



## OATS FOR GRAIN OR HAY

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Oats are grown in Montana as an annual forage crop and as a feed grain crop for livestock. Oats are frequently used in rations for dairy cattle, sheep, horses and for young growing animals. Oats are also used in Montana as a partial substitute for corn.

Oat straw is used both as a roughage for wintering breeding stock or for younger animals and as bedding.

Only the spring-type oats are adapted to Montana's environment. Winter-type oats will not survive the winters.

Over the past 10 years oat acreage planted has ranged from 244,000 to 781,000 acres. Oats have ranked fourth in cropland acreage planted each year and sixth in value of crop produced.

### **Adaptation**

Oats are grown throughout Montana on both dry and irrigated land. Best yields are obtained in regions with cool temperatures and adequate moisture. Hot, dry weather, when the crop is filling, frequently results in poorly filled kernels and low yield. For good kernel development, oats need more growing season moisture than any other small grain. Consequently, oats produce best when seeded on the heavier clay-loam soils.

Oat yields in excess of 100 bushels per acre frequently occur with timely irrigation and with recommended fertility treatments.

### **Soil**

Silt and clay-loam soils having good moisture retention ability are best for oat production. Sandy soils, coarse textured soils, or soils with a shallow surface are not desirable for oats. Oats may be more tolerant of poorer soil conditions, and successful production requires management practices that conserve and store soil moisture.

The alluvial river valley soils in Montana are well adapted to oats. Oats are not tolerant of salty, saline or alkali conditions and production should not be attempted when such conditions predominate.

### **Rotations**

The alternate crop and fallow system on dryland assures growers of higher yields of both grain and forage. In higher rainfall areas, such as foothills of the intermountain region, oats may follow wheat as in a fallow-wheat-oat rotation.

Oats are sometimes used as a companion crop when establishing legumes and grasses on irrigated land. Cayuse is a preferred variety for this purpose because of its shorter, stiff straw, which has less tendency to lodge. Oats are seldom a high-income crop on irrigated land but they can be substituted for any other cereal crop in a continuous crop production system. As with any crop, high productivity is dependent upon a high fertility level. Irrigate as needed to maintain adequate moisture in the root zone. Two irrigations may be adequate on the fine textured soils with good water-holding capacity, while three irrigations – at tillering,

boot and flowering to watery kernel stage – may be needed on the coarse-textured soils. Apply enough water during the last irrigation to carry the crop through the filling stage.

## PLANTING

### Seed Quality

“Just any old oats will do!” that seems to be the philosophy of many farmers growing oats for feed. Furthermore, they grow a poor crop to prove it!

However, select oats for seed with the same basic concern you use for wheat or barley. Do not plant seed “loaded” with wild oats – or any other troublesome annual or perennial weed. Too many growers make this mistake – and tame oats do not revert to wild oats with each successive generation of increase! Yes, “fatuoids” (or “fake wild oats”) may be seen – a slight amount of crossing may be expected when the two are grown together. CHANGE OAT SEED FREQUENTLY – USE CERTIFIED CLASS SEED! The oat seed stock on many farms needs to be improved. A few cents spent to eliminate wild oat and other weed seed mixtures will return a higher yield and added dollars. Plant only seed that has been germination and purity tested!

Too many oats are seeded uncleaned. Always clean seed to remove “inert” materials, separable weed seeds and some crop mixture. Seed free of inert material (trash) prevents plugging of the seed feed mechanism in the drill, resulting in a more uniform stand and the best possible yield.

### Date and Rate of Seeding

Sow oats early for highest yields. Plant oats between April 1 and May 1. Seed at a rate of 80-100 lbs per acre on irrigated ground and at a rate of 40-60 lbs per acre on dryland.

### Equipment

Any type of ordinary drill used for either winter or spring grain is satisfactory to seed oats. A drill equipped with packer wheels is best.

### Seeding Depth

Do not seed deeper than necessary to assure a stand – 1 ½ inches being the maximum. Seeding deeper than 1 ½ inches will reduce tillering and may lower the yield.

### Diseases

In eastern Montana oat stem rust (*Puccinia graminis avenae*) and Victoria blight (*Helminthosporium victoriae*) are two diseases known to be a problem when oats are grown under irrigation. Oat varieties differ in their susceptibility to these diseases. Select varieties for the purposes intended (grain, hay or silage) and choose those with the best disease resistance.

### Harvesting

Oats grown on dryland for grain can be harvested by direct combining. Irrigated oat fields may have to be swathed to get uniform drying and to reduce shatter loss. The grain must be dried to a moisture content of 14 percent or less in the header swath. Oat fields to be direct combined should be harvested when they reach maturity to prevent loss from shatter by high winds.

It is common practice to windrow fields of oats that become weedy prior to maturity. A large number of green weeds will slow oat maturity, making combining difficult, and the oats may heat in storage. Do not windrow oats when the ground surface is wet from recent rains, or if the weather is unsettled and rain is forecast within a day or two.

### **Oats for Hay**

Oats harvested at the mid-dough stage make the best quality of hay. In this stage the nitrate level is usually low, but not always. An abnormal growing season, plant growth interrupted by drought, high rates of nitrogen fertilizers applied or available nitrogen present in relation to available soil moisture may result in a high nitrate level in the oat stems and leaves. Take at least 20 plants randomly selected in a field or 20 samples from a stack for testing. The samples or plants must be taken from different locations throughout the field or stack. Your county agent may have a kit for testing for the presence of nitrates.

If the nitrate level in a field is found to be above safe feeding levels, delay harvest until the crop has become more mature. Even a forenoon of sunshine and favorable conditions for plant development may reduce the nitrate to a level safe for haying and feeding.

### **Storage**

Use a tight bin that will prevent the entry of birds and rodents, but with good ventilation. Clean walls and floors of bin thoroughly to remove any old grain. Spray walls and floor with a residual insecticide such as methoxychlor or malathion.

Check stored grain frequently to detect any “hot spots,” roof leaks, insect damage, bird or rodent entry and even for theft.

### **Marketing**

Seed oats of known variety, free of wild oats, perennial weeds, other common weed pests and crop mixture usually are in demand each spring. Explore the race horse market for a premium for high quality oats.

Most oats are grown for farm or ranch use or for the local feed grain market. Montana oat producers are generally too far removed from the market for human food consumption and cannot compete favorably because of transportation costs.

Unless the market is strong do not sell oats at harvest – store and hold for a later market. Livestock numbers, wintering conditions, roughage and other feed grain supplies and prices influence the oat market.

### **Wild Oat Identification**

The wild oat plant in the seedling stage differs from cereal grains in the “twist of the leaf.” See the accompanying illustrations.

Dig up the entire plant in the seedling stage, being careful not to tear the seed loose from the coleoptile. Examination of the seed may provide positive proof of wild oats, even when found in a cultivated oat field. Note characteristics shown in illustrations.

In later stages of development (heading stage) the wild oat does not have auricles (see illustration) nor a true collar. Hairiness of the leaf is usually above the collar and the hairs are shorter than is found in cultivated oats.

Currently there are no chemicals for the control of wild oats in cultivated oats.