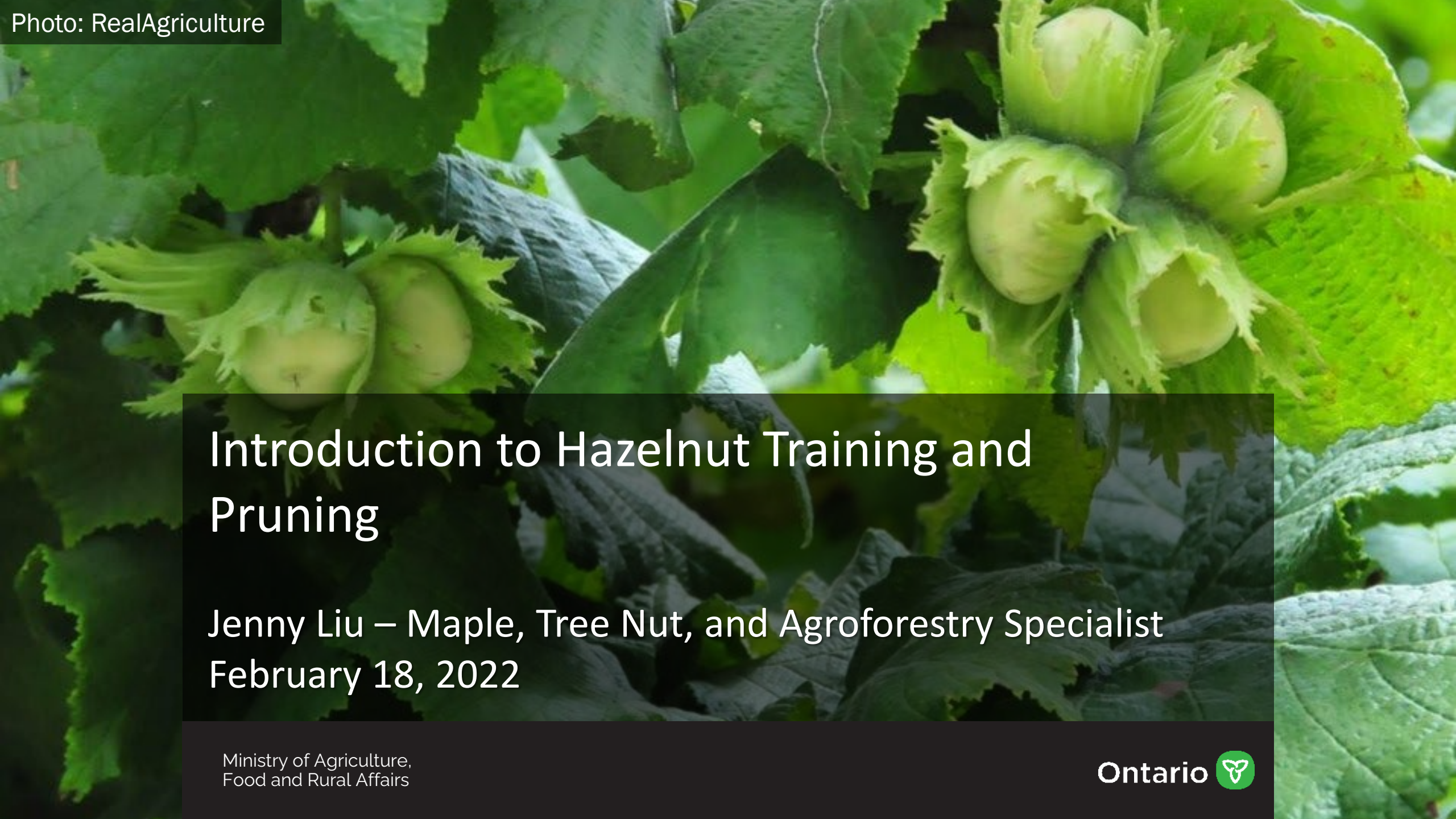


Introduction to Hazelnut Training and Pruning

Jenny Liu – Maple, Tree Nut, and Agroforestry Specialist

February 18, 2022

Ministry of Agriculture,
Food and Rural Affairs

Ontario

Why shape your tree?

