

chemical Wild Oats Control in field crops

CHEMICAL WILD OAT CONTROL SUGGESTIONS in this circular are based on information available from the North Dakota Agricultural Experiment Station, the Research Committee of the North Central Weed Control Conference and industrial research.

Use of chemicals is advised only when the chemicals are registered by the Food and Drug Administration as to tolerances for application on crops raised for human food and livestock feed. Use each chemical only as recommended on the label of the container.

Wild oats is the most serious statewide weed problem in North Dakota. Nearly all farmers share in the estimated 30 to 40 million dollar annual crop loss caused by wild oats. For the first time selective chemicals are available to help the small grain grower in wild oat control.

Experimental observations to date show two chemicals, Avadex and Carbyne, are useful for selective wild oat control in growing crops. These chemicals also have been widely tested on farms in both the U. S. and Canada. When used properly these chemicals can: (1) Save a crop from being taken over or the yield seriously reduced by wild oats competition, and (2) limit production and shattering of a heavy wild oat seed crop.

These chemicals usually do not result in complete elimination of wild oats in the crop; when properly applied 85 to 95 percent control is more common at the rates recommended. This, however, is very satisfactory control from a producer's viewpoint.

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Sprayers Need Checking

Careful, accurate application is necessary with either chemical. Sprayers must be in good working order to assure even chemical application. Nozzles need to be checked individually for uniform output and the sprayer should be calibrated carefully. Uneven application of chemical can result in either poor wild oat control or crop injury, or both.

Full length boom type sprayers, without an end nozzle set at an angle to eliminate skips, are required for even application. Boomless sprayers should not be used.

Aerial applications have not been tested as extensively as ground applications but, where proper care in application was taken, aerial applications seemed about as effective as good ground applications. As these chemicals are put to general use aerial operators will become better acquainted with handling them.

Be Well Informed

Before spraying be sure to understand the proper use of either chemical. Both require more exacting use than many other commonly used weed control sprays. Check with your County Extension Agent, your local dealer, attend educational meetings, and study the label so you will know how and when to use the chemical and what to expect.

CARBYNE (Barban)

1 pound active ingredient per gallon

Recommended rate per acre:

5 to 6 ounces active ingredient (1/3 gallon of product)

Hard red spring wheat

Barley

Durum

Flax

Peas

10 to 12 ounces active ingredient (3/4 gallon of product)

Sugar beets

Cannot be used in tame oats.

How to use Carbyne:

● Timing of the application is very important. Application must be made when the wild oats are in the 2-leaf stage. This is from the time the second leaf first appears until the third leaf first appears. Very careful field checking by actual count is required so that application is made when the majority (1/2 to 2/3 or more) of the wild oat seedlings are in this stage. Normally this will be 4 to 9 days after emergence. In dry, cold springs or on low fertility fields this period may be prolonged somewhat, but spray no later than the 13th day after wild oat emergence. Do not spray after the planted crop has reached the fourth leaf stage. Spraying later than suggested can result in serious crop injury and unsatisfactory wild oats control.

- Accurate application is essential. The sprayer must be in top working order and calibrated to insure even and accurate application. Overlaps or skips must be avoided in the field. Wind up to 15 miles per hour have not affected results. Spray pressure must be at least 45 pounds. The ordinary 5 gallon fan type spray nozzle used for other weed spraying is satisfactory.

There is some indication that if the nozzles can be tilted forward at a 45 degree angle and the boom lowered correspondingly, that the chance of success is improved. This is probably because the most effective and most rapid results are obtained when the chemical is applied to the lower leaf section of the wild oat seedling.

- Rate per acre: (See table above) Slightly higher rates may be advisable if the wild oat infestation is severe, or if the spraying conditions are poor. Lower rates than suggested will decrease the chance of satisfactory wild oats control.

- Encourage uniform spring germination and emergence of wild oats plants in order to have as high a percentage as possible in the 2-leaf stage for spraying. This can be done by shallow seedbed preparation and having a firm seedbed.

- Have a vigorous highly competitive planted crop. Wild oats may germinate after spraying and some sprayed plants may send out new stools. The planted crop needs to be strong, vigorous and thick enough to keep these latecomers under control.

- Results are not fast. One to two weeks after application treated wild oat plants turn a bluish green, the leaves become brittle and the plants swell at the base. Some early effect may also be noted especially on the wheat or barley crop but this usually disappears as the season progresses.

- The chemical must be applied on a dry plant surface but rain following a short time after treatment does not seem to affect results.

- Surviving wild oats plants may produce tillers and new plants may emerge after spraying but usually these plants are stunted, mature later than normal and produce only a small number of seeds. Many may be late enough to avoid shattering before harvest.

- 2,4-D cannot be mixed with carbyne and applied at wild oat spraying time because the crop will be injured from this early application of 2,4-D. If it is necessary to control broadleaf weeds this early in the season, experience suggests that MCPA at not to exceed 1/4 pound per acre can be added to carbyne.

- Carbyne is usually effective on wild oats only. At times there may be some setback to buckwheat, curled dock, Lady's thumb and smartweed.
- Band spraying over the row can reduce the cost per acre on sugar beets.
- To mix the spray solution (1) fill the spray tank 3/4 full of water, (2) add the proper amount of carbyne slowly, (3) fill the spray tank with water and (4) keep mixed while spraying.

