Project Goals

- Determine whether perennial flowering conservation strips increase beneficial insects

- Determine whether conservation strips increase pollination and biological control in the crop (apple, cherry, and blueberry)

- Provide educational programs to increase grower knowledge of strategies for conserving beneficial insects
# Native seed mix

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>SCIENTIFIC NAME</th>
<th>BLOOM PERIOD</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
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</thead>
<tbody>
<tr>
<td>Golden Alexanders</td>
<td>Zizia aurnea</td>
<td>May through June</td>
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<tr>
<td>Foxglove Beard-tongue</td>
<td>Penstemon digitalis</td>
<td>June through July</td>
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<tr>
<td>Lance-leaved / Sand Coreopsis</td>
<td>Coreopsis lanceolata</td>
<td>June through July</td>
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<tr>
<td>Black-eyed Susan</td>
<td>Rudbeckia hirta</td>
<td>June through September</td>
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<tr>
<td>Swamp milkweed</td>
<td>Asclepias incarnata</td>
<td>July through August</td>
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<td>Butterfly milkweed</td>
<td>Asclepias tuberosa</td>
<td>July through August</td>
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<tr>
<td>Wild Bergamont</td>
<td>Monarda fistulosa</td>
<td>July through August</td>
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<td>Joe Pye-Weed</td>
<td>Eupatorium maculatum</td>
<td>July through September</td>
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<tr>
<td>Boneset</td>
<td>Eupatorium perfoliatum</td>
<td>July through September</td>
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<tr>
<td>Blue Lobelia</td>
<td>Lobelia siphilitica</td>
<td>July through September</td>
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<td>Yellow / Gray-head Coneflower</td>
<td>Ratibida pinnata</td>
<td>July through September</td>
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<td>Cup Plant</td>
<td>Silphium perfoliatum</td>
<td>July through September</td>
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<td>Stiff Goldenrod</td>
<td>Solidago rigida</td>
<td>August through October</td>
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<td>New England Aster</td>
<td>Aster novae-angliae</td>
<td>August through October</td>
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<td>Smooth Aster</td>
<td>Aster laevis</td>
<td>September through October</td>
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<td>Canada wild-rye</td>
<td>Elymus canadensis</td>
<td>June through August</td>
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<td>Indiangrass</td>
<td>Sorghastrum nutans</td>
<td>July through September</td>
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<td>Big Bluestem</td>
<td>Andropogon gerardii</td>
<td>July through October</td>
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Seeds from Michigan Wildflower Farm

- **Perennials**
- **Grasses**
Site preparation

- 5 Blueberry farms
- Sites were prepared last fall – herbicide applied, and mown
- Seeds were sown in May
- Sites mown every few weeks to combat weeds
Observations of insects on bushes

Organic farm

Natural Enemies

Conventional farm

Natural Enemies

Pests

Pests
Beneficial Insect Diversity

Ant
Spider
Syrphid fly
Lady beetle larva
Parasitoid wasps
Vespid wasp
Native lady beetle
Green lacewing
Robberfly
Asian lady beetle
Ground beetle
Syrphid larve
Lightening bug
Daddy long legs
Soldier Beetle
Assassin bugs
Earwig
Brown lacewing
Black lady beetle
Click Beetle
lacewing larva
Praying Mantis
Pest Diversity

- Blueberry aphid
- Blueberry tip midge
- Cranberry fruitworm (larva)
- Blueberry stem gall wasp
- Japanese beetle
- Flower thrips
- Cranberry fruitworm (egg)
- Cherry fruitworm (larva)
- Cherry fruitworm (egg)
- Rose Chafe
- Green Fruit worm
- Spittle bug
- Scales
- Sharpnosed leafhopper
- Oriental beetle
- Obliquebanded leafroller
- Plant bug
- Blueberry maggot
- Gypsy moth
- Leaf Roller
- Blueberry mealybug
- White Fly
Total Lady Beetles Per Farm

- **Organic**: Highest number
- **Conventional 1**: Second highest
- **Conventional 2**: Third
- **Conventional 3**: Fourth
- **Conventional 4**: Lowest
Lady Beetle Diversity

Organic
- Pink
- Seven-Spotted
- Multicolored Asian
- Convergent
- Parenthesis
- Polished
- Fourteen-spotted
- Twice-stabbed

Conventional
- Pink
- Seven-Spotted
- Multicolored Asian
- Thirteen-spotted
- Convergent
- Polished
2010 Plans

• Monitor establishment of flower plantings

• Measure natural enemy and wild bee abundance in flower plots and non-flower plots

• Organize workshops during the summer