

■ Hayland and Haying Management

The amount of hay and the quality of hay needed to properly winter livestock in North Dakota and western Minnesota varies with location, type of operation and goals of the rancher. Due to the unpredictability of the winters, both in length and severity, it is difficult to accurately predict the amount of hay needed each year.

Tip: Generally, each ton of hay will provide 2.5 to 3 animal unit months (AUM) of forage for wintering livestock. Hay production will have a year to year variability based upon environmental factors (rain-fall and temperature).

Management: Balancing quality and quantity will depend on species mixture, plant stage at time of harvest, soil fertility and storage method. Maximum quantity will not generally give you maximum quality. Hay harvest management is a matter of timing. Remember, wintering stock cows will not need as high of quality of hay as milk cows.

Species Groupings	When to cut	Minimum Stubble Height Inches
1) Beardless wildrye Creeping foxtail Intermediate wheatgrass Pubescent wheatgrass Meadow brome Smooth brome Tall wheatgrass Western wheatgrass	1st cutting – medium to full head 2nd and succeeding cuttings when new basal sprouts appear	3
2) Crested wheatgrass Green needlegrass	Boot to early heading	3
3) Reed canarygrass	1st cutting – early boot Later cuttings – when basal sprouts appear	3
4) Big bluestem Indiangrass Prairie sandreed Switchgrass	Early boot to late boot stage	3
5) Alfalfa	1st cutting – bud to early bloom Last cutting – Early bloom to 25 percent stand flowering	2
6) Sweetclover	Bud to early flower	3

Tip: Tame hayland and native hayland on sites that have a water table throughout the growing season or receive additional moisture throughout a major portion of the growing season may be harvested once per year and some years more than once a growing season. To optimize both quality and quantity, harvesting should take place when the major species is in the late boot or early heading stage. Tame hayland in eastern North Dakota and western Minnesota may allow for multiple cuttings when moisture conditions are good.

Tip: Native hayland on ecological sites that do not have a water table or do not receive additional run-on moisture harvesting for hay is limited to one harvest every two years. To allow adequate recovery after hay harvest, grazing is limited to the dormant season (usually October 15 to April 15). To optimize both quality and quantity, harvesting should take place when the major species is in the late boot or early heading stage.

Tip: Grazing hayland following the removal of a hay crop is generally not recommended due to the potential for decreasing subsequent yields and long-term viability of the stand. Under a high level of management, which includes careful monitoring of plant re-growth and soil fertility levels, double use can be successfully accomplished during years of abundant production. Grazing intensity level should be light to moderate to maintain adequate growth prior to fall dormancy.

Tip: Hayland comprised of introduced species (i.e., smooth brome-grass, alfalfa, crested wheatgrass) becomes deficient in nitrogen (N) approximately four to five years after establishment, requiring fertilization to maintain maximum yields. A general rule-of-thumb is to fertilize with 40 to 90 pounds/acre of actual N per year with lighter rates occurring in western North Dakota and heavier rates in western Minnesota. Research has indicated that applying 60 to 135 pounds/acres of actual N every other year produces similar yields as yearly applications at the previously discussed rate with less overall cost per acre.

Tip: Soil testing for phosphorus deficiencies is highly recommended before applying as a fertilizer.

For management of annual forages for hayland, see “Annual Forage” section.