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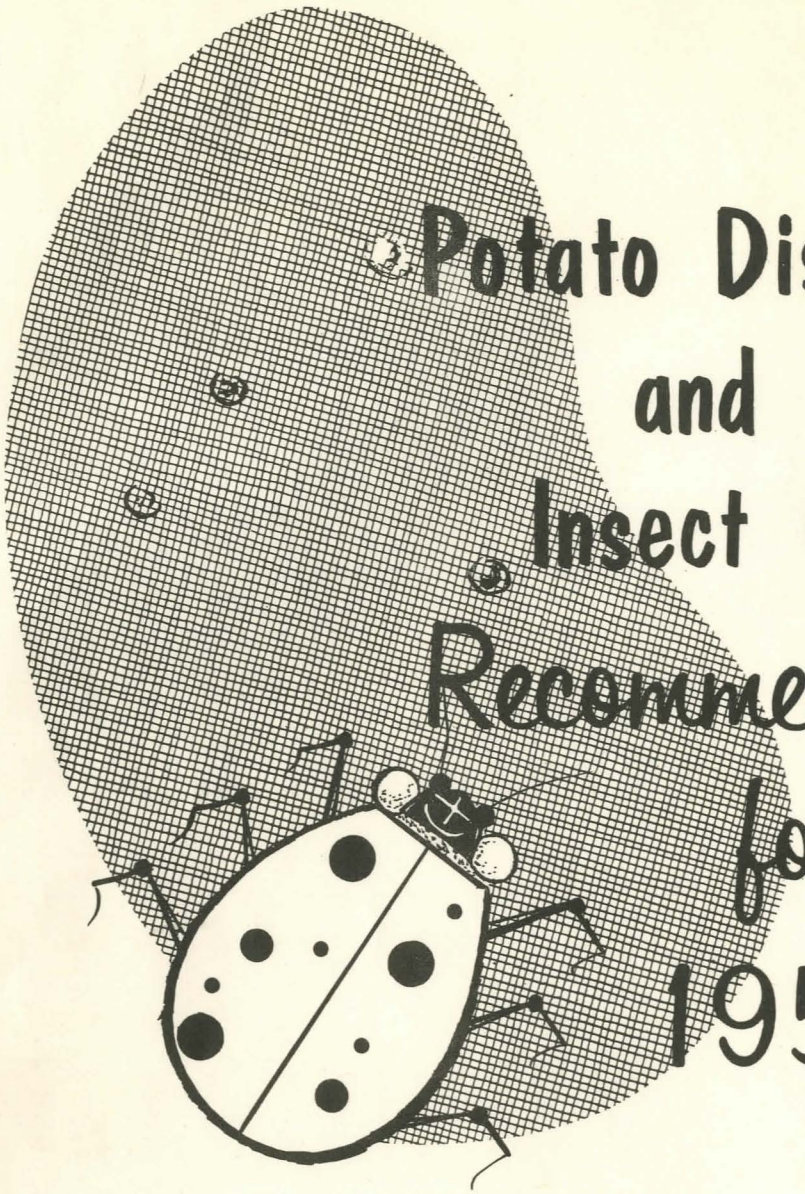

Potato Disease and Insect Control Recommendations for 1959

Lloyd W. Andersen

John Weihing

EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
AND U. S. DEPARTMENT OF AGRICULTURE
COOPERATING
W. V. LAMBERT, DIRECTOR E. W. JANIKE, ASSOC. DIRECTOR

RECOMMENDATIONS FOR POTATO INSECT CONTROL 1959

INSECT	INSECTICIDE & FORMULATION	AMOUNT PER ACRE	ACTUAL INSECTICIDE PER ACRE
TUBER FLEA BEETLES AND WIREWORMS	Aldrin, 4 lbs./gal.	3 quarts	3 pounds
	Heptachlor, 2 lbs./gal.	1½ gallons	3 pounds
	Dieldrin, 1.5 lbs./gal.	1 gallon	1.5 pounds
TUBER FLEA BEETLES	Aldrin, 4 lbs./gal.	5 pints	2.5 pounds
	Heptachlor, 2 lbs./gal.	3 quarts	1.5 pounds
	Dieldrin, 1.5 lbs./gal.	1 gallon	1.5 pounds

When tuber flea beetles and/or wireworms are a problem, use the combined tuber flea beetle and wireworm recommendations. When only tuber flea beetles are a problem use the tuber flea beetle recommendations (lesser amounts of aldrin and heptachlor).

If Pentachloronitrobenzene (PCNB) is used as a row treatment for potato scab control, a combination of PCNB with aldrin, heptachlor, or dieldrin at 1/2 the rates recommended for tuber flea beetle control may be used. PCNB is not known to be effective for wireworms, therefore, if wireworms are present use the amount of insecticide recommended for wireworms and tuber flea beetles combined.

