

chemical Wild Oats Control in field crops

CHEMICAL WILD OATS 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, industrial research and farm experience.

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.

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CHEMICAL WILD OATS CONTROL IN FIELD CROPS

Wild oats are 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.

The chemicals, Avadex (DATC) including Avadex BW and Carbyne (Barban), are useful for selective wild oats control in many commonly grown crops. These chemicals have been widely tested on farms in 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 oats seed crop.

These chemicals usually do not result in complete elimination of wild oats in the crop; when properly applied 85 to 95 per cent control is more common at the rates recommended. This, however, is satisfactory control in many crops.

There has been no injury to legumes and some grasses where these are underseeded in crops sprayed.

On seriously infested wild oats fields a cultural control program should precede the use of chemicals. When the wild oats are too bad and the crop too poor, the use of chemicals will not be practical.

It is always advisable to leave a check strip untreated in the sprayed field for comparison. Comparisons made with another field are not reliable.

Sprayers Need Checking

Careful accurate application is necessary with either chemical. Sprayers must be in good working order to assure even chemical application. Nozzles and screens 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 oats 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. Constant ground speed of the sprayer is important for even application.

Aerial applications are as effective as ground applications when the plane is equipped to apply a uniform spray pattern. Two

gallons or more of spray material per acre are preferred, although 1 gallon per acre has given satisfactory results but leaves less safety margin. The pilot must be exacting in his operation.

Understand Limitations

Before spraying be sure to understand the proper use of either chemical. 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. Both chemicals require more exacting use than 2,4-D and other commonly used weed control sprays.

Under dry surface soil conditions such as occurred in 1961 Avadex wild oats control was not consistent.

The wet, cloudy weather and succulent crop growth in 1962 resulted in more injury to the crop from Carbyne than we had seen before.

CARBYNE (BARBAN)

(1 pound active ingredient per gallon)

Recommended rate per acre:

| | |
|--|---------------------------------|
| 4 to 6 ounces active ingredient (2 to 3 pints of product) | |
| Hard red spring wheat | Barley |
| Durum | Safflower |
| Peas | Flax — the lower rate preferred |
| 12 to 16 ounces active ingredient (3/4 to 1 gallon of product) | |
| Sugar beets | |
| Cannot be used in tame oats. | |

Timing Your Carbyne Application



Spray when majority of wild oats looks like this.

How to use Carbyne:

● Encourage uniform spring germination and emergence of wild oats plants in order to have as high a percentage as possible between the 1 and 2-leaf stage for spraying. This can be done by shallow tillage in seedbed preparation and having a firm seedbed.

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

If the nozzles can be tilted forward at a 45 degree angle and the boom lowered correspondingly, 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 base rather than the tip of the wild oats seedling.

● Timing of the application is very important. Application must be made when the wild oats are between the 1 and 2-leaf stage. This is from the time the second leaf appears until the third leaf starts. If the leaves are damaged by wind or frost they still count. Very careful field checking by actual count is required so that application is made when most (1/2 to 2/3 or more) of the wild oats seedlings are between the 1 and 2 leaf 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 OATS EMERGENCE**. Observations indicate that small grain fields are often sprayed too late. Do not spray after wheat or barley has reached the fourth leaf stage, flax the 12th leaf, peas the 6th leaf, safflower the 8th leaf and sugar beets not later than 1 month after emergence. Spraying later than suggested can result in serious crop injury and unsatisfactory wild oats control.

Ideally, wild oats should be sprayed at about the 1-1/2 leaf stage and small grains no later than the 3rd leaf stage but in no event should a field be sprayed later than 2 weeks after emergence even though the wild oats has not reached the 1-1/2 leaf stage.

● Rate per acre: (See table above) The lower rate suggested is for use on fields of good fertility and moisture levels, with a good crop stand, favorable growing temperatures and with a high percentage of the wild oats between the 1 and 2-leaf stage not more than 10 days after emergence. Rates below 4 oz. per acre have generally resulted in unsatisfactory wild oats control.

The higher rate suggested is for use when growing conditions, including low fertility, drouth, frost, wind damage or heavy wild oats stands, result in slow wild oats seedling growth.

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

● Good planted crop competition is important. A healthy, vigorous, fast growing crop usually will overcome wild oats that emerge after spraying or new stools that may develop on sprayed plants.

