Upcoming Webinars

• February 27 – Trendy and Healthy Houseplants
  – Esther McGinnis, Assistant Professor, Horticulturist, NDSU Extension

• March 6 – Cool Fruits for Cold Climates: Selections from the Norther Hardy Fruit Evaluation Project
  – Kathy Wiederholt, Fruit Project Manager, NDSU Carrington Research Extension Center
Zoom Controls

Mute/unmute

Open chat box

Question/Answer Controls

Chat box
Please Complete the Survey

• Please complete the short online survey that will be emailed to you after today’s webinar. It will take just a couple minutes!

• Be sure to sign up for an opportunity to win a prize in the drawing. After submitting the survey, a form to fill out with your name/address will appear.

• Acknowledgement: This project was supported by the U.S. Department of Agriculture’s (USDA) Agricultural Marketing Service through grant 14-SCBGP-ND-0038.
Growing Apples in North Dakota

Tom Kalb, Ph.D
tom.kalb@ndsu.edu
Starting a Community Orchard in North Dakota
Growing Apples in Wisconsin

Malus x domestica

Teryl R. Roper, Daniel L. Maehr, Patelia S. McManus
<table>
<thead>
<tr>
<th><strong>Fruit-damaging insects</strong></th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Apple maggot</td>
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<td>Hang sticky traps last week in June. Control is most critical July through August.</td>
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<td>Caterpillars</td>
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<td>Fruittree leafroller</td>
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<td>Hang pheromone traps early June. Critical monitoring time during bloom. Spray once at petal fall.</td>
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<td>Redbanded leafroller</td>
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<td>Hang pheromone traps mid-April and mid-July. Spray once at petal fall and for second generation if necessary.</td>
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<td>Green fruitworm</td>
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<td>Spray once before blossom or at petal fall.</td>
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<td>Codling moth</td>
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<td>Hang pheromone traps early May. Apply first spray about 1 week after petal fall.</td>
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<td>Plum curculio</td>
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<td>Apply first spray at petal fall. Check fruit for egg-laying damage in spring, feeding damage in late summer.</td>
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<td>Rosy apple aphid</td>
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<td>Control as needed starting at petal fall.</td>
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<tr>
<th><strong>Plant-damaging insects</strong></th>
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<th>Several species can damage fruit and foliage throughout season. Treat as needed.</th>
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<td>Caterpillars</td>
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<td>Apply sprays as needed or use floating row covers as soon as adults appear.</td>
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<td>Japanese beetles</td>
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<td>Monitor fruit, foliage, and stems throughout year. Spray before budbreak or during crawler stage.</td>
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<td>Scale insects</td>
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<td>Most damage occurs mid-June through August. Apply dormant spray, treat as needed throughout season.</td>
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<td>Spider mites</td>
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<td>Hang pheromone traps early April. Count mines mid-June, early August, and early October.</td>
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Midwest Fruit Pest Management Guide 2019-2020

Arkansas
University of Arkansas Cooperative Extension Service
AG1304

Illinois
University of Illinois Extension
ICSG-18

Indiana
Purdue Extension
ID-465

Iowa
Iowa State University Extension and Outreach
HORT 3035

Kansas
Kansas State Research and Extension
MF3278

Kentucky
University of Kentucky Cooperative Extension Service
ID-232

Minnesota
University of Minnesota Extension

Missouri
University of Missouri
Missouri State University
MX398

Nebraska
University of Nebraska — Lincoln Extension

Ohio
Select a Good Site

- Lots of sun
- Sheltered from wind
- Well-drained soil
- Avoid frost pockets
Selecting Plants

- Local nurseries and garden centers
  - Bailey Nurseries, Jeffries Nurseries
- Jung Seed, Stark Bros.
- St. Lawrence, One Green World
- Maple Valley Orchards
- Other northern sources
Apple Cultivars

Zestar! Crisp, all-purpose early apple.
Duchess Good disease resistance. Cooking.
Goodland Very hardy, all-purpose apple.
Honeyscrisp Popular. Sweet and crisp. Stores well.
Haralson Easy to grow. Somewhat tart.
Apple Rootstocks

- Affects vigor and disease resistance
- Affects tree growth and size
  - *Dwarf* (M9, Bud 9) 9 feet
  - *Semi-dwarf* (M26, M7A, CG30) 12–15 feet
  - *Standard* (Antonovka, Dolgo) 20–25 feet
Staking
Staking

- Prevents wind damage
- Supports graft union
- Leads to earlier and higher yields
- Conduit piping
Watering Young Trees

- 10 gallons per inch of caliper
- Keep soil moist but not soggy
- Do not irrigate wet soil
Sunscald
Pest Management

1. Remove fruit and leaf litter
Pest Management

- Remove fruit and leaf litter

2. Protect with fungicides (captan, mancozeb, sulfur) when buds break
Pruning Fire Blight

- Remove diseased tissue going 8+ inches into symptomless wood
- Leave an “ugly stub” of 4+ inches in 2+-year-old wood
- Paint it
- Remove in winter
Pest Management

- Remove litter

- Protect with fungicides (captan, mancozeb, sulfur) when buds break

3. Protect with insecticides (malathion, neem) and/or traps after petals fall
Maggot
Pruning

- Prune every winter
- Maximize sunlight and wind movement in the canopy
- Keep height manageable
Remove water sprouts
Remove suckers
Remove water sprouts

Remove suckers
Remove water sprouts

Head back long branches

Remove suckers
Remove vertical branches

Head back long branches

Remove water sprouts

Remove suckers
Remove vertical branches

Don’t allow branches to get taller than the leader

Head back long branches

Remove water sprouts

Remove suckers
Remove vertical branches

Head back long branches

Remove water sprouts

Don't allow branches to get taller than the leader

Remove inward facing branches

Remove suckers
Remove vertical branches

Don’t allow branches to get taller than the leader

Head back long branches

Remove inward facing branches

Remove water sprouts

Remove drooping branches

Remove suckers

Remove suckers
Open the Canopy

Before

After
Rejuvenating Old Trees

- **Open the canopy**
  - Remove dead wood, crossing branches, water sprouts

- **Reduce height**
Rejuvenating Old Trees
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Questions?
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www.ag.ndsu.edu/fieldtofork