Broadcast applications of insecticides for control of tuber flea beetles and wireworms should be applied in sufficient water to evenly cover the seedbed and worked lightly into the soil before planting.

LEAF HOPPERS AND PLANT BUGS	DDT, 2 lbs./gal.	2 quarts	1 pound
	DDT, 5% dust	30 pounds	1.5 pounds
COLORADO POTATO BEETLES AND FLEA BEETLE ADULTS	DDT*, 2 lbs./gal.	2 quarts	1 pound
	DDT*, 5% dust	30 pounds	1.5 pounds
	Dieldrin, 1.5 lbs./gal.	1/3 gallon	0.5 pounds
	Heptachlor, 2 lbs./gal.	3 pints	3/4 pound
APHIDS	DDT, 2 lbs./gal.	2 quarts	1 pound
	Malathion, 5 lbs./gal.	2 pints	1.3 pounds
GRASSHOPPERS	Dieldrin, 1.5 lbs./gal.	2/3 pint	2 ounces
	Aldrin, 4 lbs./gal.	1/2 pint	4 ounces
	Heptachlor, 2 lbs./gal.	1 pint	4 ounces
BLISTER BEETLES	DDT, 2 lbs./gal.	4 quarts	2 pounds
	Toxaphene, 6 lbs./gal.	1/3 gallon	2 pounds
POTATO PSYLLIDS	DDT, 2 lbs./gal.	2 quarts	1 pound
	DDT, 5% dust	30 pounds	1.5 pounds

*When DDT fails to provide adequate control of Colorado potato beetles or flea beetles use dieldrin or heptachlor at the rates recommended above.

A regular seasonal control program for psyllids on early potatoes consists of repeated applications of DDT every 10 to 14 days, beginning when potatoes are about 6 inches high. This is essential when psyllids are numerous during the growing season. On late potatoes, it is feasible only if the infestation warrants. High pressure equipment, or nozzles on extensions from a spray boom, are recommended. This will allow the spray to reach the undersides of the leaves. When psyllids are not numerous the following schedules are recommended:

On nonirrigated potatoes, make one application of DDT according to the above recommendations when potatoes are six inches high. Repeat applications according to the psyllid situation as it develops and is reported.

On irrigated potatoes, make the first application of DDT when potatoes are six inches high. Repeat this application in 14 days, then repeat applications according to the psyllid situation as it develops and is reported.

Psyllid control with DDT can be combined with late blight control.

Psyllid control programs with DDT are effective against nearly all leaf feeding insects of potatoes, except grasshoppers. If grasshoppers are present in destructive numbers, add aldrin, dieldrin, or heptachlor to the DDT spray in the amounts recommended for grasshopper control. If there is an indication that Colorado potato beetles are resistant to DDT, add 1/2 pound of actual dieldrin or 3/4 pound of actual heptachlor per acre (these combinations will control grasshoppers). If psyllids are not a problem use dieldrin or heptachlor for Colorado potato beetles.

OTHER INSECTICIDES FOR PSYLLID CONTROL NOT RECOMMENDED IN 1959

ENDRIN: Endrin has been reported to be effective for psyllid control. It has not been tested in Nebraska. Other states and the U.S.D.A. have not recommended it for psyllids to date. If endrin is used, 1 pint per acre is suggested. Endrin is one of the most toxic chlorinated hydrocarbon insecticides and must be handled with extreme care. Operators should use protective clothing and respirators.

DEMETRON: This material is marketed as Systox. It is recommended by Colorado at the rate of 1 1/2 pints per acre. It is systemic and cannot be used within 21 days of harvest. It is an extremely hazardous insecticide and should be used only by commercial spray operators with experience and adequate insurance. It is very expensive for a psyllid control program.

PARATHION: Parathion is not generally recommended in Nebraska for two reasons: (1) There is little research information available on potato psyllid control, and (2) Parathion is extremely hazardous, and should never be used by or recommended to farmers. If it is used, the following general precautions must be observed:

1. Parathion should be applied only by commercial spray operators who have protective equipment, gas masks, and adequate liability insurance. For their own safety and the safety of others, operators must be familiar with symptoms of parathion poisoning and antidotes for it. They should have atropine sulfate tables on their person, and inform local doctors that they are using this material.
2. Before application, fields should be posted clearly on all sides to indicate that a dangerous insecticide has been used, and warning all persons to stay out of the field. Signs should remain posted for three days.

3. During application, operators should never work alone, and fields should be flagged with stakes rather than by flagmen. The drift should be watched very carefully. Parathion should be applied only on a calm day.

BHC NOT RECOMMENDED FOR POTATO INSECT CONTROL OR FOR SOIL TREAMENT WHERE POTATOES MAY BE PLANTED IN THE FUTURE.

