MINNESOTA - Emergency No-Till Forages

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In response to alfalfa winter injury that occurred throughout the Upper Midwest in 2013 and the prevented planting (i.e., extreme weather conditions which prevented expected plantings) brought on by the wet spring, University of Minnesota researchers assessed the viability of summer annual grasses as emergency forages when no-till planted into winterkilled alfalfa. The intent being to offer forage producers an emergency production system that could provide forage for both grazing and haylage.

Emergency grasses included: Japanese millet, Siberian foxtail millet, teff, brown midrib (BMR) sorghum, annual ryegrass, and perennial ryegrass. Grasses were cut one month after the June 5 planting date, early vegetative stage, and again September 1. Nitrogen (N) response was assessed through the application of varying rates to the grasses, along with evaluating the subsequent effects on forage yield and quality.

Brown midrib sorghum yielded the highest of all the grasses, producing over 6 tons/ac^{-1}. Teff, a warm weather annual grass adapted to moisture regimes ranging from low desert sands to waterlogged clays, produced above 5 tons/ac^{-1}, whereas perennial ryegrass was among the lowest yielding species at 1.7 tons/ac^{-1}. Based on NDFd (neutral detergent fiber digestibility), BRM sorghum was among the highest quality grasses while Siberian millet was among the lowest. Nitrogen fertilization had no effect on total DM production (i.e., yield tons/ac^{-1}) across all seven species which indicated the winterkilled alfalfa supplied enough N to meet the needs of all grasses. Forage protein content and NDFd were both improved with increasing N rates, ranging from 10% to 13% for Japanese millet and BRM sorghum, respectively.

This emergency no-till forage research will continue over the next few years with the goal of developing a set of tools for producers faced with extreme winterkill in alfalfa or prevented planting.