1. Increase productivity
   - Stimulate new wood production
   - Maximize sun contact
   - Maximize air flow
   - Remove crossing branches
2. Match your operation's needs
   - More mechanized vs. less mechanized
3. Remove diseased/dead wood

Training

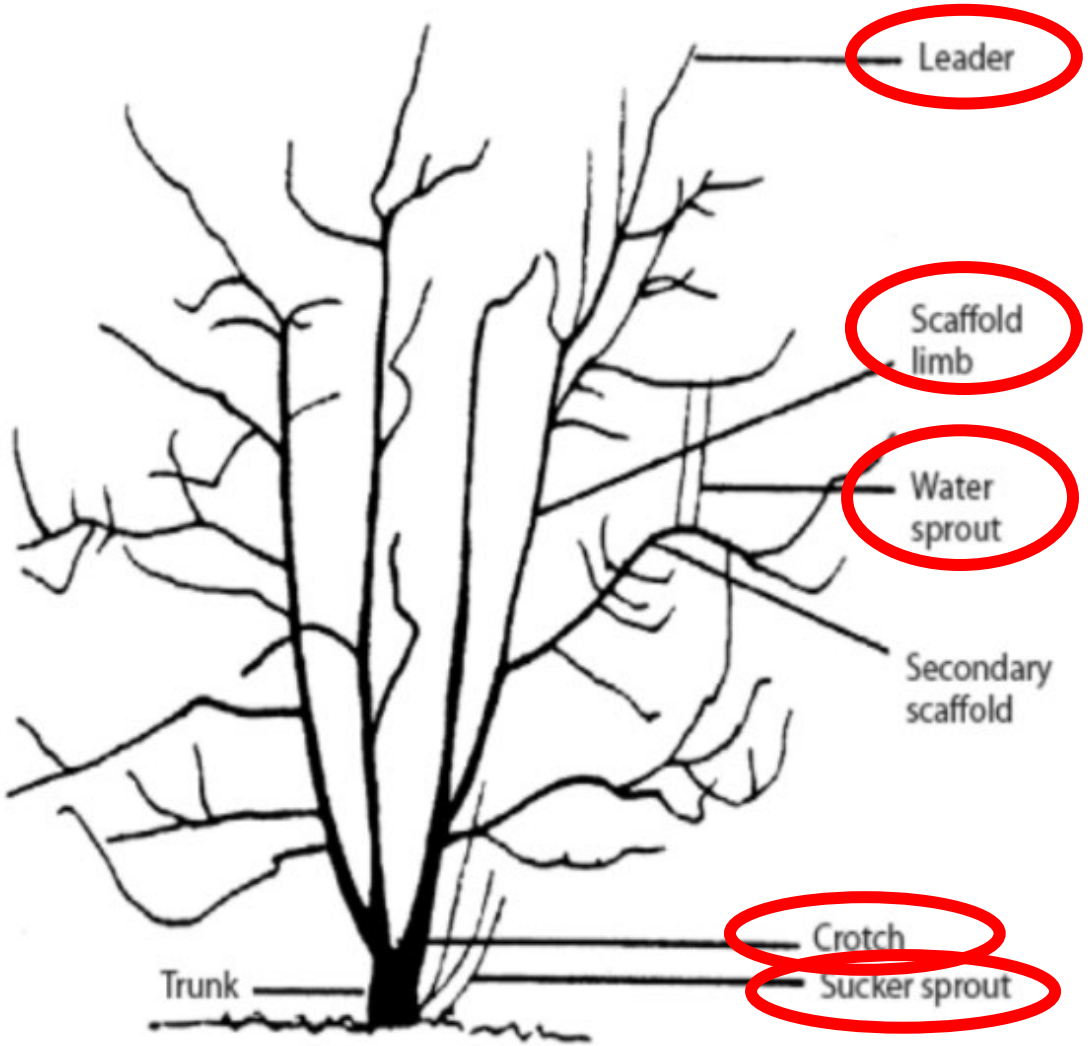
- Establish basic tree shape and structure
- Done when tree is 1-5 years old before major nut production begins
- Can involve cutting branches OR positioning limbs/scaffolding branches to grow at desired angles
- Some aspects done in winter, some in spring/summer

Pruning

- Manage tree growth and increase vigor
- Every 5 years after tree begins bearing
  - EFB pruning is exception
- Mostly cutting branches, though some training of small new branches can still be done
- Mostly done in winter, some in spring/summer

