A Perspective on Bird Damage to Fruit Crops in New York

Juliet Carroll\textsuperscript{1}, Cathy Heidenreich\textsuperscript{2}, Michael Fargione\textsuperscript{3} and Marvin Pritts\textsuperscript{4}

\textsuperscript{1}New York State IPM Program, 630 West North Street, Geneva, NY 14456, 315-787-2430, jec3@cornell.edu;
\textsuperscript{2}Cornell University, Department of Horticulture, 134A Plant Science Bldg., Ithaca, NY 14853, 315-787-2367, mcm4@cornell.edu;
\textsuperscript{3}Cornell Cooperative Extension of Ulster County, 3357 Route 9W, Highland, NY 12528, 845-691-7117, mjf22@cornell.edu;
\textsuperscript{4}Cornell University, Department of Horticulture, 134A Plant Science Bldg., Ithaca, NY 14853, 607-255-1778, mpp3@cornell.edu.
Fruit Crops at Risk

• Crops most at risk:
  – Blueberries, Cherries, Grapes, Apples

• Other crops damaged by birds:
  – Elderberries, Strawberries, Raspberries, Peaches, Plums

• Crop loss estimates reported:
  – Most commonly reported losses 30% to 50%
Types of Damage Occurring

• Direct damage:
  – Fruit feeding (all crops)
  – Blossom feeding (plums)
  – Trunk damage (apples)

• Indirect damage:
  – Fruit rot infections following feeding injuries (blueberries, tree fruit, grapes)
  – Planting of noxious weed species i.e. Poison Ivy, Asian Bittersweet by roosting birds (apples)
# Birds Causing Damage

<table>
<thead>
<tr>
<th>Blueberries</th>
<th>Raspberries</th>
<th>Strawberries</th>
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<tbody>
<tr>
<td>Starlings (8)</td>
<td>Blue Jays (1)</td>
<td>Cedar Waxwings (4)</td>
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<tr>
<td>Robins (7)</td>
<td>Grackles (1)</td>
<td>Robins (2)</td>
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<tr>
<td>Finches (4)</td>
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<td>Crows (1)</td>
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<td>Sparrows (1)</td>
<td>Grosbeaks (1)</td>
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<td>Turkeys (4)</td>
<td>Robins (1)</td>
<td>Red-winged Blackbirds (1)</td>
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Damage Mitigation Methods

• Growers use a combination of tactics:
  – Physical barriers
    • Netting of whole fields, individual rows or plants, fruiting zone
  – Visual scare devices
    • Scare-eye balloons, Mylar (flash) tape
    • Predator balloons or kites (owls, coyotes, hawks)
    • windmills
  – Audio scare devices
    • Bird distress calls, propane cannons, guns
Damage Mitigation Methods

– Feeding deterrents
  • Methyl anthranilate (Bird-B-Gone)
  • Table sugar sprays

– Other Tactics
  • Bird traps (starlings)
  • Frequent movement of people/equipment through plantings
  • Providing nest boxes/sites for raptors
  • Guinea fowl
Efficacy of Mitigation Methods

• Netting provides best protection, but is cumbersome and expensive
• A combination of other tactics provides some degree of protection
• Tactics should be in place before fruit begins to ripen
• Types and locations of tactics should be changed frequently
Future Research Needs

• More accurate data on:
  – Annual losses ($ value, % crop loss)
  – Species causing damage
  – Factors impacting losses (i.e. drought)
  – Documentation of damage levels by crop
Future Research Needs

- Economics of netting
  - Products providing best protection
  - Ease of application
  - Documentation of damage reduction
  - Cost effectiveness
Future Research Needs

• Development of new bird repellents and scare devices
  – Feeding retardants that do not alter fruit taste, quality, appearance
    • Socci, Pritts and Kelly (1997) reported lower bird damage on blueberries sprayed with table sugar solution - approach should be tested more widely for efficacy
    • Registration of products
  – Audio deterrents inaudible to humans?
Future Research Needs

• Other
  – Effects of planting design on bird damage
    • Trellis systems – less bird friendly top wires?
    • Tree canopy management
  – Plant ecosystem management
    • Attractive compensatory plantings
    • Unappealing border crops
    • Hedgerow composition management
  – Providing water during drought periods
  – Predator enhancement potential
  – Attention to avian migratory flyways and timing.
THANK YOU