

CHEMICAL WEED CONTROL

in field crops and for perennial weeds

CHEMICAL WEED CONTROL RECOMMENDATIONS in this circular are based on information available from the North Dakota Agricultural Experiment Station and the Research Committee of the North Central Weed Control Conference.

Use of chemicals is advised only when the chemicals are registered by the U. S. 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.

Rates suggested here are in terms of acid equivalent or active ingredient per acre unless otherwise indicated. For example, 1 pint of 2,4-D liquid (4 lbs. 2,4-D acid per gallon) equals 1/2 lb. of 2,4-D acid equivalent. Dalapon — 3/4 pound acid equals 1 pound dry (powder) form.

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CHEMICAL WEED CONTROL For Field Crops

CROP	Herbicide	Act. Ingrid. lbs./A.	Weeds	When to apply	Remarks
WHEAT DURUM 1/ BARLEY	2,4-D amine	1/4 to 1/2	broadleaf	Crops - 5th leaf to early boot	Not later than boot stage
	2,4-D ester	1/4 to 1/3	broadleaf	Crops-emergence to early boot	Barley more sensitive than wheats Can apply much earlier than 2,4-D
WINTER WHEAT RYE	2,4-D amine	1/4 to 1/2	broadleaf	Crops-fully tillered to early boot	Fall application not recommended
	2,4-D ester	1/4 to 1/3			
OATS 1/ 2"	MCPA	1/4 to 1/2	broadleaf	Oats-emergence to early boot	Early jointing most sensitive during spray period. Don't spray oats un- less necessary.
FLAX 1/ 2/	MCPA	1/4 or less	broadleaf	Flax 2 to 6 in. tall	Use higher rates or esters only when necessary on hard-to-kill weeds.
	Dalapon	3/4	annual grass annual grass not w. oats	Flax over 2 in. Weeds under 2 in.	Mix MCPA or 2,4-D (see footnote) with Dalapon or TCA and apply at about 4/5 normal rate per acre to control both broadleaf and annual grassy weeds. Legumes not injured by Dalapon or TCA.
	TCA	5		Flax 4 to 8 in. tall	
SMALL GRAIN PRE-HARVEST	2,4-D ester	1	broadleaf	Crop - early dough stage	Use only when weeds threaten to interfere with harvest operations.
CORN AND SORGHUM	2,4-D amine	1/4 to 1/2	broadleaf	Corn - 3 in. to tasseling Sorghum - 4 to 12 in. tall	Spray as early as weeds permit. Use drop nozzles when possible.
CORN 3/ (For trial use only)	Randex	4	annual grass not w. oats	Pre-emergence	Results have been erratic and unde- pendable, depending on rainfall with- in 10-14 days after application. Band application reduces cost. Atrazine or simazine carry over in the soil and will likely damage small grain crops planted next year on treated areas.
	Randex T	4-1/2 (quarts)	annual grass & broadleaf		
	2,4-D	1 to 1-1/2	broadleaf and grass - not w. oats		
SOYBEANS 3/ (For trial use only)	Randex	4 to 5	annual grass not w. oats	Pre-emergence	Band application reduces cost. Results have been erratic
	Alnap	4	annual grass		
	Amiben	2 to 4	& broadleaf		
SUGARBEETS (See section below for wild oats control)	Dalapon	3	annual grass not w. oats	After weeds are up	Apply while beets are small.
		5 to 6	wild oats		May set beets back somewhat
	TCA	5 to 7	annual grass not w. oats	Before beets are up After weeds are up	In emergency apply 10 days after beets are up.
GRASS Seedling	2,4-D	1/2 to 3/4	broadleaf	After grass in 3rd leaf	Heavier rates after grass is well stooled
Established	2,4-D	3/4 and up	broadleaf	Weeds - pre-bud	Apply when weeds are ready.
LEGUMES Seedling alone or with Nurs. C	MCPA or 2,4-D amine	1/8 to 1/4	broadleaf	Not before legumes are 2 in. tall	Delay to get weed and crop canopy. Sw. clover and alfalfa often injured.
Alfalfa, tre- foil and sw. clo. Est. or seedling stage	Dalapon	3/4 to 1 lb.	annual grass not w. oats	Weeds 1 to 2 in. tall	Seedling or old stands not for hay or pasture. Do not use with small grain nurse crop. Second year sw. clover may be injured.
	TCA	5	annual grass not w. oats	Weeds 1 to 2 in. tall	
Seedling alf. or trefoil alone	4-(2,4DB)	1/2 to 1	broadleaf	Weeds small	Dalapon and 4 (2-4DB) can be mixed.
	Dalapon	1-1/2 to 2-1/4	annual grass not w. oats	Legumes 3-4 true leaves	No label clearance for hay or pasture.
WILD OATS Selective control in growing crops	Avadex (DATC)	1 lb. - wheat & durum 1-1/4 lb. - barley		immediately after planting	Apply on smooth soil surface and mix shallow (2 inches) in top soil by cultivation.
		flax, sugarbeets, 1 1/2 lbs. peas, potatoes* safflower*		pre-planting	Kills wild oats in soil for about 6 weeks. Do not plant tame oats in treated field next year
		soybeans* & corn*		pre-planting or post planting	
	Carbyne (Barban)	4 to 6 oz. Wheat, Durum, Barley, Flax, Peas, & Safflower 12 to 16 oz. Sugarbeets	wild oats - 2 leaf stage Crops: sm. gr. before 4th leaf stage flax before 12th leaf stage peas before 6th leaf stage safflower before 8th leaf stage		Usually applied 4 to 9 days after wild oats emergence. Must apply before the 14th day and before small grain reaches 4th leaf stage to avoid serious crop injury and poor w. oats control. Use the higher rate when growing conditions are not favorable.

