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Swath/Windrow Grazing:

An Alternative Livestock Feeding Technique

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Swath grazing is the process of cutting hay, leaving it in windrows and allowing livestock to graze these windrows during the winter. It offers the potential to lower production costs. However, ranchers should consider topography, water, fencing and other factors first.

Most ranchers are interested in lowering production costs through efficient management techniques. One of the largest expenses on our ranches is that of winter feeds.

In the northern United States and Canada, storing forages for feeding during the non-growing season has been a practice for over 100 years. Swath, or windrow, grazing may be an alternative.

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Regardless of how ranchers are supplying winter feed to their livestock, unless they can rely on open grazing, there might be an opportunity to supply part of their feed by grazing swaths. Ranchers from Nebraska to northern Alberta are using this method to cut costs from their winter feeding operations.

Swath grazing is being done most extensively with annual crops such as oats and barley. Some ranchers are swathing their perennial hay crops and leaving them in windrows for winter grazing by livestock. Some Canadian ranchers windrow late-seeded oats or barley hay and successfully graze them through all types of climatic conditions. The practice has been used during open winters and in snow depths of over two feet with no apparent problems.

Research in Canada shows no difference between the body condition of cows grazing windrows compared to those being fed a standard winter ration in confinement.

Also, the costs of swathing, baling, stacking, storing and feeding baled hay can be reduced by as much as 60 to 75 percent by allowing the livestock to graze windrows. So why isn't every rancher making use of this technique?

Swath grazing does involve some risk. However, the perceived risk may be higher than the actual risk.

One concern always expressed by ranchers is their cows' ability to forage through snow. Cows will not paw through snow like horses or elk for standing forage, but will push snow aside with their heads and noses once a feed source is exposed. Only under extreme conditions, such as hard-crusted snow or icing, is there a problem. Under these conditions, cows' noses can become sore, and they stop foraging. In situations where this has occurred, ranchers have overcome this by driving a tractor down the side of the windrow, which breaks the crust.

Before choosing swath grazing, ranchers must also consider the availability of water, and, if necessary, shelter.

Demonstration project

The Montana Grazing Lands Conservation Initiative (GLCI) funded a demonstration project during the summer and winter of 1996/97 and 1997/98 to examine the effectiveness of grazing forages that were swathed into a windrow and then let lay until mid-winter, at which time the swaths would be grazed by livestock.

A site was chosen near Geyser, Montana on land that had been put into the Conservation Reserve Program (CRP) in the fall of 1987. It was seeded with a mixture of pubescent and crested wheatgrass and alfalfa in the spring of 1988. In July of 1996, approximately 15 acres were swathed and left lay to be grazed in the winter. The rest of the field was baled and the hay removed.

Forage analysis was run on the swaths, hay bales and standing material from August 1996 to January 1997. The analysis had considerable variation. The general trend, however, showed a slightly higher

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crude protein and Total Digestible Nutrients (TDN) for the bales compared to the swaths, which were higher than the standing dead material in this CRP stand. Due to the later cutting date, the crude protein and TDN were much lower than normal Montana hay analysis. August crude protein analysis was 7.6 percent in the bales, 5.8 percent in the swath and 4.3 percent in the standing material. TDN values were 50 percent in bales, 49 percent in the swath and 47 percent in the standing material. No detectable drop in forage value was noted in the analysis over the following five months.

Rain may have a dilution effect on the forages. However, there was no significant rainfall after the field was swathed. Forage analysis for the winter of 1997/98 indicated the same trend of crude protein and TDN. Crude protein values were 10.9 percent for the bales and 8.3 percent for swaths, and TDN values were 62.7 percent for bales and 49.9 percent for swaths.

Management Considerations

To evaluate the implementation of swath grazing, consider these advantages, disadvantages and suggested guidelines.

Advantages:

- Reduced labor requirements. One ranch in Utah cut its labor force in half by switching to this type of haying and feeding technique.
- Reduced costs for haying and feeding. Below are cost estimates of dryland alfalfa grass to sub-irrigated meadow hay. (Yield estimated at 1 1/2 tons per acre.)

