Progress Report to the Michigan Cherry Committee
Title: Managing canopy volume in tart cherry for high density orchard plantations.

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Objectives, hypotheses, and methods 2013

- 1. Determine the impacts of horticultural treatments such as shoot pruning, multiple leader / bush form development and summer hedging on canopy development of Montmorency and other tart cherry genotypes.
- 2. Identify the most desirable canopy architecture developed via horticulture treatments which accommodates efficient fruit removal using appropriate Over-The-Row/continuously moving harvesters.

Korvan / OXBO self propelled Spindle/tine shaker (commercial blueberry harvester – unmodified)

Two Prong Approach to High Density Tart Cherries

- **Genetics**
  - Using naturally compact varieties and selections
- **Canopy Management**
  - Pruning
  - Allowing numerous branches to develop
  - Canopy framework initiated at near ground level
  - Dormant & summer hedging
  - Recycling large branches
  - Encourage early fruit production in life of tree to compete with shoot growth

Genetic Compacts

- Carmine Jewel and others Univ of Sasketchewan
- *P. Cerasus x Fruticosa* hybrids

- MSU Tart Cherry Breeding program, A. Iezzoni

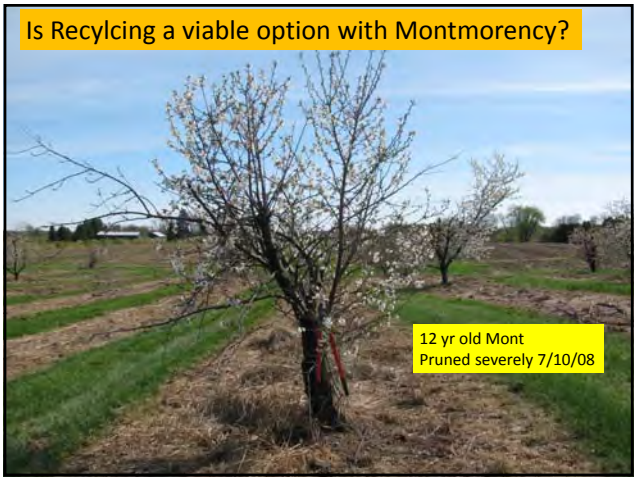
Goal

1. Develop and maintain a fruiting wall system with branching beginning at near ground level.
2. Develop and maintain Montmorency and other tart cherry varieties with canopies which can be harvested within a berry harvester tunnel dimension of less than 5 feet in width and 8 feet in height.
   - Treatments were initiated on young and mature Montmorency and other tart cherry genotypes to determine effectiveness in maintaining a compact canopy.
   - These experiments will lead to the development of a tree wall that will not extend with permanent branching (center core) beyond 30 - 40 inches in width and 6-8 feet in height.

Hypothesis

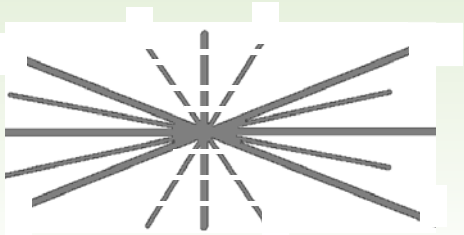
- Development of multi-leaders in trees (bush form) will divide resources (carbon translocation) in comparison to single-leader spindle bush formed trees.
- Canopy pruning by indiscriminant hedging during the winter is sufficient to control branch vigor and maintain compact dimensions.
- Summer hedging at 45 days post bloom and selective pruning of large vigorous branches in winter and summer will lead to more compact trees.
- The optimum width and height of core permanent branch system should be 36” X 72”.
- Retention of weak laterals and selective removal (recycling) of branches larger than 1 inch in diameter will be critical to maintaining compact and productive trees.
- Montmorency responds to pruning treatments, regarding hedging, differently than other tart cherry genotypes.

Is Recylcing a viable option with Montmorency?



