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CHEMICAL WEED CONTROL IN TEXAS IRRIGATED VEGETABLES • 1964

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Chemical Weed Control in Texas for Irrigated Vegetables – 1964

THIS PUBLICATION contains recommendations for chemical weed control in vegetables grown in the irrigated areas of Texas. The mentioned herbicides should be used to supplement rather than replace good cultural practices including proper seedbed preparation, use of weed-free vegetable seeds and timely cultivation. Prevent the growth of weeds around irrigation canals, waste places and in the field to avoid further weed seed contamination.

THE LABEL

Recommendations in this leaflet comply with state and federal laws regarding herbicide use. If carefully followed, they should control weeds satisfactorily and not leave residues exceeding the tolerances established for any particular herbicide.

Apply herbicides according to directions on the manufacturer's label as registered under the Federal Insecticide, Fungicide, and Rodenticide Act, as to the crop, amount and times specified. The grower is responsible for residues on his own crop and for problems caused by drift from his field to other crops or properties. Many herbicides are poisonous; note the precautions on the manufacturer's label.

HERBICIDE RESIDUES IN THE SOIL

Herbicide residues may injure certain crops planted too soon after the application of dacthal or diuron. Read the label for information on tolerant and susceptible crops.

DEFINITION OF TERMS

Active ingredient—The container label states the amount of active ingredient in the commercial material either as percent by weight or as pounds active per gallon.

Example: 1. If 4 pounds active ingredient is recommended per acre if an 80% wettable powder is used, 5 pounds of the commercial material is needed $\left(\frac{4}{0.8} = 5\right)$.

2. If 6 pounds active ingredient is recommended per acre if a 4-pound per gallon liquid is used, 1.5 gallons of the commercial material is needed $\left(\frac{6}{4} = 1.5\right)$.

Annual—A plant that completes its life cycle from seed in 1 year.

Band application—An application to a continuous restricted area, such as in or along a crop row, rather than over the entire field area.

Broadcast application—An application over an entire area.

Herbicide—A chemical used for killing or inhibiting the growth of plants.

Preemergence—Before emergence of specified weed or crop, generally just after seeding.

Postemergence—After emergence of specified weed or crop.

Soil application—Application of herbicide to the soil surface rather than to vegetation.

SOIL PREPARATION AND CULTIVATION

For best results with preemergence weed control, free the seedbed of crop residue; then firm and smooth before application of herbicides.

EQUIPMENT FOR SPRAYING

The type and operating condition of sprayer equipment for applying herbicides are extremely important for efficient weed control. Use a sprayer with *good agitation* in the tank and the pump capacity to deliver the necessary gallonage per acre. A carefully designed and rigidly mounted boom will assure application of the correct amount of herbicide on the soil or weeds. Use a *wind-protector* on the boom when winds affect the spray pattern. Varying the height or arrangement of the nozzle tips will change herbicide delivery and may decrease weed control or cause crop injury. Use nozzle tips, with strainers, delivering a *fan-type* spray pattern. Check with your equipment dealer for correct spray nozzles.

Do not use spray equipment that has applied 2,4-D or 2,4-D-related herbicides.

CALIBRATION OF HERBICIDE SPRAYER

Sprayer calibration is required for successful weed control. Improper application of herbicide may reduce weed control or injure crops. Determine sprayer output for every spraying operation and check periodically for nozzle orifice wear and other factors affecting performance.

Steps to determine per-acre output of power sprayer.

1. Fill the tank with water to a predetermined level.

2. Drive in a straight line for *660 feet,* operating the sprayer at the same pressure and tractor speed planned for field use. Mark the tractor throttle and gear settings. (A tractor travels slower in a soft field than on hard ground.) Use tank pressure of *25 to 45 p.s.i.*

3. Stop spraying at the 660-foot mark and measure the gallons of water needed for tank refill.

4. Measure the width of actual area sprayed. For band applications, this equals the sum of the widths of all the bands.

5. Calculate as follows:

$$\frac{\text{gallons used} \times 66}{\text{width of sprayed area in ft.}} = \text{gallons per acre}$$

Example: $\frac{7 \text{ gallons} \times 66}{14 \text{ ft.}} = 33$ gallons per acre

In some instances, only narrow bands may be sprayed over the rows, leaving the furrows untreated. When this is done, treatment rate is in terms of the *area treated* and not in terms of per-acre of actual crop.

