

Wild

Oats

FACTS AND
TILLAGE CONTROLL. A. Jensen
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Once a field becomes infested with wild oat seed, the problem is serious, and the job of weed elimination is not easy. Canadian workers have reported that, in one season, as many as 21 bushels of wild oat seed per acre have shattered before the wheat crop was harvested. On some fields that have been examined, the plow layer has contained as high as 71 bushels per acre of these noxious weed seeds. These figures emphasize the severity of the wild oat problem, and the difficulty of its solution.

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Wild Oats **FACT**

There is no quick or easy way to rid a field of wild oats. But the job is by no means hopeless. It is possible to clean up a field by following a combination of good rotation, timely tillage operations and wild oats control chemicals. This calls for good judgment and persistence. The most reliable way for small grain farmers to eliminate wild oats is to get the wild oat seed to sprout and then to destroy the plants before they reseed.

FACTS ABOUT WILD OATS

These basic facts about wild oats will help you establish satisfactory control measures.

- Wild oats mature ahead of most of our small grain and row crops and shatter a considerable amount of seed before harvest.
- The new crop seed has a high percentage of dormancy. This means delayed germination and accumulation of live seeds from year to year. The degree of dormancy varies from season to season. In general, the germination per cent of new crop seed runs as follows:

Two weeks after maturity – 0 to 5 per cent germination
Four weeks after maturity – 5 to 25 per cent germination
Two months after maturity – 5 to 50 per cent germination
The following spring – up to 80 per cent germination
The second spring – up to 97 per cent germination

- Seeds laying on or near the surface in the fall are exposed to weathering. They will have a shorter dormancy period than seeds plowed or cultivated into the soil immediately after harvest. This suggests no fall tillage--or at the most a shallow, delayed fall tillage.
- Wild oats can remain in the ground several years without rotting, and will grow when conditions become favorable.
- Wild oats rarely germinate during the warm summer months--mid June through August. This indicates why summerfallow, unless preceded by early spring tillage to germinate and kill two or three crops of wild oats, is not very effective in controlling wild oats.

S AND TILLAGE CONTROL

- Fall germination of wild oat seed is usually not very good even though conditions may seem favorable.
- Burning stubble is not an effective means of wild oat control. If stubble and straw are heavy, and the burn is slow such as in a windrow, there may be some tendency to help break dormancy of newly shattered seed or to burn seeds up.
- Wild oats seed laying on the soil surface do not germinate well. They must be covered lightly with soil.
- Very early shallow spring tillage to cover seeds and warm up the soil is preferred. If early spring tillage is not possible substitute a late fall tillage just before freeze up.
- Deep plowing, in an effort to bury seeds so deep they are not likely to germinate, is not effective. The furrow slice is not so completely turned over that all surface seeds are buried to the full plow depth. Wild oat seeds are, therefore, scattered all through the normal plowing slice.
- Harrowing a few days after the spring crop has been seeded, and just after it sprouts, can reduce wild oat stands up to 50 per cent. If moisture is good and surface soil is dry, wheat, barley and row crops can be harrowed after they are up but while the wild oats are still very small.
- Cultivating an unseeded field does the best job of killing wild oat plants after they are up 3 to 4 inches. Under favorable conditions wild oat plants may reroot if cultivated earlier.
- Applying fertilizer with a grain drill attachment places the fertilizer where the seeded crop will get the advantage. This helps the crop get ahead of wild oats growing between seeded crop rows.
- Barley is the best spring sown, competitive crop, followed by wheat and oats. Flax offers the poorest competition.
- Delayed seeding is one of the best methods of wild oat control. The choice of crops which can be planted late is limited to such crops as flax, soybeans, corn and the several forage crops. Cultivate to kill 2 or 3 crops of wild oats and delay seeding until about mid June. After this, wild oats are less likely to germinate.

- Winter rye seeded on summerfallow gives very effective control.
- Some wild oat kernels can germinate 4 to 6 days after heading. Cut fields to be harvested for hay as soon as wild oats begin to head.
- Some wild oat seeds can survive the digestion of animals. Whole grain or hay containing wild oat seed should not be fed unless manure is allowed to heat. Silage is okay if well cured.
- Selective wild oat control chemicals are now available that can help the small grain farmer control wild oats. These can be used to supplement cultural control practices.

SUGGESTED FIELD MANAGEMENT

The following suggestions for handling specific fields to obtain the best possible wild oat control by cultural practices are based on the facts just outlined, plus farmer experience.

