

POST EMERGENT WEED CONTROL WITH CHEMICALS

E. C. Hughes, Field Crops Specialist

B. C. Department of Agriculture, New Westminster, B. C.

This paper deals mainly with chemical weed control in Western Canada with emphasis on post emergent applications. In comparison to post emergent weed control applications, pre-emergent herbicide use appears generally preferred. However, pre-emergent chemical use in certain areas has specific limitations. For example, in peat muck soils in the Fraser Valley with their high buffer power and absorptive character, rates of soil applied treatments become very high to achieve weed control. Should drenching rains follow treatment, injury can occur from these high rates. In such cases interest is turning more to seeking post emergent herbicides more specific for the crop concerned.

The following recommendations may be somewhat general in scope, but some of the methods reported may give rise to thoughts of value. An attempt will be made to deal with the various vegetable crops in alphabetical order.

ASPARAGUS

- (1) 2,4-D amine at 1-1/2 pounds in 5 to 20 gallons water per acre is in the strict sense a pre-emergent weed control treatment applied in the spring season just after a cutting; but is also post emergent treatment applied as a directed spray three weeks after the last cutting. Avoid spraying asparagus fronds. This treatment is useful in control of non-grass 2,4-D sensitive annuals, and is partially effective on some perennials (top growth control usually).
- (2) In Eastern Canada a recent recommendation on emerged seedling asparagus is the use of Amiben at 2 to 3 pounds (active) in 30 to 50 gallons water per acre. This chemical is not recommended on marketable asparagus and must be applied before weeds begin germinating.
- (3) Dalapon at 7.5 to 12 pounds actual per acre in at least 40 gallons per acre water applied near the close of the cutting season, but immediately following a cutting, is effective on couch grass, provided the couch grass is young and actively growing, preferably about six inches in height.

BEETS AND BEANS

There is no good post emergent herbicidal treatment on these vegetable crops. In beans Dinitro amine at 3 pounds in 30 to 50 gallons water per acre for seedling annuals can be delayed until the crook neck stage of

emergence, but this is still basically a pre-emergent application.

CABBAGE

Although there are no firm recommendations, in initial trials the use of dicamba (Banvel D) at 1/2# in 80 gallons water per acre appears very promising on cabbage transplants. Partial success has also been obtained on direct seeded cabbage once the cabbage is two to three inches tall.

CARROTS, PARSNIPS, PARSLEY AND DILL

- (1) Stoddard solvent selective type oil is used at 60 to 80 gallons per acre. Apply the oil as an overall spray after the first true leaves develop (carrots and parsnips should be no thicker than a pencil). The lower rate is used under hot weather conditions. Weeds should be no more than four inches tall. A second spray may be applied in mid season to carrots, but not later than six weeks prior to harvest in order to avoid oil flavours. Beggars tick and pineapple weed are resistant to the oil.
- (2) Solan at 4 pounds per acre in 30 to 50 gallons water per acre applied before annual weeds and grasses are one inch high and after the carrots have developed the first true leaves. Wormseed mustard is quite resistant.
- (3) In carrots a very promising combination treatment has been the use of Solan at 2 to 4 pounds per acre when weeds are one inch tall followed by the Stoddard solvent type oil treatment in three to seven days.
- (4) Linuron at very low rates of 1/4 to 1/2 pound per acre in 80 gallons of water when weeds and carrots are 3/4 to 1 inch tall has given very good results in initial trials.

CELERY

Little work has been carried out on this crop in Western Canada. Solan at 2 to 4 pounds per acre applied seven days after transplanting appears promising.

In Eastern Canada herbicidal oil as in the carrot recommendation is applied successfully to outdoor celery seed beds provided the soil is moist. Another chemical MCPB sodium salt at 16 to 24 ounces acid per acre in 20 gallons water is applied to celery transplants provided the weeds are still in the seedling stage.

CORN

- (1) Atrazine. In this crop pre-emergent Atrazine use is preferred when land is moist, well prepared and irrigated lightly following treatment. However, post emergent applications with Atrazine, 1-1/2 to 2 pounds active ingredient in 30 to 50 gallons per acre water, after the corn is up and before the weeds reach the two true leaf stage (1-1/2 to 2 inches tall), are probably more effective on cloddy poorly prepared ground. Atrazine translocates to some extent.
- (2) 2, 4-D Amine. For annual broadleaf weeds and some perennials the use of 2, 4-D is of value at rates of 8 ounces in 5 to 20 gallons per acre water. If corn is over six inches tall, directed basal applications are required. Varieties vary in susceptibility and local recommendations should be obtained before 2, 4-D is used. Since 2, 4-D tends to make the corn roots brittle, cultivations should not be made for two weeks after application. MCPA may be substituted for 2, 4-D but is generally less effective than 2, 4-D.