● Surviving wild oats plants usually are stunted and mature later than normal and produce only a small number of seeds. Many of such plants may be late enough to avoid shattering before harvest.

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

● If broadleaf weed control is desired at this early spraying, MCPA at not to exceed 1/4 pound per acre can be added to the Carbyne. 2,4-D cannot be used because the crop will be injured from this early application of 2,4-D.

● Carbyne usually is 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.

● Livestock should not be allowed to graze on Carbyne treated fields until after harvest of the crop. Flax straw or pea stubble should not be fed to livestock.

● 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 (DATC)

(4 pounds active ingredient per gallon)

Recommended rates per acre:

| | |
|--|-------------|
| 1-1/4 pounds active ingredient (1-1/4 quarts of product) | |
| Barley | |
| 1-1/2 pounds active ingredient (1-1/2 quarts of product) | |
| Flax | Sugar beets |
| Safflower | Corn |
| Potatoes | |
| Peas (both dry and canning) | |

AVADEX BW

(4 pounds active ingredient per gallon)

Recommended rates per acre:

1 pound active ingredient (1 quart of product)

Hard red spring wheat and durum

1-1/4 pounds active ingredient (1-1/4 quarts of product)

Barley

AVADEX BW tends to be somewhat less injurious to small grains than AVADEX.

How to use Avadex and Avadex BW:

- Avadex and Avadex BW must be mixed thoroughly with the top soil by shallow tillage to kill wild oats. Success depends to a large extent on how good a job is done in mixing the chemical into the top 1 or 2 inches of soil.

- Be sure the sprayer is in top working order and is 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, usually will result in more uniform application and less evaporation. Spray pressures of not over 30 pounds are suggested. Wind should not exceed 15 miles per hour.

- Apply and incorporate Avadex into the soil prior to planting flax, sugar beets, safflower and potatoes.

To avoid injury to wheat, durum and barley, plant first then apply Avadex BW and incorporate immediately with 2 harrowings. Crop seed must be below the treated soil area either by deeper seeding or shallow chemical incorporation.

Avadex can be applied either before or after planting corn or peas.

- The chemical must be applied on a smooth seedbed to permit uniform incorporation. It usually will be best to work up a smooth seedbed before application. The chemical should then be worked in shallow (2 inches) by a disk, a harrow or a cultivator followed by harrowing. Avoid applying 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. If such drills are used apply Avadex pre-planting.

- Kill all wild oats seedlings 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.

- Fields with much surface trash require extra surface tillage operations for good incorporation. A disk is the most satisfactory implement.

- On light, sandy soils where there is danger of severe wind erosion after application, Avadex or Avadex BW probably should not be used. Most of the treated soil might blow away in parts or all of the field.

- Heavy rain following soil treatment does not seem to affect results materially. Chemical leaching is very slight unless rains are excessive and continued. Water erosion, however, can wash treated soil away from slopes and result in poor kill.

- Unsprouted wild oats seeds are not killed by Avadex or Avadex BW. Dormant and/or unsprouted seeds live over and may sprout next year or later.

- Avadex and Avadex BW remain active about 6 weeks, during which time it kills wild oats as they sprout. If rain delays seeding of post-planted crops after chemical application, the seedbed can be re-worked shallow and seeded later.

- Wild oats plants may emerge on treated fields but usually die when food reserves in the seed are used up. Any that do survive past the early seedling stage will usually develop normally.

- To mix (1) fill spray tank 3/4 full of water, (2) carefully add the proper amount of chemical, (3) fill tank with water, (4) allow the by-pass to mix before and during spraying. If the solution has been in the tank for some time, mix thoroughly before using.

- Avoid seeding tame oats on fields treated the previous year, especially if more than 1-1/2 pounds of Avadex or Avadex BW were used per acre.

Plan Your Wild Oat Control Program

Use of Carbyne, Avadex or Avadex BW should be part of a planned cropping program to help bring

wild oats under control. A 3-year program on a badly infested field usually is necessary to bring wild oats under control. Such a program, especially in the summerfallow area, might include 1 year of early fallow and 2 years of chemical or other wild oats control practices.

Cultural practices should be included in any good wild oats control program. Don't depend on chemicals alone to do the job on fields severely infested with wild oats.

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