Basic terminology

- Scaffold limb – large main limbs forming a tree's framework
- Crotch angle – angle formed between the trunk and a limb; strongest angle is 45-60 degrees from the trunk
- Shoot – length of branch growth in one season
- Leader – highest part of a scaffold limb
- Terminal bud – the last bud at the end of a branch or shoot that will extend growth
- Water sprout – 1-year-old shoot that grows within the tree
- Sucker – 1-year-old shoot that grows from the root



Oregon State University

Basic terminology

- Thinning cut – a pruning cut that removes the entire branch
- Heading cut – a pruning cut that removes only part of a branch
- Branch collar – raised tissue at the base of every branch

Source: Oregon State University

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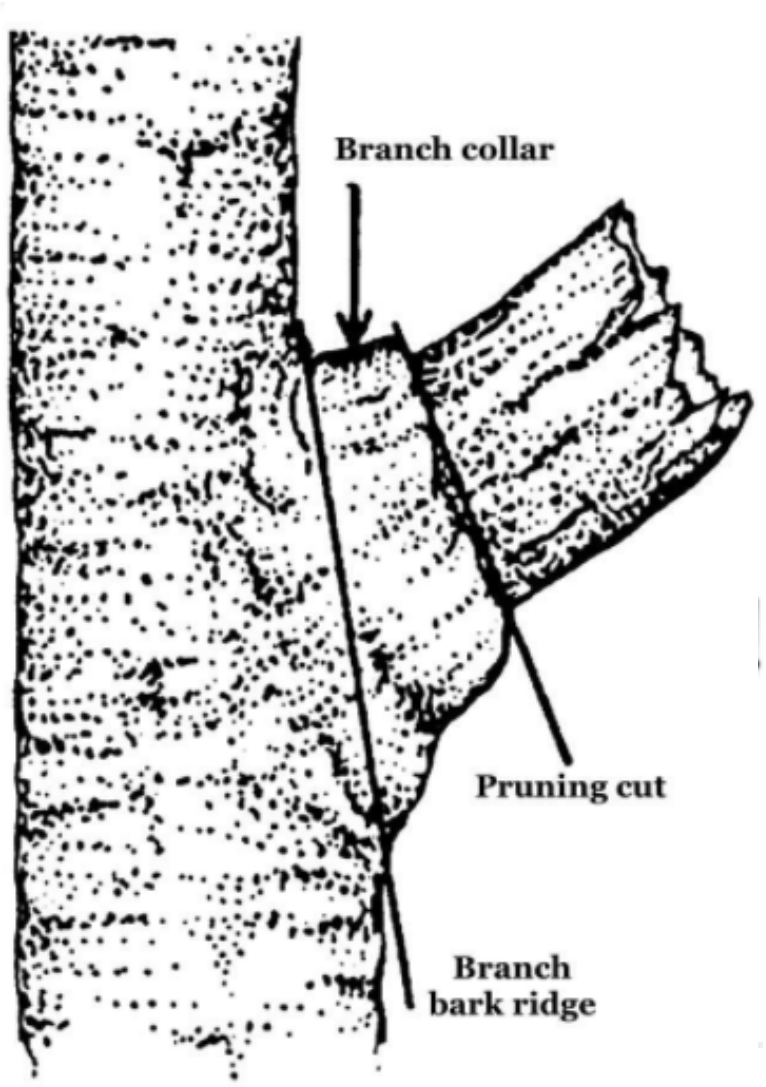

