



# FORAGE FACTS

*Publication Series*

## SMALL GRAIN CEREALS FOR SILAGE AND HAY

### INTRODUCTION

Although winter cereals generally are planted for grain, they are also used as forage crops by many livestock producers. Depending on grain and cattle prices, producers sometimes realize a higher net income by harvesting small grain cereals as forage rather than as grain.

Winter cereal forages can be used with fall-harvested crops in a year-round forage program by double cropping the land after harvesting the small grain cereal as silage or hay. The risk of crop loss from rain, wind, or hail is decreased by harvesting a winter cereal as silage or hay compared to waiting to harvest the grain. Finally, circumstances sometimes make it desirable, even necessary to use winter cereals as forage even though they were planted for another purpose, i.e., weather stressed wheat with a low level of grain production might be more profitable if harvested as silage or hay.

### PRODUCTION FACTORS

Maximizing the silage or hay potential of any of these cereal crops depends on several basic production factors. It is important to follow the recommended planting dates for each crop. For best forage production, the planting of small grain cereals should begin about two to four weeks before the free date for Hessian fly infestations. Seeding rates for small grain cereals grown for silage or hay should be 25 to 50 percent higher than normal. Thicker seeding rates will reduce stem size and make wilting easier. With small grain cereals grown specifically for silage or hay, use the same nitrogen rates recommended for grain production.

### SILAGE PRODUCTION AND ANIMAL PERFORMANCE

Forage yield and feeding value are affected by the stage of maturity of the small grain at ensiling time. Small grains should be ensiled at 62 to 68 percent moisture. Because cereals advance from the boot- to dough-stage rapidly, producing a high-quality cereal silage is often more difficult than producing high-quality corn or sorghum silages. Harvesting at the dough stage, a

critical 10- to 14-day period, requires good management. It may be wise to start early, when the grain is in the milk stage and when the moisture is 65 to 70 percent so harvest will not extend beyond the dough stage of maturity. Barley usually matures a week earlier than wheat; and wheat matures one to three weeks before spring oats, depending on the late-spring and early summer weather conditions.

When fed to finishing cattle in high-grain rations, wheat, barley and corn silages support similar feedlot performance. Growing beef cattle should gain 1.5 to 2.25 pounds per day when fed rations containing 85 to 90 percent good-quality wheat or barley silages. Feeding cereal silages can produce up to 50 percent more beef per acre than feeding the grain alone. Silage palatability generally is not affected by the presence of awns, although awns in hay can be a concern.

The feeding value of small grain silage for growing/backgrounding cattle can be compared to whole-plant corn silage as follows:

Barley 90 to 100 percent of corn silage  
Wheat 70 to 90 percent of corn silage  
Oats 60 to 80 percent of corn silage  
Triticale 50 to 70 percent of corn silage  
Rye 50 to 65 percent of corn

#### HAY PRODUCTION

Small grain cereals can be used as a hay crop, either as an emergency feed or as part of a planned early summer forage program. Yields often average about two to four tons of dry matter per acre. Small grain hays have the highest quality when harvested at the late-boot stage of maturity. However, harvesting at the early milk stage offers the best compromise between high dry matter yields and maximum hay quality. If protein content is a high priority for the small grain hay, the crop should be harvested at the late-boot stage of maturity. Dry matter yields are about 20 to 40 percent lower at this stage compared with the dough stage of maturity.

Rough awns in small grain hay can cause livestock considerable soreness and irritation to the eyes, mouth, lips, gums, and lower surface of the tongue. A crop with rough awns should be ensiled rather than baled to minimize this occurrence. Harvesting at the late-boot stage rather than the dough stage reduces palatability problems caused by rough awns.

Occasionally, nitrates accumulate in small grains cereals because of drought, hailstorms, or late frosts. Oat hay is more likely to have a high nitrate level than any other small grain cereal hay.

Additionally, small grain cereal hay tends to be more slippery than alfalfa or native grass hays, and the bales can be more difficult to stack.

#### OTHER PUBLICATIONS

- Kansas Crop Planting Guide (L-818)
- Small Grain Cereals for Forage (MF-1072)
- Wheat Pasture in Kansas (C-713)
- Wheat Pasture Grazing (Forage Fact Sheet Series)
- Small Grain Cereals as Forage: Crop Selection (Forage Fact Sheet Series)

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