

---

OKLAHOMA AGRICULTURAL AND MECHANICAL COLLEGE  
EXTENSION SERVICE

W. A. CONNER, *Director*

---

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME  
ECONOMICS

---

Oklahoma Agricultural and Mechanical College and the United States Department of  
Agriculture Cooperating

---

*Distributed in Furtherance of the Acts of Congress of May 8 and June 30, 1914*

---

**GROWING OATS**

By W. J. GREEN,  
Extension Agronomist.

---

**KINDS OF OATS**

Oats may be divided into two general classes: fall sown, and spring sown, or winter and spring oats.

Spring oats are the kind generally grown in Oklahoma.

Winter oats do not grow well in the northern part of Oklahoma, and reports indicate that they are not always a sure crop in many other sections of the state.

Winter oats are not as hardy and can not stand as severe weather as winter wheat or rye, consequently they are adapted to sections of the country where the winters are comparatively mild. If a person is in doubt as to what kind to sow, he should consult his county agent who is familiar with local conditions.

—o—

**SOIL**

Oats grow best on clay loam soil that is well drained. This crop requires more water than any of the other small grains, consequently it needs to be grown on soils that retain moisture.

The oat plant is a coarse fodder and will grow on soils that will not produce a good crop of wheat or rye. On the other hand, oats should not be planted on very rich soil or on undrained lowland, as they are likely to make too much growth and lodge before they are cut.

—o—

**PREPARING THE SEEDBED**

**PLOWING**

*Time to Plow.* The ground for spring oats should be plowed in the fall.

Fall plowing has many advantages.

It turns under the weeds and trash and gives them a chance to decay before spring. It gives time for preparing a firm seedbed.

Fall plowing also destroys many insects by breaking up their winter quarters.

Plowing at that time of the year leaves the ground in condition to absorb the moisture that falls during the winter in the form of snow and rain.

It is best to leave the ground rough during the winter and not harrow it immediately. The rough ground will catch the snow. It will not blow or wash as badly as land that has been harrowed down smooth.

The above directions do not refer to soils that blow badly during the winter months. Such soils should not be plowed until almost time to plant the crop.

For winter oats, the ground should be plowed in early summer, so as to give time to prepare a firm seedbed before planting time.

*Depth of Plowing.* The ground for oats should be broken to about the same depth as for wheat, from six to eight inches.

*Turning Under Trash.* It is a mistake to burn off stalks, weeds, stubble or other material that can be plowed under, for they will add humus to the soil.

Humus is decaying organic matter such as weeds, straw, etc. Most soils in Oklahoma need more humus. It benefits the soil by making the ground easier to work and by causing it to hold moisture better during a dry season. Soils with plenty of humus are less likely to bake or become cloddy. Humus not only adds plant food to the soil, but it also works on the food elements already in the soil and makes them into a form that can be used by the plants.

If the plowing is done early, the trash that has been turned under will have a chance to decay somewhat before the crop is planted. If, on the other hand, the plowing is done late, this material will cause the ground to dry out too rapidly and a poor crop is likely to be the result. In a case of this kind, it would pay to give the field a good disking before plowing, so as to cut up the trash and to help make a firmer seedbed.

Green weeds are especially good for plowing under for they decay rapidly and soon become a part of the soil.

#### PREPARATION AFTER PLOWING

About a week before seeding time, the fall plowed ground should be harrowed.

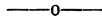
If the land was turned in the fall and there was a reasonable amount of rain or snow during the winter with considerable freezing and thawing, the clods will be broken up and a firm seedbed formed.

In that case a good double harrowing will sometimes put the ground in good condition. However, a double disking followed by a good harrowing will usually make a much better seedbed.

Ground on which winter oats are to be planted should be harrowed as soon as possible after plowing for it is usually in the best condition to work down at that time. A good plan to follow is to harrow each day's plowing before quitting work at night. It usually takes only a short time and is well worth the extra trouble that it causes.