Field to be Summerfallowed

1. No fall cultivation at all or, at most, only a very shallow late cultivation leaving the stubble upright to hold snow. This permits the new crop wild oat seeds to lay on or near the surface where weathering helps to break the dormancy. If fall cultivation is necessary for other weed control, delay the operation until late September.
2. Early the next spring work the field shallow to cover wild oat seed and prepare a seedbed favoring germination.
3. The second cultivation should be the deepest of the season. Make it as soon as the first wild oat crop is 3 to 4 inches tall. At the same time leave a seedbed favorable for germination of the next crop.
4. Repeat shallow cultivation as often as wild oats get 3 to 4 inches tall. Always leave a seedbed favorable for germination of the next crop.
5. When using the system just described, summerfallow should not be plowed or cultivated deep later in the season. To do so brings deeply buried seeds up near the surface. These are not likely to germinate until next spring when a crop is planted.
6. Use only shallow tillage the following spring in preparing a seedbed for crop planting.

Field to be planted early to small grain crops

1. This practice will not eliminate wild oats. Early planting to small grains should be limited to fields that are relatively free of wild oats. Continuous early planting of a field favors wild oats.
2. The simplest and probably the best method is to spring plow and plant immediately in areas of the state where this practice is possible.
3. In heavy soil areas where fall plowing is necessary, delay plowing until Sept. 15. Use a subsurface packer to help promote fall germination.
 - (a) The next spring work the field shallow and seed immediately.
 - (b) As soon as the seeded crop is sprouted the field can be harrowed to help reduce the wild oat population.
4. Apply fertilizer with a grain drill attachment to place the fertilizer in the crop row.
5. Barley is the best competitive crop against wild oats. It is the preferred crop for planting on the worst fields.

Delayed seeding - field to be planted to late crops

1. Use crops such as flax, corn, soybeans, millet, sudangrass, sorghums and buckwheat.
2. The easiest method is to plow and plant immediately near the middle of June. This usually produces a wild oat-free crop, but does not tend to clean up the field.
3. The delayed seeding program permits killing several crops of wild oats before planting the crop.
 - (a) Plow early in the spring, or late fall in areas where fall plowing is necessary.
 - (b) On spring plowing, harrow or otherwise prepare a seedbed favorable to germination. On fall plowing, an early spring tillage operation and harrowing help to start growth early.
 - (c) The second cultivation should be the deepest and should kill the first wild oat crop. Each following cultivation, before planting, should be a little shallower than the last. Cultivate whenever wild oats are 3 to 4 inches tall.
 - (d) Keep the field in cultivation as late as possible in order to kill as many wild oat crops as possible. Plant the late crop immediately after the last cultivation.

- (e) As soon as such crops as corn and soybeans are sprouted, the field can be harrowed, if necessary. These crops can also be harrowed after they are up to control wild oats and other weeds. Blind cultivating of row crops followed by harrowing is very helpful.

Sowing the field down to grass or alfalfa

Sowing a wild oat-infested field to perennial grass or alfalfa, and leaving it seeded down for a number of years, is usually only partially successful. Some seeds do rot, but there is no certainty that all seeds will be destroyed in this manner. Usually, moisture conditions under a sod are not favorable for seeds to rot. Instead, they may be preserved for an indefinite period and germinate when the sod is turned over. It may be advisable to follow such a sod crop with the delayed seeding practice described above.

Cropping changes can be helpful

The combination of modern tillage practices and present day weed control chemicals can result in cropping changes of benefit to the producer. Wheat, barley and oats can be sprayed with 2,4-D or MCP for broadleaf weed control. Flax can be sprayed with MCP or 2,4-D for broadleaf control and Dalapon for pigeongrass control. The new selective wild oat control chemicals can now control wild oats in these crops.

One of the most common wild oat control practices used has been delayed seeding. Experiments and farmer experience have shown that delayed seeding, on the average, reduces the yield of planted crop unless weeds are a problem. The new wild oat control chemicals now make it possible to plant early and control the wild oats with chemicals.

Most farmers agree that at least three successive years, each aimed at wild oat kill, are necessary to control wild oats on a field. This can now be done by planning a rotation based on tillage practices in some years and chemicals for wild oat control in others. For example: 1st year chemical and early planted flax, 2nd year summerfallow and 3rd year wheat with chemical if needed. Many other combinations can be used.

When all other practices fail, sacrifice the crop and cut it early for hay or silage.

Refer to circular A-351 "Chemical Wild Oats Control in Field Crops" for details on chemical wild oats control.

Assistance in preparing this circular was provided by Dr. E. A. Helgeson, Experiment Station Botanist.