Example: In a vegetable crop with 40-inch row spacing, if a 10-inch band is treated at the 6 pounds per acre rate (based on the *area actually treated*) the amount of chemical *per acre of vegetable* would be 1½ pounds $\left(\frac{10}{40} \times 6 = 1\frac{1}{2}\right)$.

Changes in tractor speed, pressure setting, nozzle size or band width affect the application rate and require recalibration.

6. After calibrating the sprayer to apply correct amounts of spray per acre, add the herbicide to the sprayer tank at the recommended rate.

Example: If you apply 6 pounds per acre of herbicide and add enough water to the sprayer tank to treat 5 acres, add 30 pounds (5 x 6 = 30) of the herbicide.

Mix the spray on the day you apply it.

CLEANING THE SPRAYER

Clean the sprayer immediately after the operation. A thorough cleansing with warm water and detergent removes most of the remaining herbicide. Run some solution through the spraying system and let a portion remain in the sprayer for at least 12 hours. Remove the solution and rinse equipment with water before using.

RECOMMENDED HERBICIDE TREATMENTS

Determine varietal, cultural and soil relations in each locality by small-trial use before going to commercial use.

Apply preemergence herbicides after seeding but before the germination irrigation. Follow preemergence treatments promptly with overhead or furrow irrigation to activate the herbicide and to decrease evaporation losses. Do not flood seedbeds with furrow irrigation.

Certain sections of this publication are taken from the *Suggested Guide for Chemical Control of Weeds.* 1961, ARS 22-67, Special Report, USDA. For additional information, see the manufacturer's literature, contact your county agricultural agent or read Extension Service publication MP-708, *Field Crop Spray Equipment.*

RECOMMENDED HERBICIDE TREATMENTS

Use the lower rate with overhead irrigation or on light soils.
Use 30 to 40 gallons of water per acre unless otherwise stated.

Crop	Herbicide	Rate/acre sprayed (active ingredient)	Time of application	Weeds controlled	Remarks
Cantaloupe, Cucumber	CDEC (Vegedex)	2 to 6 lb.	Preemergence	Annuals	
	NPA (Alanap-3)	2 to 6 lb.	Preemergence	Annuals	
Cabbage, Cauliflower, Broccoli	CDEC (Vegedex)	2 to 6 lb.	Preemergence	Annuals	
	Dacthal	6 to 8 lb.	Preemergence	Annuals	For trial[1]
Carrots Parsley	Stoddard solvent	40 to 100 gal. (No dilution with water)	Preemergence	Young annuals	Apply to weeds 1 to 3 inches tall, best applied at night or when air movement is downward and relative humidity is high.
			Postemergence, after crop has 2 or 3 true leaves and before root is ¼ inch in diameter.	Young annuals	Will not control ragweed. Use fresh oil.
Greens (spinach, mustard greens, turnip greens)	CDEC (Vegedex)	2 to 6 lb.	Preemergence	Annuals	
Lettuce	CDEC (Vegedex)	2 to 6 lb.	Preemergence	Annuals	
Onions	Stoddard solvent	40 to 80 gal. undiluted	Preemergence	Young annuals	Apply to small weeds.
	Sulfuric acid	3 to 5% solution in 100 gal. water[2]	Preemergence	Young annuals	Apply to small weeds. CAUTION — Extremely corrosive to metal and will burn the skin.
	Dacthal	6 to 8 lb.	Preemergence	Annuals	For trial[1]
	Sulfuric acid	2 to 3% solution in 100 gal. water	Postemergence, when first true leaf of onion is at least 2 inches long (loop stage).	Young annuals	Apply to small weeds.
		3 to 4% solution in 100 gal. water	Postemergence, when onions are in 5-leaf stage and after last cultivation when onions are laid by and are bulbing.	Young annuals	Apply to small weeds. Use basal spraying to avoid hitting tops of onion plants.

[1]Suggestion is based on fewer experiments than other treatments and therefore should be grower-tested on smaller acreage.
[2]Volume basis.

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