Cole Crops XXIII (Leafy Brassicas)

Western Black Flea Beetle

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Flea Beetle

Identification (and life cycle/seasonal history)

Western black flea beetle is small (1/9-in) and shiny dark brown. They jump readily when disturbed. It is the only species of flea beetle common on cruciferous vegetables in the region.

Overwintering stage is the adult. They become active in April and intially feed on winter annual mustards, such a flixweed. When susceptible crops are available they are readily invaded as western flea beetle is highly mobile. During late May and June eggs are laid in soil cracks at the base of the plant. Larvae move to feed on roots but cause no damage to the plants. Numbers of adults present on the crop usually begin to decline in late June and adults from the second generation are present in July. A third generation is produced later in the summer.

Plant Response to Damage

Western black flea beetles chew pits in leaves that develop into 'shothole' wounds. These injuries are particularly damaging during stand establishment when flea beetles can kill seedlings. Surviving plants that have been seriously damaged have retarded growth resulting in uneven maturity.

For cabbage, broccoli and other plants grown for a marketed head western black flea beetle is little damaging after plants become well established. Plants can outgrow injuries at this time and feeding is limited to leaves. However, leafy brassica crops (mustard greens, collards) can be damaged up to harvest since injury occurs to marketed parts of the plant.

There is a range of susceptibility among cole crops to western black flea beetle due to characteristics of leaf waxiness and the presence of attractive chemical (glucosinolates). Collards tend to be among the less susceptible; all *Brassica juncea* crops (e.g., mustards) are extremely susceptible.

Management Approaches

Natural Controls

There are several reported parasites of western black flea beetle. However, none are important in managing these insects on crops.

Cultural Control

When seeding, over planting and thinning survivors can be useful for getting a stand established. Similarly, highly favored plants, such as radish/daikon can be interplanted to divert much of the flea beetle feeding and may allow the main crop (e.g., cabbage, broccoli) to escape severe damage. Where flea beetle pressure is extremely intense transplants may be needed.

Sampling

Flea beetles readily jump when disturbed. When estimating numbers of insects on plants they should be carefully approached. Most beetles are readily visible on the upper surfaces of the plant.

Chemical Control

Carbaryl and some pyrethroid insecticides have been the most effective foliar treatments. However invasion of plantings can be rapid and seedling stages are difficult to cover. Planting time treatment of neonicotinoid insecticides (Admire) can provide good control of flea beetles during stand establishment.

Product List for Flea Beetles on Leafy Brassicas:

Insecticide	**Fl. oz. or oz. Product**	**Preharvest Interval, Remarks**
Foliar Treatments Allowable for Certified Organic Production		
Entrust	1-2 oz/A	1 day PHI, 4 hour reentry. Naturalyte insecticide (spinosyns). Lower rate indicated for diamondback moth. Allowed for use in **Certified Organic** production.
Diatect V	3-6 lbs/A	12 hour reentry. Dust/WP formulation of a pyrethrins/diatomaceous earth combination. Allowed for use in **Certified Organic** production.
Planting Time Treatments		
Admire 2F	10-24 fl. oz./A	12 hour reentry. Planting time treatment or transplant drench. Neonicotinoid insecticide (imidacloprid) with systemic activity

Foliar Applications

Provado 1.6F	3.75 fl. oz./A	7 day PHI, 12 hour reentry. Neonicotinoid insecticide (imidacloprid) with systemic activity
Assail 70WP	0.8-1.2 oz./A	7 day PHI, 12 hour reentry. Has systemic activity. Neonicotinoid insecticide (acetamiprid)
Ambush, Pounce, Permethrin 3.2, Perm-Up	as labeled	1 day PHI, 12 hour reentry. Labelled for collards and turnips only. Various formulations of the pyrethroid insecticide permethrin. Restricted Use because of extreme toxicity to aquatic organisms.
Mustang/Fury	2.4-4.3 fl. oz./A	1 day PHI, 12 hour reentry. Pyrethroid insecticide (zeta-cypermethrin). **Restricted Use** because of extreme toxicity to aquatic organisms.
Sevin, Carbaryl	as labeled	14 day PHI for collards, kale and mustard greens only. 12 hour reentry. Several formulations of carbaryl (carbamate insecticide) are available.
Endosulfan (Phaser, Thiodan, Thionex, etc.)	as labeled	21 days, 24 hour reentry. Labelled for collards and mustard greens only. Chlorinated hydrocarbon insecticide (endosulfan)

Categories: Cole Crops, Leafy Brassicas, Flea Beetle, Insects

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