BHC (Benzene hexachloride) will be absorbed by potatoes and impart a musty flavor to the tubers. In the past, it has been used as a soil treatment for corn rootworms, and in several cases potatoes planted in the same ground have been unusable. BHC should not be used as a soil treatment if potatoes may be planted in the same ground in the future. Aldrin or heptachlor may be used for corn rootworm control and will not leave undesirable residues in the soil.

THE FOLLOWING INSECTICIDES AND AMOUNTS HAVE NOT BEEN PROVEN UNDER NEBRASKA CONDITIONS, HOWEVER, DO APPEAR IN OTHER STATES OR U.S.D.A. RECOMMENDATIONS, OR HAVE BEEN REGISTERED FOR USE ON POTATOES:

INSECTICIDE	INSECT	AMOUNT OF ACTUAL INSECTICIDE PER ACRE
ENDRIN	Aphids	4 to 8 ounces
	Colorado potato beetle	0.4 pound
	Cutworms	0.4 pound
	Flea beetles (east)	0.3 pound
THIODAN	Aphids	1 pound
	Colorado potato beetles	1 pound
	Flea beetle adults	1 pound
	Plant bugs	½ pound
	Mites (NW)	1 pound
TOXAPHENE	Blister beetles	2 pounds
	Grasshoppers	1.5 pounds
	Cutworms	2 pounds
	Armyworms	2 pounds
ALDRIN	Colorado potato beetles	½ pound
DIAZINON	Aphids	4% dust, 25 lbs. per acre
SEVIN	Colorado potato beetle	½ pound
	Potato leafhopper	½ pound
	Six spotted leafhopper	½ pound
	Potato flea beetle	1 pound
	Lygus bugs	2 pounds
	Spittle bugs	1 pound
THIMET*	Aphids	(3 pounds (Heavy loam or clay soil)
	Flea beetle adults leaf hoppers	(2 pounds (sandy soil)

*Thimet is registered as a band treatment with fertilizer or in furrows on both sides of seed pieces. It is systemic. 5% and 10% granules are available.

RECOMMENDED FUNGICIDAL CHEMICALS FOR POTATOES 1959

DISEASE	FUNGICIDE	SUGGESTED RATE	METHOD OF APPLICATION	TIME OF APPLICATION	COMMENTS
Scab and black scurf	Pentachloronitro-benzene (PCNB)	Light sandy loam-50 lbs. actual PCNB/A Heavy silt loam-60 lbs. actual PCNB/A	Band treatment	Just prior to planting	
		Light sandy loam-100 lbs. actual PCNB/A Heavy silt loam-120 lbs. actual PCNB/A	Broadcast treatment		
Seed treatment for seed-borne scab	Formaldehyde	See method of application	Dip uncut potatoes for 3 to 4 minutes into a solution of 1 pint of formaldehyde in 15 gallons of water kept at 121° F. Drain and dry.	Four to six weeks before planting.	Treating seed potatoes with hot formaldehyde will materially aid in keeping scab in check when such treated tubers are planted in relatively scab-free soil.
Early and late blight	Maneb	1 to 2# of 70% material/100 gals. of water. 100-150 gals./A	High pressure spray (300 lbs. or greater)	Spray when notified through public warning service. or Those who wish to carry out a spray schedule should make first application when plants are 6-8 inches high and repeat every 7 to 14 days. If weather becomes favorable for late blight development, it will be necessary to spray every 5 to 7 days.	A wetting agent should be added to those products which do not have one incorporated such as Bordeaux mixture or Nabam.
	Zineb	2# of 65% material/100 gals. of water. 100-150 gals./A.			
	Nabam + Zinc Sulfate	2 quarts of 19% nabam + 1# zinc sulfate/100 gals. water			
	Bordeaux Mixture	8# copper sulfate + 8# hydrated lime in 100 gals. water.			
	Fixed copper	Follow manufacturer's directions.			
Treatment of cut seed potatoes for seed piece rots	Captan	1 1/2 lbs. of 7.5% dust per 100 lbs. cut seed pieces.	Dust on to the tubers with any method which will permit thorough coating of cut surfaces with fungicidal dust, but do not bruise the seed pieces during process.	Immediately after cutting the tubers. The treated tubers should be planted as soon as possible after treatment.	This treatment is most beneficial when planting conditions are unfavorable.
	Zineb	1 1/2 lbs. of 10% dust per 100 lbs. cut seed pieces.			
Disinfection of storage cellars, bins, crates, graders, etc., for ring rot control.	Copper sulfate	6 lbs./100 gals. water	Throughly spray all potato storage cellars, machinery, floors, etc.	Prior to storage or use of any of the equipment.	
	Copper A compound	3 lbs./100 gals. water			
	Cuprocide	2 lbs./100 gals. water			
	Tribasic copper sulfate	3 lbs./100 gals. water			
	Formaldehyde	1 pt./15 gals. water.			