  • Swathing $8 to $12/acre

  • Raking $3 to $4/acre

  • Baling $8 to $10/acre (yield 1 1/2 tons/acre)

  • Hauling and stacking $8 to $10/acre

  • Feeding $5 to $10/acre

  Swath grazing eliminates baling, hauling, stacking, and feeding, which reduces costs by a minimum of $16/acre plus the cost of feeding. Additional costs for electric fence and labor to move it have to be added back in, which is estimated to be less than $2/acre. Another hidden reduced cost is machinery longevity. Balers, tractors and hauling and feeding equipment will last longer when handling less hay per year.
- Weather at haying time becomes less of a concern. Summer rain showers reduce the quality of hay waiting to be baled, whereas fall -cut swath grazing is windrowed prior to dry down.
- Manure handling is eliminated for the time livestock are grazing swaths. Concentration of livestock for any length of time is minimized. This reduces the amount of manure that needs to be hauled or spread in the spring from concentrated winter feeding areas.

Disadvantages:

- Crusting snow and ice may require breaking with a tractor to enhance access to the forage.
- Extreme weather can cause problems, and supplemental feeding may still be necessary for short periods of time.
- Wildlife such as deer and elk are a potential problem, some of which comes from walking on ungrazed swaths, which seals the snow and creates a crust, thus making cattle grazing more difficult. However, documentation as to the total effect of wildlife is limited. Several ranchers who deal with wildlife populations on a regular basis report no additional problems, but a survey of Canadian producers indicated 23 percent of them had wildlife problems. Canadian ranchers report deer and elk prefer oat swaths to barley swaths.
- Wind might blow windrows before they are fed. However, experience shows that wind is not a problem if windrows are managed properly (i.e., rolled-up right behind the swather).

Suggested Guidelines

- Cut the forage crop, whether annual or perennial, in the fall when nights are cooler. Usually this will mean in late August or September depending on individual climatic conditions.
- Plant annual forages, barley and oats late in the spring or early summer so they will be in the early dough stages in September for windrowing.
- Graze perennial forages evenly and fairly heavily in the early spring so the regrowth is at a higher quality vegetative state in the fall for windrowing. It is advisable not to use the same field of perennial forage every year.
- Windrows should be no more than four feet wide. High, dense windrows are preferable. Most producers have swathers with 12- to 14-foot headers. Rake at least two of these windrows together. It may be necessary to rake more than two windrows together in hay that is producing less than 1 1/2 tons per acre. Raking windrows together will increase their density, which will help keep the majority of the forage off the ground, even under heavy snow loads. Hay that comes in contact with the ground will decay more quickly and be harder for the livestock to consume. Tall windrows also have the tops exposed making them more accessible to livestock. The exposed areas act as solar collectors, which melts snow off a larger portion of the windrows. Windrows, however, can be made too big, which encourages animals to bed on them and waste more forage.
- Rake windrows together while the hay is still moist and not allowed to dry out. Raking right behind the swather or mower is best. It also helps build a tighter

compact windrow that is less susceptible to wind damage.

- Cross fencing with electric fence can control the time and amounts of forage animals have available. Place electric fence at right angles to the windrows. When the fence is moved, the butt end of the open windrow should be left in the newly fenced area. This leaves some hay exposed, giving the cattle a starting point where they will continue to graze up the windrow.

- In order to minimize waste, move the fence every day, allowing only enough grazing area for one day's feed supply. If that is not possible, move the fence at least every two to three days. If more time is allowed, cattle tend to overeat at the beginning of a grazing period and be overly hungry before the fence is moved. In a Nebraska study where fences were moved every 10 to 14 days, waste was as high as 26 percent. In other studies where cattle were limited to one day's feed and then the fences moved, waste has been lower than five percent.

Summary

Swath grazing is a viable option for many producers. It offers the potential to add value to a livestock enterprise through reducing feed and feeding costs as well as manure handling costs. This does not mean "sell the baler." It means, as with any new practice, swath or windrow grazing takes planning. Topography of grazing area, water sources, shelter, fencing and class of livestock all have to be carefully considered. Implementing this grazing practice will require careful monitoring of livestock to ensure your livestock enterprise goals are being met.

References

Brummer, J., M. Haugen. 1998. Windrow Grazing at High Elevations. Observational paper. Mountain Meadow Research Center, Gunnison, Co.

Surber, G., R. Caquelin, J. Moore. 1998. Swath Grazing as an Alternative. 1998 Ag Lenders Range School. Grazing Lands Conservation Initiative Demonstration Project Report, Montana State University.

Volesky, J.D., D.C. Adams, R.T. Clark. 1998. Windrow Grazing and Baled, Hay-Fed Strategies for Over-Wintering Calves. P32-36 In: Grazing Management Field Day: Upland Range and Meadows. University of Nebraska.

Additional information

An Introduction to Swath Grazing in Western Canada. 1997. Alberta Agriculture, Food and Rural Development. Agdex 420/56-1.

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