AVADEX

4 pounds active ingredient per gallon

Recommended rates per acre:

1 1/4 pound active ingredient (1 1/4 quarts of product)

Durum Barley

1 1/2 pound active ingredient (1 1/2 quarts of product)

Flax Sugar beets

Peas (both dry and canning)

Note: 2 pounds active ingredient (2 quarts of product) will provide moderate control of foxtail on these three crops.

Use on hard red spring wheat is not recommended. 1 pound active ingredient (1 quart of product) per acre is suggested for trial use only.

How to use Avadex:

- Avadex must be mixed with the top soil by shallow tillage to kill wild oats. Success will depend to a large extent on how good a job is done in mixing the chemical into the top 1 or 2 inches of soil.
- The chemical must be applied on a smooth seedbed to permit uniform incorporation. It will usually be best to work up a smooth seedbed prior to application. The chemical should then be worked in shallow (2 inches) by a disk, a harrow or a cultivator followed by harrowing. The chemical application and incorporation into the soil is usually done prior to seeding but may be done immediately after seeding.
- Avoid application on wet lumpy, rough or ridged fields, such as occurs after using a field cultivator, because it will be impossible to make uniform incorporation of Avadex into the surface soil. Deep furrow or hoe drills may not be satisfactory for use either before or after application because they tend to ridge the field making uniform application difficult. When plow and pony press drills are used, spraying and shallow incorporation must follow seeding.
- Fields with considerable surface trash require extra surface tillage operations for good incorporation.

- For durum and possible barley the seed of the planted crop should be planted $\frac{1}{2}$ inch below the treated soil. This may require a little deeper planting than normal.
 - Kill all wild oats seedlings that are present in the field, by cultivation before applying the chemical. Wild oats which have emerged before the chemical is applied will not be killed by the chemical.
 - Incorporate the chemical as soon as possible (within a few hours) after application in order to prevent loss by evaporation.
 - Any wild oat plants which survive will usually develop normally.
 - Be sure the sprayer is in top working order and calibrated to insure even and accurate application. Avoid overlaps or skips in the field. Field markers, such as chains attached to each end of the sprayer boom, may help.
- Ordinary 5 gallon fan type nozzles used for other weed spraying are satisfactory. Ten gallon nozzles if available will usually result in more uniform application and less evaporation. Spray pressures of not over 30 pounds are suggested. The wind should not exceed 15 miles per hour.
- On light, sandy soils where there is danger of severe wind erosion after application Avadex probably should not be used. Most of the treated soil might blow away in parts or all of the field.
 - Rain following soil treatment does not seem to affect results materially. Chemical leaching is very slight. Water erosion, however, can wash treated soil away from slopes and result in poor kill.
 - Unsprouted wild oat seeds are not killed by Avadex. Dormant and/or unsprouted seeds will live over and may sprout next year or later.
 - Avadex will remain active for about 6 weeks, during which time it kills wild oats as they sprout. If rain delays seeding of crop after chemical application, the seedbed can be reworked shallow and seeded at a later date.
 - Wild oats may emerge on treated fields but usually die when food reserves in the seed are exhausted.
 - To mix (1) fill the spray tank $\frac{3}{4}$ full of water, (2) carefully add the proper amount of chemical, (3) fill the tank with water, (4) allow the bypass to mix before and during spraying. If the solution has been in the tank for some time, mix thoroughly before using.

Plan Your Control Program

The use of Carbyne or Avadex should be part of a planned cropping program to help bring wild oats under control. A 3 year program on a badly infested field is usually considered necessary to bring wild oats under control. Such a program, especially in the summerfallow area, might include 1 year of fallow and 2 years of chemical or other wild oat control practices.

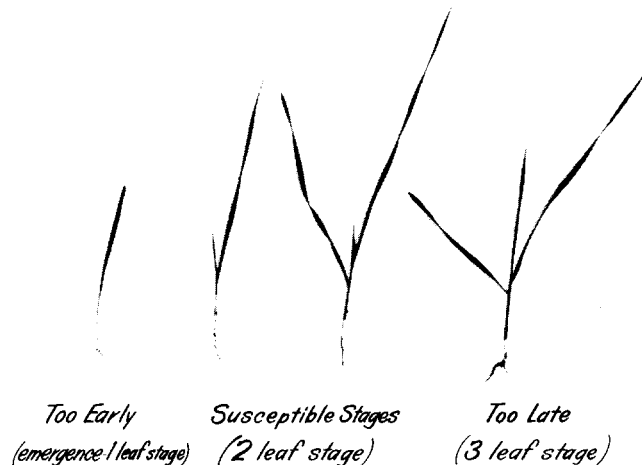
Which Chemical To Use

Choice of chemical to use is a decision each farmer has to make for himself. Both chemicals, if properly applied, will do a good job and the cost is about the same. The choice likely will depend on crop to be grown, work load distribution and perhaps time of seeding a given crop. In 1961 the following chemical control choices are possible.

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| Hard red spring wheat | — Carbyne |
| Durum, barley | (|
| Sugar beets | (Carbyne or Avadex |
| Peas and flax | (|

Flax, peas, and sugar beets are not good weed fighters. If, for example, flax is planted early, Avadex with its 6-weeks residual effect might be preferable. For late planting, however, the grower might want to "wait-and-see" if a wild oat problem develops and then use Carbyne if it does.

Timing your Carbyne applications



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