Wetlands and Forage

Cooperative Extension South Dakota State University

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wetlands
and forage

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Wetlands deserve more credit for their contribution to the livestock industry than they usually are given.

Wetlands are one of the most important producers of hay and forage in the prairie pothole region of the north-central United States and south-central Canada. An estimated 8.5 million acres of wetlands remain in the prairie pothole region.

A wetland can be regarded as another type of grassland, with plants slightly coarser and certainly more luxuriant than those found in adjacent uplands. The most notable difference is that the plants grow on moist soils or in standing water.

The prairie pothole region

Wetlands occur in nearly every county in the region east and north of the Missouri River in North and South Dakota, in northeastern Montana, parts of Nebraska, northwestern Iowa, much of western Minnesota, and in the southern parts of the Canadian provinces of Alberta, Saskatchewan, and Manitoba. In all, the prairie pothole region covers about 330,000 square miles, of which 115,000 square miles are in the United States. About half the wetlands in this region have been drained since the late 1800’s.

When do wetlands produce hay and forage?

Wetlands produce hay and forage every year. They can be grazed annually, but in wet years many basins cannot be hayed because of wet soils or standing water.

Long-term studies have shown that in most years an average of 50% or more of all wetland basins can be hayed after August 15.

Haying wetlands

When upland hay is plentiful, coarser wetland grasses are seldom hayed. But in dry or drought years when upland hay is scarce, wetland hay can fill a critical need. In fact, on many farms and ranches wetlands may be the only source of hay.

Compared to uplands, wetland hay has a very low production cost because there is no added expense for tillage, fertilizer, and other chemical or petroleum products. In other words, wetland forage is like money in the bank; it can be kept in reserve during wet years, when uplands can furnish enough hay, and used extensively in dry years.

The period of peak forage production in wetlands is between July 15 and August 15 (Table 1). This is also the most convenient time to harvest them for hay, and there will be little conflict with upland haying. It is even possible to harvest hay from wetlands well into the fall and winter seasons, if necessary, but nutritional values decrease markedly after first frost.

If wetland hay appears too coarse or unpalatable, it can be ground or chopped and mixed with molasses or other supplements. When put up as dry hay in stacks or bales, wetland hay can be stored for several years.

Burning wetlands

Wetlands may be burned periodically, once every 3 years or so, to reduce excessive litter accumulation and excessive brush. Livestock are generally attracted to new plant growth in wetlands following a fire. These new plant materials are more nutritious and more palatable than before a fire, and while livestock are grazing in the wetlands the adjacent uplands are able to produce more forage for later grazing.

Wetlands should not be burned every year nor should

| Table 1. Average tons/acre of forages in wetlands by three seasonal periods and by zones within basins. |
| --- | --- | --- | --- |
| Basin zones | Spring-early summer (May 1-June 15) | Midsummer (July 15-August 15) | Early fall (September 1-15) |
| Low prairie | 1 | 2 | 1 |
| Wet meadow | 1 | 2 | 1 |
| Shallow marsh | 1½ | 3½ | 2 |
| Deep marsh | 1½ | 4½ | 3 |
every wetland on a farm be burned during the same year. Some wetlands should always be left undisturbed to provide both nesting cover and winter cover for deer and other wildlife.

In some instances, wetlands are protected from burning by federal easement regulations. Local wetland management personnel may issue special burning permits for some of these easement wetlands. If they find the impacts on wildlife and society are minimal.

**Grazing wetlands**

Wetlands can provide grazing all year long, but the weeks from about May 1 until June 15 and from July 15 until September 15 or first frost are probably the two most important grazing periods. In contrast to upland sites, wetland soils have a longer period of forage production because of a more constant growing environment and soil moisture conditions.

Light grazing of wetland vegetation in the fall or for short periods during spring and summer results in little or no change in the wetland, while heavy or continued grazing can damage shorelines, reduce forage yields, and result in less palatable plants replacing more valuable species. Overgrazing can also result in excessive trampling and poorer water quality. Periods of rest from grazing for at least some part of each summer are desirable for plant health. Periodic rest also increases production of forage and favors desirable forage species in future years.

**Forage production**

How many tons of forage a wetland will produce is affected by (1) season of harvest, (2) location within the wetland that the hay is taken from, and (3) species of forage plant. Average forage production by different zones within basins (Fig 1) is shown in Table 1. In normal precipitation years, forage production per acre averages 1 to 2 tons during May 15 through June 15, 2 to 5 tons during July 15 through August 15, and 3 to 5 tons during early September, when wetlands are hayed only once during a year.

During extremely dry years, wetland forage production is about half the normal production, but twice or more the production expected from uplands. As much as 3 tons/acre of forage can be harvested from wet meadow zones in wet years. Whitetop and slough sedge, the most popular forage species in wetlands, can yield as much as 5 tons/acre.

Cattails are also used by grazing animals and for hay. They have the highest forage yield of all marsh plants and commonly average 8 tons/acre with production occasionally reaching 12 tons/acre.

One economic report in North Dakota showed wetland hay sold for an average price of $30/ton during 1980. An average yield of 4 to 6 tons/acre of wetland hay would gross from $120 to $240/acre.

**Nutritional value**

Several studies indicate that wetland forage has similar nutritional qualities to many upland forages, including legumes and planted cool-season grasses.

Forage quality is dependent on the timing of haying or grazing. In dry years, summer nutrient levels of wetland forages remain higher for longer periods than pasture or upland forages because of better soil moisture conditions.

**Kinds of wetland forage plants**

The kinds of vegetation found in wetlands depend on water permanence and depth. Large wetlands, as shown in Fig 1, can have four zones: open water, deep marsh emergents, shallow marsh emergents, and wet meadow. Wetlands that become...
Vegetation zones:
1: wet meadow (slender grasses and sedges)
2: shallow marsh (whitetop and slough sedge)
3: deep marsh (cattails and bulrushes)
4: open water

Fig 1. Three examples of wetlands with vegetation zones added as water permanence increases.

dry in mid summer would not have the open water or deep marsh emergents. Smaller wetlands which dry up in early summer would have only wet meadow plants. Zones are often irregularly shaped, and the plants are found in a patchwork of stands.

Plants of the wet meadow zone include prairie cordgrass, northern reedgrass, switchgrass, and slender sedges. Shallow marsh plants include whitetop, slough sedge, marsh smartweed, and giant burreed. Cattails and bulrushes dominate the deep marsh. Numerous forbs (non-grassy plants) are also found in the wet meadow and shallow marsh zones. Not all plants are found in the same wetland.

Noxious and poisonous wetland plants

Compared to other types of range or haylands, wetlands are relatively free of noxious plant species.

The major noxious plants in wetlands are Canada thistle and sow thistles, while purple loosestrife is rapidly becoming more obvious as a noxious plant in the region. With the mobility and maneuverability of new haying equipment, patches of these species can be easily avoided during haying operations.

Leafy spurge is seldom found in wetlands, but this species will occasionally grow in low prairie zones.

The primary poisonous plants in wetlands include water hemlock and arrowgrass. They usually do not present a major problem. Water hemlock is not a very common plant and the root is the most poisonous part. Arrowgrasses are more common on saline or salty soils; these areas are normally not hayed.