

Chemical

WEED CONTROL

in growing crops

Cultivation and crop rotation are still basic in weed control. Effective long time weed control on any farm will always depend on good tillage and a crop rotation which includes grass and legumes, smother crops, early and late seeded crops, fallow, intertilled row crops, etc. The proper use of recommended chemicals, however, can be a very useful and economical additional tool in obtaining selective control of annual and prennial weeds in growing crops.

Weeds compete with your crop for the moisture and plant food available. On the average about 500 to 600 pounds of moisture are used to produce 1 pound of dry matter in our common weeds. The moisture and plant food used in producing 1000 pounds of weeds on an acre are equal to that required to produce from 4 to 6 bushels of wheat.

● CHEMICAL CONTROL PRACTICAL

Chemicals such as 2,4-D, MCP, TCA and dinitros, when used according to recommendations, can provide practical selective weed control in small grains and flax. Some of the troublesome perennial weeds, although difficult to eradicate with chemicals, can be satisfactorily controlled. 2,4,5-T is effective in controlling certain woody plants.

The use of soil sterilants such as sodium chlorate, boron and boron-chlorate compounds are recommended for eradication of small patches of noxious weeds.

● DOSAGE TO USE WITHIN RECOMMENDED RATE

Recommended rates per acre of 2,4-D, 2,4,5-T MCP and TCA are based on acid equivalent and are made in pounds or ounces rather than in pints or quarts as different products may vary in their acid equivalent content. The total pounds of 2,4-D in a gallon will be shown on the container. The recommendations are usually made in a range such as 1/4 to 1/2 pound of 2,4-D per acre for small grains. The directions on the container of the product to be used will usually be correct. Recommendations in this circular can be used as a check.

The amount to use per acre within the recommended range will depend on conditions such as temperature, moisture and rate of growth. These effect the kill of weed and the possibility of injury to the crop.

When growth is rapid and plants are lush use the lower rate. Weeds are usually easier to kill in the seedling stage. When conditions are warm and dry weeds grow slowly and the upper range of rates are suggested. The ester of 2,4-D or MCP should be used at the lower rates in small grains or flax.

● PRECAUTIONS

Chemicals used for selective weed control in growing crops should be handled carefully and applied only according to recommendations. A slight overdose may not injure a crop in hot dry weather but could cause serious injury when growth is rapid. Extreme caution is urged to avoid drift injury on nearby susceptible crops or plants such as legumes, trees, shrubbery, flowers and vegetables.

There is little danger to livestock from eating forage treated with 2,4-D, MCP, 2,4,5-T or TCA even at rates several times higher than recommended. However, to be safe, it is recommended that stock be removed from a treated field or pasture for 3 days after treating. There is little danger from handling 2,4-D, MCP or 2,4,5-T if common sense precautions are taken. TCA is rather caustic to the skin, so avoid getting it in your eyes and wash off with water when it gets in contact with your skin.

● CALIBRATE YOUR SPRAYER

It is important that the amount of chemical and carrier to be applied per acre be accurately determined. For a simple farm method of checking and adjusting your sprayer to apply

the exact gallons per acre that you want get the circular "Farm Sprayer Adjustment" from your County Agent.

● CLEANING OUT THE SPRAYER

It is very difficult or nearly impossible to clean out all the 2,4-D from a sprayer when you may want to use it for some other use on 2,4-D susceptible plants. One method is to rinse thoroughly with water, fill the sprayer with a solution of household ammonia (1 pint per 100 gallons of water), leave for 12 to 24 hours, run solution out through booms and rinse thoroughly with clean water.

Before using sprayer on susceptible plants test it by treating a plant such as a tomato or bean and observe results for 24 hours. If curling or twisting of leaves or stem occurs after 24 hours it still would not be safe to use the sprayer on 2,4-D susceptible plants.

FIELD CROPS

● SPRING SOWN GRAIN

For control of susceptible broadleaved weeds, wheat, durum and barley should be treated with 2,4-D only during the period from the 5-leaf stage (fully tillered) up to just prior to the early boot stage. Rate of application of 2,4-D should be 1/4 to 1/2 pound per acre. Where esters are used the lower rate should be regarded as near maximum.

Oats appear to be more susceptible to injury from 2,4-D at all stages. Oats should be treated during the latter part of the 5-leaf to early boot stage and a further precaution should be taken of applying only lighter dosages.

If a pre-harvest treatment becomes necessary, to kill weeds that might interfere with harvesting, up to 1 pound of 2,4-D per acre can be applied anytime after the milk stage without appreciable injury to the crop.

● FLAX

Flax should be sprayed with 2,4-D or MCP from the 5-leaf stage to the bud stage. Avoid the bloom and bud stage when serious injury can be expected. For best results treat as soon as sufficient susceptible weeds have emerged.

Flax is more tolerant of MCP than of 2,4-D. Some injury to flax from 2,4-D or MCP can be expected. Such injury is usually more than offset by the decreased weed competition.

Injuries to flax, such as deformed plants, delayed maturity and lower yield, can be expected to be somewhat less from MCP as compared to 2,4-D. However, the cost of MCP will usually be at least twice as much per acre.

MCP is a new selective weed chemical which affects broad-leaved weeds in a manner similar to 2,4-D. It has proved less injurious to flax along with satisfactory broad leafed weed control. Therefore the use of MCP is suggested where decreased injury warrants the extra expense. Recommendations for MCP as to time, method and rate of application are similar to those for 2,4-D.

