Flea Beetles
Shothole injuries typical of adult flea beetles
Crucifer Flea Beetle, Western Black Flea Beetle – Cabbage family plants, primarily
Potato flea beetle
(Nightshade family plants – potato, tomato, etc.)
Palestriped Flea Beetle
– Wide host range (beans, sunflower, lettuce, corn, potato, etc.)
Apple flea beetle adult on evening primrose (left) and damage to grape (below)
Apple flea beetle damage to coyote willow (left) and Epilobium (below)
Larvae of most flea beetles feed on plant roots and cause little injury.

Apple flea beetle is a notable exception.
Apple Flea Beetle – Adults feed on many flowers and shrubs. Larvae develop on foliage of evening primrose (*Oenothera* spp.)
Flea Beetle Injuries

• Seedling injuries
  – Death/Stand Loss
  – Retarded Growth
• Defoliation of established plants
• Esthetic damage to leafy vegetables, ornamentals
Seedling damage by crucifer flea beetles

Tomato seedling killed by potato flea beetles
Cabbage Flea Beetle Lesson Learned #1

Cabbage flea beetles can disperse over very long distance
Crop rotation does not work
Flea Beetle Control

• Seedling Injury
  – Provide conditions for rapid plant establishment
  – Row covers
  – Trap crops
  – Insecticides
Floating Row Covers

Can exclude insects that migrate into crops from outside areas
Cabbage Flea Beetle Lesson Learned

Conditions that favor rapid seedling growth, including transplanting, may be needed to establish adequate stand.
Seedling stages are highly vulnerable to flea beetles
Once established, plants can often outgrow moderate flea beetle infestations.
Plants can tolerate minor injuries
<table>
<thead>
<tr>
<th>Percent Defoliation</th>
<th>Treatment date after transplanting</th>
<th>Avg. Head Weight (grams)</th>
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<tbody>
<tr>
<td>25%</td>
<td>20 days</td>
<td>426 a</td>
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<tr>
<td>25%</td>
<td>45 days</td>
<td>424 a</td>
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<tr>
<td>50%</td>
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<td>433 a</td>
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<tr>
<td>50%</td>
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<td>279 b</td>
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<tr>
<td>Untreated Check</td>
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<td>410 a</td>
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Cabbage Flea Beetle Lesson Learned

Daikon or radish can be used as a diversionary trap crop for these insects.
CULTURAL CONTROL

TILLAGE
SANITATION
CROP ROTATION
MIXED CROPPING
STRIP HARVESTING
TIME OF PLANTING & HARVESTING
TRAP CROPS

DIAGRAM:

- MAJOR CROP
- TRAP CROP
- MAJOR CROP
- MAJOR CROP

migration
migration
migration
Flea Beetle Control

- Provide conditions for rapid plant establishment
- Row covers
- Trap crops
- Insecticides
Flea Beetle Insecticides

- Carbaryl/Sevin
- Esfenvalerate (Bug-B-Gon, etc.)
- Permethrin (many formulations)
- Spinosad (Bull’s-Eye, etc.)*
- Diatomaceous Earth*

* Spinosad and diatomaceous earth are somewhat less effective in CSU trials. However, some formulations of both products are allowed in organic food production.
Aphthona flea beetles feed on leafy spurge