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CONTROL OF THE POTATO FLEA BEETLE IN EASTERN CANADA¹

by

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Potato flea beetles² are small insects that jump much like fleas when disturbed. When they are abundant, the small round holes that they eat in the leaves may weaken the plants or cause them to die before maturity. Yield records at Charlottetown have shown that the damage may reduce the potato crop as much as 25 per cent, especially in early varieties. The larvae sometimes injure the developing tubers, causing roughened, pimply scars and corky slivers. Severe injury to the foliage, however, is not always accompanied by injury to the tubers.

The beetles appear in so large numbers and are so small and active that farmers often notice the damage before they see the insects. In potato-growing areas where DDT has been used regularly the flea beetles have not been abundant recently and damage has been generally light. Where potatoes are seldom sprayed with insecticides, however, the damage may still be a serious problem.

The potato flea beetle is a pest mainly in Eastern Canada although it is found in all provinces except British Columbia. In British Columbia there is a similar species, the western potato flea beetle³. The beetle attacks mainly potatoes but may also be found on tomatoes, cucumbers, and a number of other cultivated crops.

DESCRIPTION, LIFE HISTORY, AND HABITS

The adults are about 1/16 inch long and have black bodies and brown legs. Lines of small pits and fine hairs run lengthwise along the wing covers. The beetles are very active and can jump several feet when disturbed, but they do not fly even though they have wings. They overwinter either in the soil or under rubbish or leaves along the margins of fields, fence rows, margins of woods, and similar protected places near potato fields. They come out of hibernation in the spring before the potatoes are up and feed on various weeds and cultivated plants.

When the potato plants appear above ground, the beetles move to them and feed on the foliage. The females lay small, pearl-white egg-shaped eggs in the moist, shaded soil around the bases of the plants. Feeding and egg-laying continue until the second or third week of July, when the beetles disappear almost entirely.

¹Revision of *Processed Publication Series, Entomology, No. 94.*

²*Epitrix cucumeris* (Harr.).

³*Epitrix subcrinita* (Lec.).

The eggs hatch in about a week into tiny whitish larvae with brownish heads. The larvae feed on the fine rootlets and sometimes on the developing tubers. They become full-grown in about two weeks, when they are 1/8 to 1/3 inch long. They pupate in small earthen cells in the soil and emerge as beetles within two weeks. The beetles of the new generation usually appear early in August, and soon become abundant. It is at this time that the beetles feed most heavily on the potato foliage. When the weather becomes cool, the beetles move from the potatoes to their winter quarters. There is only one generation a year in Canada.

CONTROL ON POTATOES

Before DDT came into general use as a potato insecticide it was almost impossible to control the potato flea beetle. But many of the newer insecticides are very effective against this insect. Sprays or dusts are best applied when the adults appear on the plants. Only one or two applications are usually needed during the season.

DDT has been widely used on potatoes for the past 10 years, and now there is some evidence that strains resistant to this chemical have developed in some areas.

Where there is no evidence of these resistant strains, spray potatoes with: 50 per cent DDT wettable powder at 2 pounds per 100 gallons per acre; or 25 per cent DDT emulsible concentrate at 1 quart per 100 gallons per acre.

OR apply a 3 per cent DDT dust at 35 pounds per acre.

In areas where DDT has not been effective recently, spray with any one of the following in the amount indicated per 100 gallons per acre:

Thiodan, 25 per cent wettable powder, at 2 pounds;

Thiodan 2, emulsible concentrate, at 1 quart;

20 per cent endrin emulsible concentrate at 1 pint; or

toxaphene at 1 pound of active ingredient.

In small gardens where power spraying or dusting is not practical, protect the potato plants by hand spraying or dusting. Mix 1 tablespoon of 50 per cent DDT wettable powder with 1 gallon of water, and wet the foliage until it drips. Or place about 1 pound of 3 per cent DDT dust on a piece of fine cheesecloth or burlap about 18 inches square, gather the corners and sides of the cloth in the hand to form a bag, and shake the dust lightly over the infested plants.

CAUTIONS: These recommendations are for control of the flea beetle on potatoes only. For other crops, follow closely all the cautions listed in the insecticide label; this is especially important if the insecticide is applied to edible parts of plants such as tomatoes, peppers, and eggplants. The interval required between the last application and harvest varies with the crop, the material used, the number of applications, and the amount applied. Keep to the interval given in order to avoid residues that would render the crop unfit for sale.

A brand name is used in this publication because the chemical name is difficult for general use and there is no official common name for the active ingredient.

For further information, consult your agricultural representative or provincial entomologist, or write to the nearest insect laboratory of the Canada Department of Agriculture or to the Scientific Information Section, Canada Department of Agriculture, Central Experimental Farm, Ottawa.

SUMMARY

The potato flea beetle is found in every province of Canada except British Columbia. It is a more serious pest in Eastern Canada than in the Prairie Provinces. The main damage is caused by adults eating many small holes in the foliage, although the larvae sometimes feed on potato tubers, causing 'pimply' potatoes. DDT is recommended for control except in some areas where strains of the beetle resistant to DDT have developed. In these areas, Thiodan, endrin, or toxaphene should be used.

Copies of this publication may be obtained from:
Information Division
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