CUCUMBERS

NPA emulsion (Alanap-3) applied pre or post emergent at 4 pounds in 30 to 50 gallons per acre has given good weed control in Western Canada; provided applications are made before weeds germinate, and when soil is well prepared, smooth and moist. Under cool, wet conditions weed control may be poor and injury to the crop sometimes occurs. Transplants where used should be allowed to set for several days before applying the NPA.

In Eastern Canada research appears to justify the extension of this recommendation to cover muskmelon, pumpkins and watermelons. Varietal susceptibility is known to occur in these crops and should be checked before general application.

ONIONS

- (1) Liquid Cyanamid applied at 6 to 8 gallons per acre in 40 gallons water per acre as a post emergence spray for onions, but before weeds are over one inch tall has given good general weed control. Applications are made at any stage other than the flag stage of onion growth.
- (2) Herbisan (not recommended in Western Canada to date) in Eastern Canada is used as a directed spray using 2 gallons product in 25 to 50 gallons per acre water, after the onions have passed the flag stage and before weeds are greater than 2 inches high.

- (3) Potassium Cyanate is best used as a pre-emergent herbicide but is also used post emergence on seedling weeds at rates of 8 to 16 pounds in 50 to 100 gallons per acre water after the onions have reached the second true leaf stage. If applied at the loop to second true leaf stage rates are reduced to 6 to 8 pounds herbicide. Do not treat during the flag stage. Sprays should not be applied when temperatures are below 60°F. or within twenty-four hours after rain or irrigation.

PEAS

- (1) DN amine at the rate of 3/4 to 1-1/4 pounds active in 30 to 50 gallons per acre water is applied in coastal areas when peas are 4 to 6 inches tall and weeds are usually less than 4 inches tall. The lower rates are used when temperatures are above 70°F. and below 85°F.
- (2) MCPB (or a 15:1 mixture of MCPB:MCPA) sodium salts at the rate of 16 to 20 ounces per acre in 20 gallons per acre water may be applied at the three to six leaf stage of the peas to control seedling broadleaf weeds; or, it may be applied as a delayed treatment for Canada and Sow thistle. Like 2,4-D this chemical is most effective when applied at the bud stage on these perennials.
- (3) (A) In the prairie region of Western Canada broadleaf susceptible weeds are controlled using MCPA sodium or potassium salts at 2 to 6 ounces or MCPA amine at 2 to 4 ounces in 15 to 20 gallons per acre water. Peas are treated when vine length is between 4 to 8 inches in length.
- (B) In this same region Wild Oats are controlled with post-emergence sprays with barban (Carbyne) at 4 to 6 ounces per acre applied when the majority of the Wild Oats are in the two leaf stage.

POTATOES

In Western Canada we do not have any post emergent weed control recommendations for potatoes. Limited trials have indicated that flame cultivation can be used with success for seedling weeds and grasses after potatoes are emerged.

In Eastern Canada 3/4 to 1 pound active of Stam F34 (3,4-dichloropropionanilide) in 50 gallons per acre water is recommended when weeds are small. Repeated applications are made using a high pressure sprayer or mist blower. Some evidence of potato varietal susceptibility exists. This chemical should not be used where Sevin or any organic phosphate insecticide is being used on this crop.

TOMATOES

- (1) Solan is used at 4 pounds in 40 gallons per acre water as an overall spray. Apply twelve to fourteen days after transplanting and once transplants are properly set. Annual weeds should not be more than 2 inches high, grasses not more than 1 inch high. Nightshades and some grasses are not controlled. The crop may be retreated in the growing season but Solan cannot be used within 30 days of picking. This limits its use for fresh market.
- (2) A combination of Tillam (pre-plant) and Solan (post-planting) appears promising in trials.

There are other vegetable crops not mentioned, but to date no post emergent chemical weed control is known on these crops. In many areas and crops, band treatments combined with cultural practices within the row will reduce costs. In many crops pre-emergent applications available are preferred. The decision for this choice rests with the grower, fieldman and local agricultural county agent specializing in local problems.