

STOCKPILED FORAGES: A way to extend the grazing season



What is stockpiled forage?

Stockpiled forage is forage that is allowed to grow and accumulate for use at a later time or during a period of forage deficit. It is common practice to harvest and store (stockpile) forage as hay or silage, but the purposeful stockpiling of forage for grazing at a later time is a new concept for many livestock producers.

Why stockpile forage for grazing?

The climate of the upper Midwest United States permits forage to grow during a seven- to eight-month period. During this period, grazed forage is the least form of forage for livestock. Beef cow herd and sheep flock records over the past few years show that winter feed costs are the single largest production expense, and that keeping the winter feeding costs low is a key to profitable production. Extending the grazing season by using stockpiled forage in late autumn and during the winter months has been shown to be a very economical way to maintain livestock profitability. Even an extra three to four weeks added to the grazing season is beneficial.

What can be stockpiled?

Nearly any grass or legume species can be stockpiled. Tall fescue has probably been used most frequently in stockpiling systems because of its good fall growth and persistence under grazing. Although the palatability of tall fescue is relatively low during the grazing season compared to other grasses, it maintains its quality when exposed to adverse autumn and winter weather. Endophyte fungus-free varieties of tall fescue are recommended over those containing endophyte. However, if you have endophyte-infected fescue in your pastures, it can still be used effectively in stockpile grazing systems. A few extra management practices such as seeding legumes into the pasture and clipping seedheads in early summer can minimize some of the undesirable traits associated with endophyte-infected fescue forage.

Smooth brome grass and orchardgrass have slightly higher nutritive value than tall fescue, but may have less persistence in subsequent years following winter grazing. Legumes such as alfalfa and red clover increase the forage nutritive value and contribute nitrogen to associated grasses, but often live for a shorter period of time in mixed stands where winter stockpile grazing is practiced. Red clover has good seedling vigor and can be relatively easy to establish back into pasture stands by frost seeding in late winter or interseeding in the spring.

Length of the stockpiling period

The most common stockpiling practice is to allow the forage in the stockpile pasture to accumulate during the last 70-80 days of the growing season. This 70-day period can be achieved by terminating summer grazing or harvesting the last summer hay harvest by late July or early August to allow for uninterrupted growth during the stockpiling period. The forage that grows during this autumn period is leafy and high in nutritive value. Stockpile grazing research in southern Iowa and northern Missouri shows that about three fourths to one ton of forage dry matter per acre can be stockpiled over a 70-day period. Longer periods of stockpiling can increase forage yields, but forage nutritive value may be reduced both in digestibility and crude protein.

Pasture fertilization

Nitrogen fertilization in grass pastures is necessary to maximize forage yield during the stockpiling period. Applying 40-50 pounds per acre of nitrogen in early August (at the start of the stockpiling period), will often boost the forage yield approximately 50 percent to about 1.5 tons of stockpiled forage dry matter. Nitrogen fertilization should be applied as early as possible in order to optimize the response of the forages. Fertilization in late September will have minimal effects on stockpiled forage yields. While legumes will provide nitrogen for grass growth in mixed pastures, modest nitrogen applications to mixed grass/legume pastures in the autumn may improve forage yields without adversely affecting long-term legume persistence in the pasture. Weather conditions will influence fertilizer benefits and accumulation of stockpiled forage. Late summer and autumn drought conditions cause the greatest disruption in stockpiling management. Lack of autumn rainfall will often greatly reduce forage growth and limit efficiency of fertilizer use.

Grazing system

Strip grazing of stockpiled forages extends forage quality more than continuous grazing. If given unrestricted access to a pasture, livestock will selectively graze plant parts with the highest digestibility and protein concentration first. If unmanaged, animals will have high-quality diets early in the stockpile grazing period, and will be left with forage composed of an increasingly higher proportion of stems and fiber, but of a decreasing nutritive quality. To minimize this effect, producers are encouraged to erect temporary fences and strip graze smaller areas of the stockpiled forage. This grazing management allows the manager to ration the forage, extend the grazing days further into the winter, and provide a more uniform forage nutritive quality.

Winter grazing can have its disadvantages too

Winter precipitation (rain, sleet and snow) leads to weathering loss or reduction in the nutritional value of stockpiled forages. Winter precipitation reduces both the digestibility of dry matter and protein content. Stockpiled forage maintains its nutritional value longer in dry years.

The physical effect of snow on grazing of stockpiled forages is not as great as might be expected. While snow will restrict access to forage, cows are willing to graze through relatively deep (up to 9 inches) snow for high-quality stockpiled forage. On the other hand, as little as one fourth inch of ice on top of snow or covering the forage may halt grazing. The extent and duration of the physical effects of winter precipitation will vary with location and yearly weather cycles. In one southern Iowa research study, cows were able to graze within a week after a 17-inch blizzard.

It is important to be flexible and be able to manage through adverse weather periods. In the event that livestock can't graze due to ice or snow, be prepared to provide supplemental forage or feed as needed. Also consider that grazing on frozen soil causes minimal pasture damage, but grazing stockpiled pasture when soil conditions are muddy can lead to soil compaction and long-term damage to pasture sod. A stockpile management recommendation is to provide for a sacrifice pasture or dry lot feeding area during periods of winter and spring mud. To further minimize sod damage, storing bales in the pasture behind moveable electric fence can limit unnecessary tractor traffic.

Stockpile forage must fit into a grazing management system

August and September are generally considered to be pasture shortage months. It is not often convenient for most producers to set aside a portion of their summer pasture acres for stockpiling. Areas to be stockpiled need to be carefully considered. They may be those used in early summer as hay meadow or early summer pasture areas. The stockpiled pasture areas selected should be easily accessible in the winter for livestock handling and possible supplemental feeding, and have an adequate winter water supply. On farms where corn crop residues are also available for grazing, weathering losses and nutritional considerations indicate that the corn crop residue fields should be grazed first, followed by the stockpiled forage. During this time of the year, neither corn crop residues nor stockpiled forage may be suitable as a stand-alone ration. A sound supplemental feeding program should be developed to meet the nutritional needs of livestock without excessive winter feeding costs. With thoughtful planning, winter grazing may become an economically important part of your livestock enterprise.

Additional information on winter livestock management and stockpiled forage research results can be obtained from your local extension office. Prepared by Stephen K. Barnhart, extension agronomist. This fact sheet is funded, in part, by the USDA Natural Resources Conservation Service through cooperative agreement no. 74-6 114-7-3.

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