1/ When underseeded to legumes or grass see later sections.

2/ 2,4-D not recommended unless weeds are hard to kill or weeds such as Russian thistle, wild buckwheat, smartweed, pigweed or sow thistle are present.

3/ Not recommended. - see narrative. *Label clearance pending as of Jan. 20, 1962

For Perennial Weeds

WEED	Herbicide <u>2/</u>	Active ingredient lbs./A. or sq. rd.	When to apply	Remarks
CREeping JENNY On fallow	2,4-D for large areas	3/4 lb./A.	pre-bloom	Cultivate fallow until mid-July, then spray Also spray in next year's crop
Patches or ind. plants	Benzabor	1 to 1-1/2 lbs./sq.rd.	late fall or early spring	Apply dry — long soil sterility.
	Benzoic (TBA)	10-20 lbs./A.	bud stage	Residual 1 year or more
LEAFY SPURGE Fallow year	2,4-D ester for large areas	1 lb./A.	early bud stage	No cultivation before spraying. Apply both spring and fall. Spray in next year's crop.
Patches or ind. plants	Ammate <u>1/</u>	1-3 lbs./sq. rd.	summer	Watch for seedlings — use 2,4-D
	2,4-D	40 lbs./A.	After Sept. 20	No permanent injury to grass sod
	Benzoic (TBA)	20 lbs./A.	bud stage	Residual 2 years or more
	Benzabor	1 to 1-1/2 lbs./sq.rd.	late fall or early spring	Apply dry — long soil sterility.
	Baron	3/4 lb./sq.rd.	bud stage—spring or fall	Also Russian knapweed and perennial peppergrass.
CANADA THISTLE	Amitrol	4 lbs./A.	pre-bud stage	Wet thoroughly.
SOW THISTLE CANADA THISTLE RUSSIAN KNAP- WEED & PEREN- NIAL PEPPER- GRASS	Benzoic (TBA) Benzabor	10 to 20 lbs./A. 1 to 1-1/2 lbs./sq.rd.	bud stage late fall or early spring	Residual 2 years or more Apply dry
QUACKGRASS On fallow	Dalapon	5 to 10 lbs./A.	Spring after 4 to 6 in. growth	Cultivate with rest of field after 2 to 3 weeks.
Patches	Dalapon	20 to 25 lbs./A.	4 to 10 in. growth	Use where cultivation after treatment not possible. There will be residual effect
AROUND BLDGS. TELEPHONE POLES, ETC.	CMU, Simazine or similar products	See label	anytime — all weeds	Heavy rates for complete long-time soil sterility.