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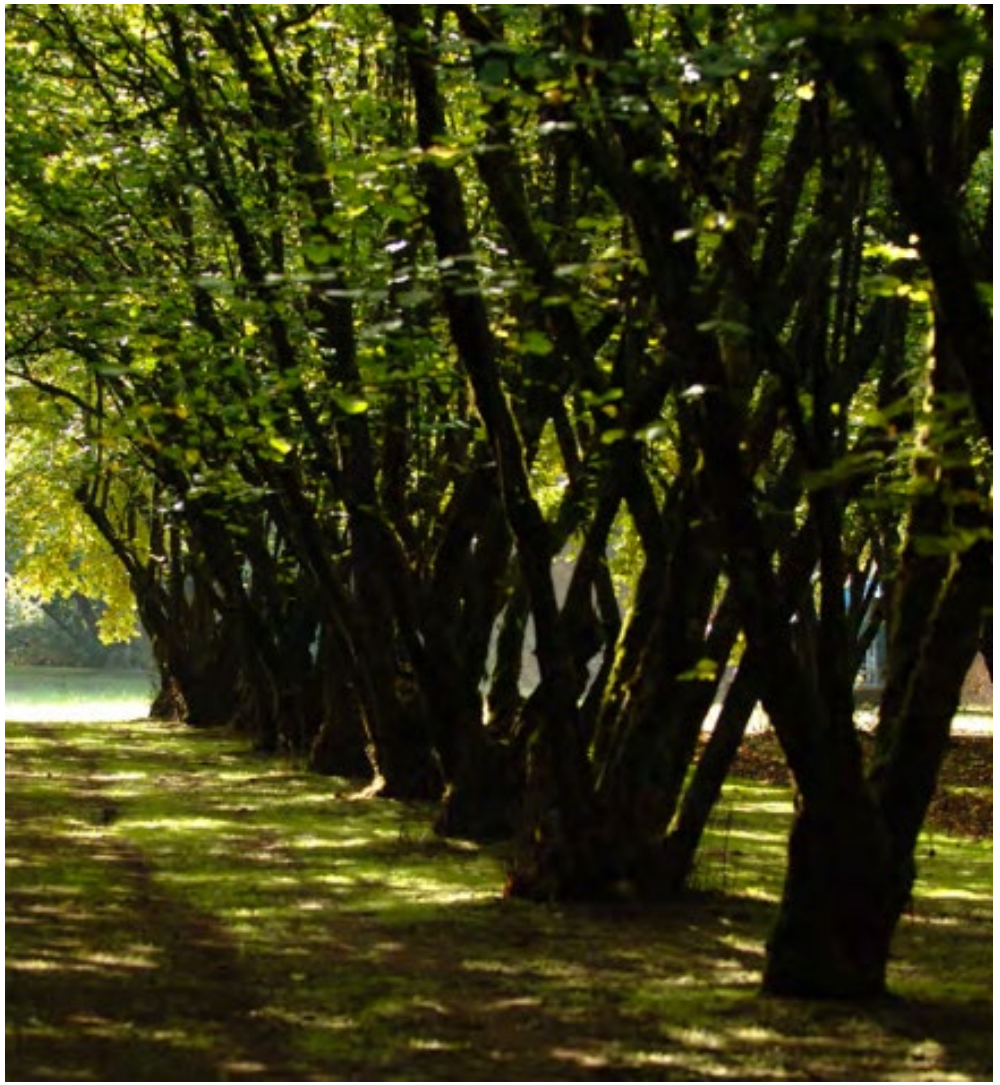
Training

Single-stem

Grimo Nut Nursery

Multi-stem



Oregon State University

Single-stem

- More vulnerable to losses from EFB
- Simpler logistics (spraying, adding tree guards/painting, mechanized harvest)
- Less need to train branches
- For less EFB-susceptible cultivars
- For larger acreages/eventual mechanization

Multi-stem

- Lower risk of entire tree removal with EFB infection
- More complex logistics
- Training may be necessary for more upright varieties
- For more EFB-susceptible cultivars
- For smaller acreages

Training Principles: Multi-stem

- Year 1: no activity and let suckers grow
- Year 2-3: head very close to the ground to promote sucker growth
  - Sucker selection; select 5-7 vigorous, widely and evenly spaced stems
  - Ensure suckers are trained to the desired angle

Coltivazione Biologica

Oregon State University

Training Principles: Multi-stem

- Ensure trunks growing at correct angles
  - Consider what trees will look like in 15 years
  - Strongest angle is 45-60° from the trunk
- May need to employ limb repositioning techniques while trees young
  - Spreading: uses objects to push very young branches to a more horizontal position
  - Tying: Use twine, string, large elastics to bring sucker to proper angle; may tie and anchor scaffold branches to the ground
  - Weighting: weights can be used to pull limbs into place

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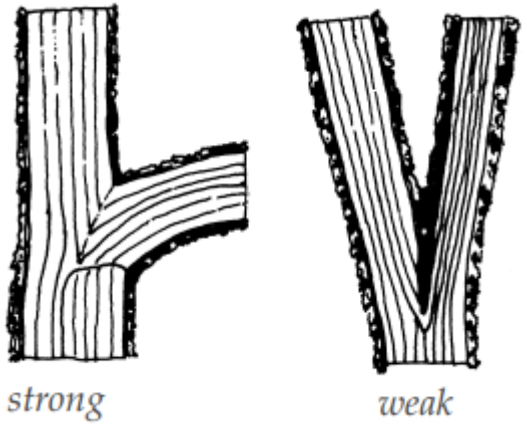

