



## FORAGES FOR ALL SEASONS

# Crop selection for supplemental and emergency forage

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Drought, hail, loss of stands, and other factors can diminish traditional forage sources. Many plant species have the potential to become live-stock forage; however, candidates for emergency forage will depend on the amount of rainfall, availability of irrigation, soils, and location.

Some producers grow annual forages every year as a form of insurance. Warm-season annual grasses and cereal crops establish quickly and provide forage in as little as six weeks. With some crops (wheat, oat, triticale), the same varieties used for grain can be used for forage, as they are adapted. With other crops (corn, barley, millets), forage types and varieties are available. In contrast to crops grown for grain, those grown for forage need not mature, can be used even if damaged by hail, and have more flexibility in the planting date.

An annual emergency-use crop should be selected based on the season the forage is needed. Warm-season crops can provide summer forage, a time when the cool-season perennial grasses, which Wyoming producers rely upon, are in a growth slump. Cool-season crops, such as the cereals, can provide forage for fall, winter, and spring. The amount of water a crop uses is an important consideration when precipitation is limited or if it varies considerably from year to year. As noted in Table 1, some crops, even though adapted, require more than twice the water of other crops. Corn requires about the same amount of water as sudangrass, yet in a dry year the latter will often outyield corn under

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*Triticale*



*Turnips*



*Oats*

unirrigated conditions. It is important to consider the amount of reserve soil moisture at planting and how the annual crop will be harvested. Because curing will be difficult and utilization may be poor, coarse-stemmed crop varieties are better suited to ensiling than to grazing. Also, the awns associated with many cereals are much less problem after ensiling than with haying.

### **Corn**

Corn is a promising additional crop to a wheat-fallow rotation in dryland areas, allowing two crops in three years (ie, wheat-corn-fallow). Introducing corn into wheat rotations allows

producers to integrate livestock and improve sustainability and profitability to dryland production. Forage-type corn hybrids are available. Forage types have higher nutrient contents in leaves and stalks and produce less grain, compared with grain hybrids. Forage hybrids can be grown under dryland and under irrigation, for fall and winter grazing of the standing crop. There is relatively little problem with nitrates or prussic acid in corn.

### **Sudangrass and sorghum-sudangrass hybrids**

The sorghum family requires higher soil temperature (>60° Fahrenheit) for seed germination, and seedlings are not as vigorous as those of corn. There is more potential for prussic acid poisoning, particularly with sorghum-sudan hybrids than with other crops.

Sudangrass is more useful for summer grazing than other sorghums because of its regrowth potential. Sudangrass hybrids with low prussic acid potential should be grown. Sorghum-sudangrass hybrids are potentially more productive than sudangrass, particularly under irrigation, and are preferred for silage.

### Foxtail millets

Like proso millets, which are grown for grain, these forage-type millets are popular in Wyoming because they are efficient in water use, mature quickly, and can be grazed, hayed, or simply left in windrows for fall or winter grazing. There are few animal health problems with these millets.

### Winter wheat, rye, and triticale

These fall-planted crops have been grown primarily for grain, but each year some acres are grazed off or cut for hay when grain prices are low and/or yield prospects are poor. They can be planted earlier than grain for winter pasture, and they generally provide earlier grazing or hay harvesting than perennial forages. Although fall-planted crops grow

**Table 1.** Comparative evaluation of several supplemental and emergency annual forage crops.

Crop	Planting dates	Yield potential <sup>1</sup>	Water use <sup>2</sup>	Drought resistance	Comments
		tons/acre	inches/ton		
Corn	May 1-June 15	5-8	3.1	Poor	Silage; fall grazing
Sudangrass	May 15-July 1	5-7	3.4	Good	Silage; summer or fall grazing; some prussic acid potential
Sorghum-sudan hybrids	May 15-July 1	5-8	2.5	Good	Silage; fall grazing; moderate to high prussic acid potential
Foxtail millet	May 20-July 10	3-4	2.5	Little	Hay; pasture; silage; fall windrow grazing
Winter wheat <sup>3</sup>	Aug. 15-Sep. 15	3-4	4.9	Fair	Spring to early summer pasture; hay; silage
Triticale <sup>3</sup>	Aug. 15-Sep. 15	3-4	N/A	Fair	Early spring to early summer pasture; hay; silage
Oat <sup>3</sup>	Early spring to July 1	3-5	5.2	Poor	Pasture; hay; silage; fall windrow grazing
Barley <sup>3</sup>	Early spring	3-5	4.6	Fair	Pasture; hay; silage

N/A = not available.

when evapotranspiration demand is minimal, water use per ton of forage is greater than for other crops. Triticale produces more forage than wheat and is much less likely to volunteer than rye. All around, it is probably the best cereal for forage. Triticale has shown promise as a pioneer crop on newly cleared or tilled land.

### **Oat and barley**

These crops are spring planted, as well as the spring varieties of triticale and wheat. Oat can be grown more successfully with later planting than barley; however, water use will be greater than with fall-planted cereals. A beardless barley variety should be used, particularly if grown for hay. Barley has more drought resistance than oat and is more tolerant of salinity.

### **Brassicas**

Brassicas include turnip, rape, crosses of turnip with Chinese cabbage, mustards, and radish. Although they can be grown full season, the most economical production is as a second crop following an early-harvested crop, such as small grain. Since they have a high water requirement, they will most likely need irrigation. Brassicas maintain high forage nutritive value even after hard frost and are suited to fall and early winter grazing. They can be used to pro-

duce inexpensive livestock gains.

### **Annual legumes**

Austrian winter pea and hairy vetch (fall planted), spring-planted pea, and soybean can be used as emergency livestock feed. Since these are legumes, nitrogen fertilizer is not necessary and the forage's overall crude protein content is usually improved if they are together in a cereal crop mixture.

Other cultural practices for growing these forages can be found in the following bulletins, *Cereal crops: Management for supplemental and emergency forage*; *Sorghums and sudangrass: management for supplemental and emergency forage*; and *Foxtail millet: management for supplemental and emergency forage*. Also, problems that may be encountered by growing these crops are addressed in *Managing forage to reduce nitrate poisoning in livestock* and in *Managing forage to reduce prussic acid hazard*. For more information, contact your local University of Wyoming Cooperative Extension Service office.

### **Literature cited**

Shantz, H.L. and L.N. Piemeisel. "The water requirement of plants at Akron, Colorado." *Journal of Agricultural Research* 34(1927):1093-1190.

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