#### PREPARING CORN LAND FOR OATS

Where spring oats are to follow corn, it is a common practice to disk the ground and plant the crop without further preparation. While this plan works in most years, it usually pays to plow the stalk land in the fall. The same is true of land that has been planted to cotton, grain sorghums or other row crops. In most cases, especially with cotton, it is a good idea to go over the field with a stalk cutter before plowing and cut the stalks into pieces that can be better mixed with the soil so that a firmer seedbed can be formed.



#### SEED

*Selecting the Seed.* Nothing but the best seed should be sown. It always pays to sow pure seed of a variety that will grow well under local conditions or has grown well under similar conditions. The fact that a certain variety of oats will grow well in some other locality is no assurance that it will do the same in a man's own locality.

If a person wants to try a new variety, it is usually best for him to plant only a few acres the first year so that he can compare it with the kind that he has been growing. Then, if the new kind proves better than the old, he can plant as much as he wants the next year. If, on the other hand, it is not as good as the old, he has not lost very much money on it.

The seed should be all of one variety, for, if more than one kind is sown in the same field, they may not ripen all at the same time and thus cause loss in harvesting.

The seed should also be free from all foreign material, especially from weed seeds. A good fanning mill should be used to clean the oats before planting.

If there is danger of smut, the seed should be treated as directed elsewhere in **this circular.**

*Testing Seed.* Most oats that are grown under normal conditions and are not damaged in the stack or in storage will germinate, or sprout, all right.

If, however, they are stack-burned, heated in the bin, sprouted, weevil eaten, or damaged in some other way, it is well to test them before sowing.

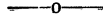
The best way to test oats is to take samples from several parts of the bin, mix them together and then count out one hundred grains. In counting them, a person should not try to pick out either the good or the bad ones but should take them just as they come, good and bad.

A piece of blotting paper should be placed in a plate. The paper is moistened and the one hundred kernels placed on it. Another piece of moistened blotting paper is placed over the grain and a plate inverted over it. If the blotting paper cannot be obtained, several pieces of soft paper such as newspaper will do.

The paper should be moistened with warm (not hot) water every night and morning and kept in a warm place for seven days. At the end of that time, the top plate and paper can be removed and the number of sprouted grains counted.

If all of them have started to grow, the seed will very likely all grow when in the field.

If, on the other hand, only half of the grains have sprouted the oats should not be used for seed. If, however, as might be the case, the seed was pure and of a good variety and no other pure oats of that variety can be obtained, the seed may be planted, but twice as much should be used.



## SEEDING

*Time to Sow.* The time to sow oats varies according to the season and locality.

Oats are a cool weather crop, consequently they should be sown early in the spring as the ground can be worked, the earlier the better, provided they escape being killed by freezing.

Full-sown oats should be sown earlier than wheat as they are less hardy and need to be well rooted and have considerable growth before cold weather.

*Depth to Plant.* The depth of sowing oats varies from one to three inches according to season, type of soil and condition of seedbed. The seed should be planted deep enough to assure its being in contact with moist soil. Care should be taken not to plant too deeply in the spring when the soil is moist and cold, or the seed may not come up well.

*Rate of Sowing.* The amount of seed to sow to the acre varies with the locality. It will vary from four to eight pecks, depending upon the rainfall of the particular section of the state in which the oats are grown. In regions of light rainfall the lower rate should be used.

A sandy soil will usually need more seed than a clay soil. A well prepared seedbed will not require as much seed to make a good stand as will one that is in poor condition.

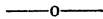
With varieties with large kernels, more seed should be used than with those having small grains.

*Method of Seeding.* In sowing oats a good drill that will distribute the seed evenly, plant it all at the same depth and cover it uniformly should be used.

The hoe drill does good work in clean ground but clogs badly in land containing stalks or other trash. It is also of heavier draft than the disk drill.

The shoe drill pulls more easily than the hoe drill, and is less likely to clog in trashy land.

The disk drill is easier to pull and clogs less in trashy land than either of the other two types, but it does not do quite as good work as the others on stony land.