Top View

2' - 3'



Dotted branches are recyclable, maintained within the 2' – 3' threshold for O.T.R. harvest. Jamie Burns, Res. Assistant, MSU, BSAE

Horticultural Practices

- Bush form
- Recycling branches
- Avoid branches perpendicular to row

Pruning Treatments Administered 2012

- Trees were selected and pruned with treatments administered at:
- 1. Oxley's Orchard, Marcellus, MI
- 2. Clarksville Hort Research Center
- 3. Northwest Hort Res and Extn Ctr.

Ed Oxley was presented with a catastrophic problem, April 2010 Hail Damage Event

- 3 yr old Montmorency Orchard, planted 19X19'
- 50 acres south of Lawton
- Trees damaged severely from hail.
- Restarted 20 acres by heading at 1.5 ft height and develop into bush for Over the Row harvesting for the future.
- April 2011 inter-planted tree rows = 6x19'

Oxley's Orchard 2012

* **Pruned March 29**

  Trees were selected in 2 rows 326 trees total in the trial, 6 replications in a factorial where

  1. **Main Plot Treatment: Topping** (height) 50% trees were topped on March 29 compared to 50% not topped. Topping was a heading treatment with 2008 planted trees topped at 5 feet and 2010 trees at 4 feet.
  2. **Sub Plot Treatment: Side Hedging** Heading (tipping) cuts were made on the sides where all branches were cut, only those perpendicular to the alley compared to control. Goal was to keep within 18" canopy width.

* **Pruned June 18** (45 days post bloom)

  1. **50 % of trees in each replication/treatment were side-hedged or topped again.**

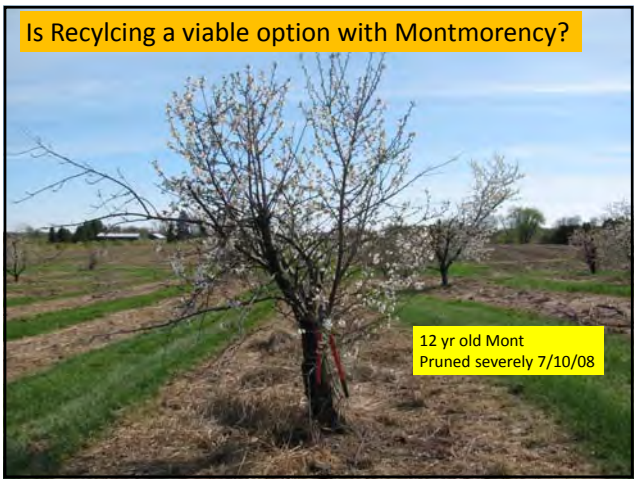
March 29, 2012

June 18, 2012

Pruned CRC Mont Trees

Recycling older branches


CRC 8/5/12


Is Recylcing a viable option with Montmorency?
12 yr old Mont
Pruned severely 7/10/08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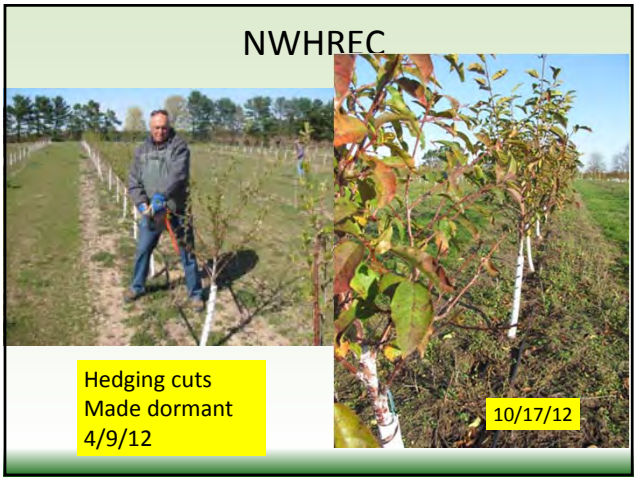
NWHREC
Hedging cuts
Made dormant
4/9/12
10/17/12


Response -- 10/17/12