1/ Use spreader sticker with low rate.

2/ There are several soil sterilants including sodium chlorate or borax or mixtures of these with other chemicals that will do a very good job of perennial weed control. Follow directions of the manufacturer as they appear on the label.

SELECTIVE CHEMICAL HERBICIDES can help good cultural weed control in field crop production. Timely applications of selective chemicals will control many annual weeds effectively. Chemicals are also useful to control perennial weeds, such as creeping jenny, leafy spurge, Canada thistle and perennial sowthistle, in growing crops.

When you apply herbicides to growing crops, follow closely the instructions on the container. In determining rates to use, consider both the crop tolerance and kind of weeds present.

Timely application of weed control chemicals in growing crops is important. Weed competition will reduce crop yields severely, unless weeds are removed early.

Do not spray when there is danger of drift, or when winds are blowing toward a neighboring crop or planting more susceptible than the crop being sprayed. Ideal temperatures are 65 to 85 degrees. Below 60 degrees kill will be very slow and above 90 degrees there is danger of crop injury.

Weeds more susceptible to 2,4-D than MCPA include Russian thistle, false flax, wild buckwheat, smartweed, redroot pigweed, ball mustard, tansy mustard and sowthistle.

For mixed weeds, use the upper rates suggested. For hard to kill weeds, rates higher than suggested may be needed even though some spray injury to the crop may result. The lower rates are suggested only when growth is rapid or when you are treating very susceptible weeds.

PRE-EMERGENCE HERBICIDES in North Dakota and other Great Plains states have given erratic and undependable results in selective weed control. Performance seems to vary from year to year and field to field, depending on such factors as soil moisture, soil temperature, rainfall after application, soil type etc. For this reason, pre-emergence chemicals applied and left on the soil surface are not recommended. Those that can be worked into the surface soil have a better chance for success.

PERENNIAL WEEDS are long lived and persistent. Your choice of chemical depends on the size of area and on whether or not the area is being cropped. Successful control requires diligent followup. The patch may re-establish quickly because you have missed plants or the area is full of seed.

DEFINITIONS

Pre-planting — applying the herbicide before planting the crop.

Pre-emergence — applying the herbicide after the crop is planted but before the crop or weeds have emerged.

Post-emergence — applying the herbicide after the crop and weeds have emerged.

CHECK PER ACRE OUTPUT OF YOUR SPRAYER

To do a good, economical job of spraying it is necessary to know the per-acre output of your sprayer and to make adjustments as necessary. Too much chemical will injure your crop and too little chemical may not do a good weed killing job. Check each nozzle for even distribution.

1. Start with the spray tank completely full.
2. Make one round.
3. Measure carefully the water it takes to refill the tank.
4. Determine the number of acres covered from table below.
5. Divide the exact gallons used in one round by the acres covered. This gives rate of application per acre. Mix your chemical and water accordingly.

Boom Width		
16 ft. 1.9 A/mile	25 ft. 3.03 A/mile	33 ft. 4.00 A/mile
18 ft. 2.18 A/mile	26 ft. 3.15 A/mile	34 ft. 4.12 A/mile
20 ft. 2.42 A/mile	28 ft. 3.39 A/mile	36 ft. 4.36 A/mile
22 ft. 2.66 A/mile	30 ft. 3.63 A/mile	38 ft. 4.60 A/mile
24 ft. 2.9 A/mile	32 ft. 3.87 A/mile	40 ft. 4.84 A/mile



Growth Through Agricultural Progress

Extension Service, North Dakota State University of Agriculture and Applied Science, and U. S. Department of Agriculture cooperating. A. H. Schulz, Acting Director, Fargo, North Dakota. Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914.