## HARVESTING

*Time to Harvest.* Oats should be cut when they are in the hard dough stage. In some cases they can be cut while still in the soft dough stage, and while a number

of the leaves are yet green, if care is taken in shocking. Cutting at this time will insure better straw if a person wishes to use it for feed, but cutting in the hard dough stage will give the best grain.

Care should be taken not to allow oats to stand too long in the field before harvesting or the grain will shatter badly and part of the crop will be lost.

*Using the Binder.* The binder is usually used for cutting oats in Oklahoma. The machine should be run so as to get all the grain and should be adjusted so as to tie a good, tight, medium-sized bundle. Loose bundles, or bundles not tied at all, cause much loss when thrashing or stacking.

*Shocking.* Oats should be shocked soon after they are cut to prevent damage from rain. The shocks should be smaller than for wheat if the round type is made. If the long type is used, they may be made larger. The long type is made by placing two bundles together and then two more by the side of these and continuing until a long, narrow shock is made. This type being only two bundles in thickness, will cure as rapidly as a small, round shock.

The shocks should be built so that they are not easily blown down, for poor shocking is often the cause of damaged grain.

Write to the Extension Division, Oklahoma A. and M. College, for a copy of Circular Number 94, "Saving the Small Grain Crop." It gives many valuable suggestions for shocking and stacking bundle grain.

*Stacking.* If the crop cannot be thrashed within three weeks after harvest, it will pay to stack it. Stacking protects the grain from damage by the weather, and also removes the oats from the field so that it can be plowed early for a fall crop.

Care should be taken to build the stacks so as to shed water and stand up in wind storms. Unless a person is a good stacker, it will pay to hire an experienced man to do this work, for much grain is lost some years on account of poor stacks.

—o—

## THRASHING

In thrashing oats the grain should be thoroughly dry or it may heat and mold in the bin.

It is always best to see that the separator is well cleaned before starting so that there will be no danger of having weed seed, other grain, or inferior oats from a neighboring farm mixed with the grain. A good plan to follow is to use the first load for feed, so as to keep the rest from being mixed, for most of the seed left from the crop previously thrashed will come through the machine with the first load.

While the thrashing is going on, it is a good idea to watch the separator to see that all the grain is removed from the straw and that none of the grain is being blown over into the stack.

The concaves should be set so as to remove all the grain but not so close as to hull it.

—o—

## EXHIBITS

If a man is growing good oats it will pay him to make an exhibit at his district and county fairs.

Care should be taken to select the best possible exhibit. The following score card gives the points that are taken into consideration in judging oats:

SCORE CARD FOR OATS

1. <i>Uniformity</i> —Uniform in size, shape and color .....	10
2. <i>Trueness to Type</i> —True to the variety represented .....	10
3. <i>Proportion of Hull</i> —Should not be more than 30% hull .....	10
4. <i>Size of Grain</i> —Large and Plump .....	10
5. <i>Market Condition</i> —No smut, must, sprouted kernels, weed seed, chaff, dirt, straw, or other foreign material .....	20
6. <i>Weight per Bushel</i> —32 pounds per bushel .....	20
7. <i>Seed Condition</i> —Clean, large kernels, not sprouted, with strong vitality and free from dampness or injury .....	20
Total .....	100

EXPLANATION OF POINTS ON SCORE CARD

*Uniformity*—The kernels should be all of the same size, shape and color. Oats that have stood in the shock too long will very often be bleached and weathered to such an extent that they will not score high on this point.

*Trueness to Type*—The kernels should all be like the variety they represent.

*Proportion of hull*—The amount of hull in the sample should not be more than thirty per cent. Too much hull cuts down the weight.

*Size of Grain*—All kernels should be large and plump according to the standard of the variety they represent.

*Market Conditions*—The sample should be free from weed seeds, straw, trash, chaff, dirt, and other foreign material. An extremely dirty sample should be disqualified. The kernels should be free from smut and mold, and should not be sprouted.

*Weight per Bushel*—In Oklahoma a bushel of oats should weigh at least thirty-two pounds. The weight can usually be estimated fairly well by the size and condition of the kernels, but in case of doubt or close competition the sample should be weighed.