T.R. Roper, U Wisconsin

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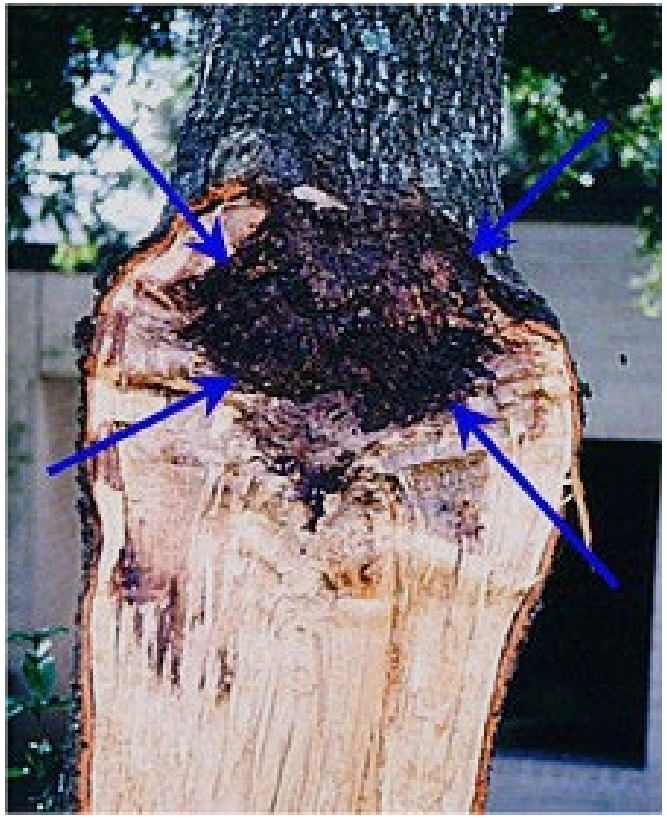

University of Florida

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Figure 3: Toothpick and clothespin spreaders.

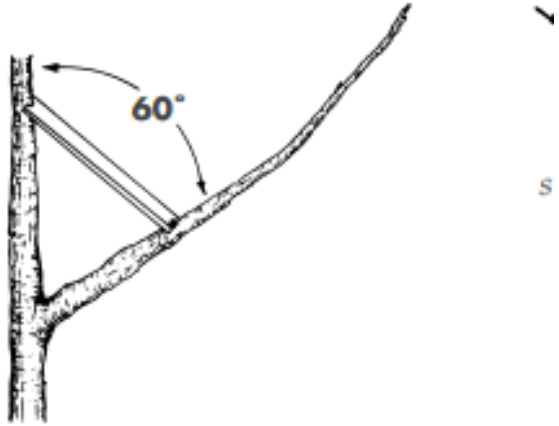

Figure 4: Wooden spreader.

T. R. Roper, WSU

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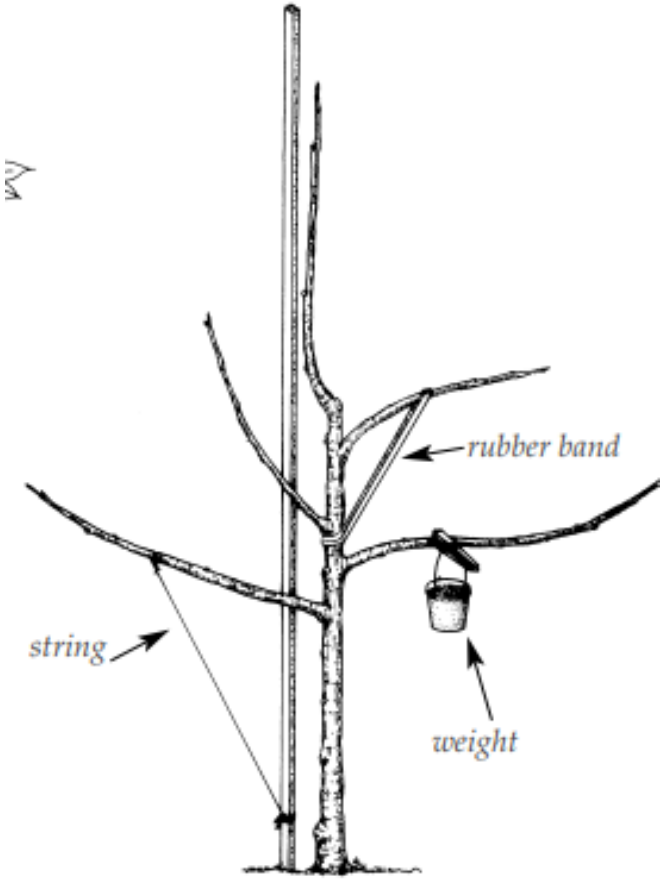

Figure 5: Various methods of tying and weighting.

