutrients (TDN), protein) decline. For high quality lactating cow forage, target boot stage for harvest to balance yield and quality. For moderate quality heifer forage, target boot to soft dough stage to match energy requirements with energy density (Figure 1). Subsequent crop decisions depend on harvest time, but harvesting for high quality in late May allows flexibility. If a later harvest date is chosen to increase yield, options are fewer.

**Table 1.** Growth, yield, & protein of 2016 fall planted triticale.

| Harvest Date | Growth Stage | Height | DM | Yield | CP |
|---|---|---|---|---|---|
| | | inches | % | tons DM/ac | % |
| 12 May | Vegetative | 15 | 14.2 | 0.54 | 23.9 |
| 19 May | Elongation | 19 | 16.9 | 0.82 | 19.1 |
| 25 May | Boot | 27 | 15.5 | 1.71 | 15.4 |
| 31 May | Heading | 35 | 16.9 | 2.11 | 12.3 |
| 9 June | Anthesis | 54 | 21.4 | 3.38 | 9.6 |
| 1 July | Soft Dough | 57 | 35.4 | 5.68 | 5.9 |

**Figure 1.** TDN requirements of a 600-lb dairy heifer (solid line) & 1200-lb dairy heifer (dashed line).




If deciding to harvest summer grain, wheat is generally more valuable and the straw works well for total mixed ration (TMR) feeding or as bedding. Since harvest will likely be mid- to late July, options are fewer for a fall harvest. Summer-planted oats are an excellent option providing good high quality forage yield (2-3 tons DM/ac) adequate for lactating cows or heifers. Planting date and cultivar selection are important. If planting in late July through the first week of August, a late-maturing forage-type oat will generally result in greater forage yield than grain-type cultivars. When planted the first to second week of August, a mid- to late maturity grain-type oat will result in greater forage yield. A planting date after August 15 is risky and not recommended. Fall-oat forage will generally hit boot stage by mid-October with peak yields by November 1. Forage quality can be high with increasing sugar levels after frosts, provided plant maturity has not yet reached heading stage. Elevated sugar concentrations in these forages can reach 20% of the total plant DM, helping maintain energy levels comparable to corn silage, and frequently >70% TDN. Fall-oat forage can be harvested as silage, baleage, or by grazing. Harvesting as silage or baleage will require cutting and wilting prior to harvest, however, frost events will dry standing forage. If harvested in November, forage may be ≥30% DM, and could be ensiled immediately after cutting.

Cereal grain forages provide a potential for double-cropping with an early summer and fall crop and can improve nutrient management. Not only do these options provide needed forage, but they also establish another opportunity for applying manure in summer. This is likely very important for operations limited in manure storage and available land. Overall, use of cereal grain forages as cover crops or late-summer planted oats allows farmers to take advantage of early and late season growing days.