

Effect of Time on Dry Matter Yield and Forage Quality of Swathed Oats and Millet (ABSTRACT)

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The increased cost involved with feeding beef cows through the winter months has forced ranchers to look for cheaper alternatives. Swath grazing may be an alternative that reduces some costs. An experiment was conducted at the Dickinson Research Extension Center to compare the effects of swathing or haying of oat (*Avena sativa*) and millet (*Setaria italica rubrofructa*) on dry matter yield (DMY) and protein concentration. Six 4.5-acre fields were seeded to either oats or millet. Fields were swathed at one of two dates selected to produce either higher quality forage or higher yielding forage. Half of the swathed forage was baled into large round bales. Standing forage was sampled prior to swathing and swaths and hays were sampled at 0, 2, 6, and 10 weeks post swathing. Forage samples were used to estimate DMY and analyzed to determine crude protein concentration. Oat DMY was increased with later harvest ($P < .01$), declined over time ($P < .01$), and was highest in standing crop, intermediate in swathed, and least in hay ($P < .01$). The differences between forage types were greater in the later harvested forage ($P = .01$). Millet DMY of millet effected by swath date ($P < .01$), type of forage ($P < .01$), an interaction between swath date and forage type ($P = .08$), time post swathing ($P < .01$), interaction between time post swathing and swath date ($P < .01$) and forage type ($P = .06$) and an interaction between time post swathing, swath date and forage type ($P < .01$). Yield of standing millet was greater than swathed millet, which in turn was greater than hay at the earliest sampling time. Yield was also greater with the later swathing date at all sampling times. Over time hay yield was relatively constant, while swath yield declined with time. At 10 weeks post swathing, DMY or later swathed millet swaths increased unexpectedly to nearly equal that of standing crop. This response was not consistent with other trends and should be regarded with caution. Crude protein of oats and millet was decreased with a later harvest date ($P < .01$), and was highest in hay, with little change between standing crop and swath ($P < .01$). Oat hay remained relatively constant, while over time oat swaths declined ($P = .03$). The later swathing of both oats and millets resulted in increased DMY with decreased protein concentration. Dry matter yield and protein concentration of oats and millet stayed relatively constant in hay, while decreasing in swaths. Producers have viable options with swath grazing, but will need to consider changes in yield and quality with delayed use.