*Seed Condition*—The seed should be large and clean. They should not be sprouted or broken and should be free from other injury. They should not be damp or moldy.



INSECT PESTS AND DISEASES OF OATS

CHINCHBUG

This insect is a pest that sometimes does considerable damage to oats in Oklahoma.

It not only attacks oats but also wheat, barley and rye, as well as corn, grain sorghums and similar crops.

The chinchbug lives over the winter in the adult form as a full grown insect. It is usually found in bunches of grass down near the surface of the ground. The best method of control is to plow all the fields in the fall, where fall plowing is practicable, so as to break up the winter homes. All fence rows and waste places should also be burned to destroy the chinchbugs that are living over in the grass.

Get a copy of Circular Number 59, "The Chinchbug," from the Extension Division, A. and M. College, Stillwater, Oklahoma.

GREEN BUG

During some years much damage is done to oats by the green bug.

This little insect attacks oats, wheat, rye, and barley.

Its presence is usually first noticed by small yellow spots in the field which become larger until they sometimes meet and practically cover the field.

If the field seems to be badly infested with the green bug it is best to plow it up and plant it to some other crop than oats, wheat, barley or rye.

If the spring is warm, the green bug may be kept under control by parasites or other insects that prey on it.

Get a copy of Circular No. 30, "The Green Bug," from the Extension Division, Oklahoma A. and M. College.

#### OAT SMUTS

Considerable loss is caused to the oat crop every year by smut. There are two types of oat smut, both of which may be prevented by treating the seed before planting.

The method to be used to prevent oat smuts is as follows:

A solution is made by mixing one pint of a forty per cent solution of formaldehyde with forty gallons of water.

Formaldehyde can be purchased at most drug stores. A person should insist on getting a forty per cent solution.

Two half barrels or tubs with holes and plugs near the bottom are placed with one a few feet above the other.

The top tub is filled about two-thirds full of the solution. Enough oat seed is poured into the solution to come almost, but not quite, to the surface. The grain is stirred thoroughly and all smut balls and trash that come to the top are skimmed off. In five minutes the plug is pulled out of the top tub and the solution allowed to flow into the bottom vessel.

The seed is dumped on the floor. The bottom tub which now contains the solution is placed on top and the other one on the bottom so that the process can be repeated with another lot of seed.

When all the seed is treated, it is covered with sacks or similar material for from five to ten hours. The seed should then be spread out and shoveled over occasionally so that it will dry out quickly.

Another method that is sometimes used is to sprinkle the grain with the solution of formaldehyde and water. About one gallon of the solution should be used for each bushel of oats.

The grain should be shoveled over during the sprinkling so as to make sure that each kernel is wet. The wet grain is then covered and allowed to stand for from five to ten hours.

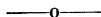
In using this method, the oats should first be run through a fanning mill to remove all loose smut balls.

While this method is effective, it is not recommended if the first can be used.

Write to the Extension Division, Oklahoma A. and M. College, for a copy of Circular No. 66, "Control of Grain Smuts".

#### RUSTS

Some years considerable damage is done to the oat crop by rust. There are three forms of rust that attack oats, and as yet there is no sure way of preventing or combating them in Oklahoma. Early seeding, growing varieties that mature early, and planting on well drained soil will help to prevent damage from rusts. The use of Red Rust-proof varieties are recommended for most parts of Oklahoma.



#### PUBLICATIONS OF INTEREST TO OAT GROWERS

The following may be obtained free by writing to the Extension Division, Oklahoma A. and M. College, Stillwater, Oklahoma:

Circular No. 30—The Green Bug.

Circular No. 59—The Chinchbug.

Circular No. 66—Control of Grain Smuts.

Circular No. 94—Saving the Small Grain Crop.

The following may be obtained from the Division of Publications, United States Department of Agriculture, Washington, D. C.:

Farmers' Bulletin No. 424—Oats: Growing the Crop.

Farmers' Bulletin No. 436—Winter Oats for the South.

Farmers' Bulletin No. 1119—Fall-sown Oats.