T. R. Roper, WSU

Pruning

General principles

- Hazelnuts form on one year old fruiting wood (wood with catkins)
- Don’t remove more than 25% of the canopy in a year
- Prune 1/4 or 1/5 of orchard annually
- Consider what the tree will look like in 15 years
- For growth (e.g. to encourage branch growth), prune in winter; for removal (e.g. suckers or low-hanging branches), prune in spring/summer
- Prune young trees lightly and old trees more heavily

J. Liu

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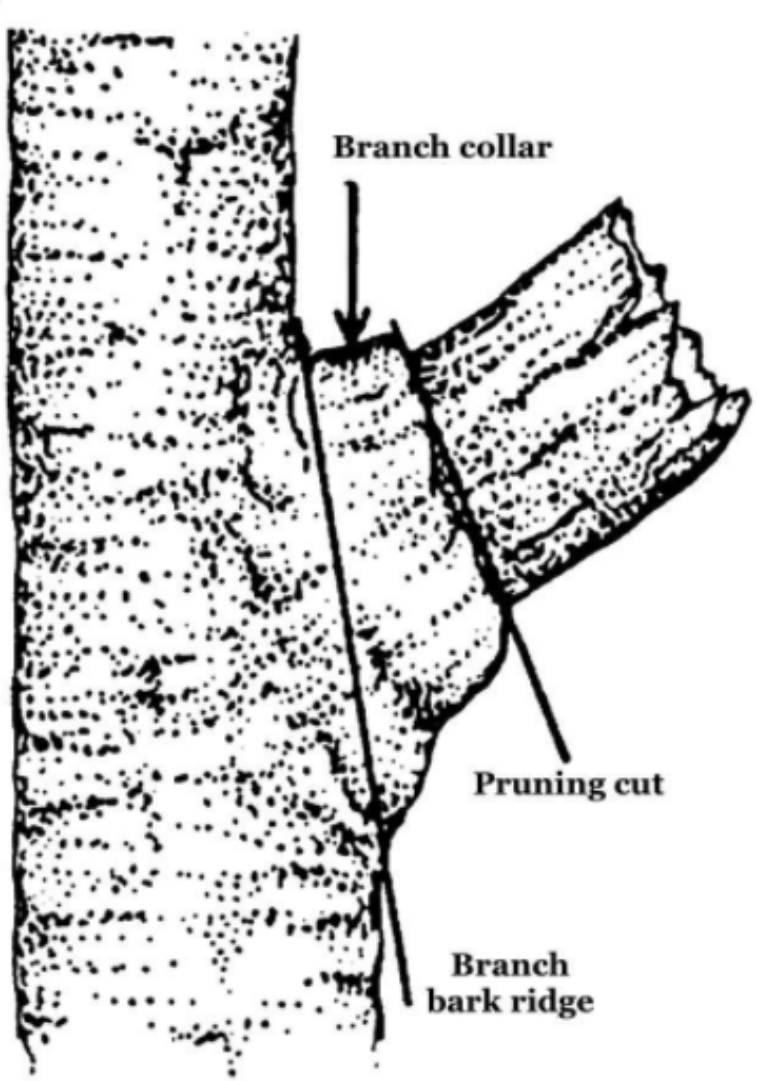
J. Liu

General principles

- Make pruning cuts flush with the branch collar
  - Do not put wound paint over them
- Retain branches at 45-60° from the vertical if possible
- Remove lowest branches and buds until your maintenance and harvest equipment can get under leafed out lower branches
- Remove parallel or crossing branches and shoots
- Cut branches and remove suckers early, while the branch is still small



Source: Oregon State University

Varietal differences

- Different cultivars have different growth forms; some are quite upright and some are spreading

Jefferson

Oregon State University

Yamhill

McCluskey, Mehlenbacher, and Smith

Pruning Tools

Photos courtesy of M. Hodgson

Thank you!

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