

IMPACT



Twin Falls R&E Center, PO Box 1827, Twin Falls, ID 83303-1827; Phone (208) 736-3600; Fax (208) 736-0843

Improved Quality and Value from Afternoon-cut Hay

The Situation

Demand for high quality hay has increased because the dairy industry has greatly expanded in Idaho. Alfalfa hay growers have traditionally cut hay in the morning as well as the afternoon. Plant physiologists have known for more than 50 years that sugar and starch concentrations in forages increase during the day because of photosynthesis, and decrease during the night because of plant respiration. This research information has generally not been adopted by forage growers.

Our Response

Recent studies confirmed the daily increase in sugar and starch in alfalfa and tall fescue grass in Idaho. A focused effort to extend the research information to growers in Idaho was conducted beginning in 1998. Five regional presentations were given in Idaho to about 350 hay growers. The objective was to inform forage growers that a simple change in cutting schedule, but no other costs, could produce higher quality hay that would bring a higher price when marketed. It was demonstrated that by taking advantage of the accumulation of sugars and starches produced by forage plants during daylight, that more energy was available to the animal from this afternoon- PM - cut forage. In contrast, cutting hay during the morning made less energy available because during the night plant respiration lowers the sugar and starch concentrations in the forage. The improved quality from afternoon-cut hay, worth about

\$15 per ton, was indirectly detectable by current hay testing procedures.

Cooperators:

University of Idaho Extension Forage Specialist Glenn Shewmaker and Soil Scientist Hank Mayland, USDA-Agricultural Research Service (ARS) at the Northwest Irrigation and Soils Research Laboratory, Kimberly, Idaho, presented research results from ARS to Idaho Hay Association annual meetings and several regional forage workshops organized by multi-county teams of extension educators and chaired by Stuart Parkinson (Franklin Co.), Kathy Roy (former Canyon Co.), Ron Thaumert (Lincoln Co.), and George Hamilton (Jefferson Co.).

Program Outcomes

Surveys in 2001 showed 80% of 76 Idaho producers with 31,000 acres alfalfa hay would cut hay in the afternoon in the future to harvest higher quality forage. This was a 20 percent increase from 67% in the past year. The most effective educational tool was a time-lapse video of two beef steers offered a choice between AM-cut and PM-cut hays produced in Idaho. The video was made during an experiment conducted by ARS researchers Dwight Fisher and Joe Burns at Raleigh, North Carolina. Growers watched the steers prefer the PM-cut alfalfa. When a technician purposely backed the steers away from their preferred choices to cause the steers to again decide which hay to eat, the steer would use its head to move the technician out of its way so it could eat

the PM-cut hay. Growers who are familiar with live-stock behavior immediately appreciate the implications with this method of technology transfer whereas a table of statistics is not influential. Besides slide presentations in several western states, several popular press articles in the *Magic Valley Ag Weekly*, *Idaho Farmer Stockman*, *Hay and Forage Grower*, *Hoard's Dairyman*, *Progressive Dairyman*, *Beef*, and *The Furrow* have featured the AM/PM hay research. Although this topic was well covered in the popular agricultural press, discussions held one-on-one while watching the video provided the most effective method of extending the research to the producers.

The Future:

Dairy producers are now requesting afternoon-cut hay from producers and are asking for sugar and starch tests to be added to forage analyses. Research and development are needed to provide these tests as well as more education and training on how to use the information. Research and extension is needed to demonstrate that after hay is cut it is beneficial to dry the hay as fast as possible to minimize respiration loss of the sugar and starch. This wave of enlightenment has moved through the West and is now being evaluated in the different climates east of the Mississippi River.

For More Information

Glenn Shewmaker, UI Extension Forage Specialist
Twin Falls Research and Extension Center
PO Box 1827
Twin Falls, ID 83303-1827
Phone (208) 736-3600
Fax (208) 736-0843
E-mail gshew@uidaho.edu