Apply 2 to 3 ounces per acre of amine formulations of 2,4-D or MCP for susceptible weeds such as common mustard. Apply 4 ounces of amine for weeds such as lamb's quarters, pigweed, frenchweed, cocklebur, marsh elder and ragweed. Apply esters at lower rate.

Flax varieties more tolerant to 2,4-D include Sheyenne, Marine, Redwood, Dakota, Redwing, Kota and Royal. All other varieties should be treated at lower rates and do not use esters.

TCA at 6 pounds per acre (90 percent strength) will kill grassy weeds such as pigeon grass and barnyard grass in young flax but will not control wild oats. Apply in 6 to 10 gallons of water per acre after the flax is 2 inches high and before the weeds are 2 to 3 inches high for best results. Do not apply TCA to small grain crops such as wheat, durum, barley and oats as serious injury to the crop might result.

TCA can be applied in a mixture with 2,4-D or MCP on flax to control both susceptible broadleaved and grassy weeds.

● CORN

Use of 2,4-D in growing corn has a place, when susceptible weeds cannot be satisfactorily controlled by cultivation. It should not be considered a substitute for cultivation. Some DEGREE OF INJURY TO CORN FROM 2,4-D CAN BE EXPECTED FOR SEVERAL DAYS after treating regardless of dosage. This includes brittleness and lodging, curved stalks and deformed brace roots. A storm or cultivation shortly after treatment may result in severe loss from lodging.

Time to treat should be determined by weed growth. Treat as soon as possible after a majority of weeds have emerged and

not before corn is 5 inches tall. Weeds and corn both are more subject to injury when in fast vigorous growth.

DO NOT APPLY 2,4-D DURING THE TASSELING STAGE OR WHEN TEMPERATURE IS OVER 90 DEGREES.

In corn apply 1/4 to 1/2 pound of 2,4-D acid per acre. If ester formulation is used apply at lower rate. Determine dosage by kind of weeds being treated. If corn is more than 30 inches tall the use of nozzle extensions is recommended.

Pre-emergence treatment is not recommended.

● LEGUMES

Legumes, such as alfalfa, sweet clover, peas, beans, soybeans, etc. are very susceptible to injury from 2,4-D and should not be treated. Alfalfa and sweet clover seedlings growing in a small grain nurse crop will likely be reduced seriously in stand if treated with 2,4-D.

Dinitro sprays (Dow Selective or Sinox W) are recommended for control of small broadleaved annual weeds in seedling legumes. Apply 3/4 to 1 pound per acre of active ingredients as shown on the container in 60 to 80 gallons of water.

In seedling or established stands of sweet clover, alfalfa and ladino clover TCA can be used to control annual grasses except wild oats. Spray when weeds are in the seedling stage, with rates and amounts recommended for flax. TCA should not be applied to red clover, alsike, white clover or any large seeded legume like soybeans, field peas, etc.

● PERENNIAL GRASSES

Established stands of most perennial grasses (bent grasses and buffalo are exceptions) are very tolerant to any recommended rate of 2,4-D. Young grass seedlings, however, may be injured by treating at or soon after emergence.

Seedlings may be treated with 1/4 to 1/2 pound of 2,4-D acid per acre after reaching the 4 to 6-leaf stage, and after seedlings become well stooled and have 12 or more leaves they are about as tolerant as an established stand.

REACTION TO 2,4-D

(Of Some Common Weeds, Crops, Trees, Etc.)

EASILY KILLED OR SEVERELY INJURED

Weeds: Annual sow thistle, beggars tick, burdock, chickweeds, cocklebur, dandelion, dragon-head mint, false flax, carrot (wild), mallows marsh elder, morning glory, mustards, pigweeds, plantain (common), frenchweed, loco weed, ragweed, smartweed (lady's thumb), wild lettuce, wild licorice, sunflower.

Other: Sugar beets, soybeans, alfalfa, sweet clover, other legumes, peas, beans, tomatoes, most vegetables, flowering ornamentals, creeping bent grasses, broadleaved shrubs, all fruit trees, most bush fruits, willows (species variable), caragana, boxelder, grapes, silverberry.

HARDER TO KILL OR LESS EASILY INJURED

Weeds: Canada thistle, dock, horsetail, goats beard, lambs quarters, leafy spurge, field bindweed or creeping jenny, gumweed, kochia, pepper grass (annual) pepper grass (perennial) plantain (buckhorn), Russian thistle, shepherds purse, sow thistle (perennial), wild buckwheat, wormwood, blue lettuce, golden rod, Russian knapweed.

Other: Oats, flax, corn sudangrass, sorghum, potatoes, buckwheat, millets, elm, cottonwood, aspen, poison ivy, strawberries, asparagus, rhubarb, sumac, gladiolus, iris, tulips, ash and raspberries.

GENERALLY NOT KILLED OR NOT EASILY INJURED

Weeds: Asters, barnyard grass, buffalo bur, catchfly, corn cockle, foxtail, ground cherry, horse nettle, knotweeds, milkweed, pigeon grass, purslane, quack grass, sandbur, toadflax, white cockle, wild oats, wild rose, buckbrush, witch grass and other weedy grasses.

Other: Wheat, barley, rye, brome grass, wheatgrass, blue grass, red top, timothy, reed canarygrass, fescue, spruce, cedars, pines.

The recommendations for chemical weed control contained in this circular are based on "Recommendations of the Research Committee of the North Central Weed Control Conference". This committee represents agricultural colleges and universities of the North Central States and Canada.

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