Basics of Caneberry Production
A Western (California) perspective

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University of California
Agriculture and Natural Resources
Making a Difference for California
Overview

In California we produce much of the fresh market raspberry and blackberry production for US and some export markets

A significant proportion of this production comes from proprietary varieties and production systems

Driscoll’s and their associate growing farms have led this effort in developing these varieties over the past 2-3 decades, now other growers as well

Develop markets for all berries all year. + organic

Number of independent growers with public varieties
Timing of production?

Market window is critical > price and profitability

• Start from the market and work backward
  - location? climate?
  - competitive advantages of current sources?

• Water availability?

• Organic VS Conventional?

Eventually feeds to production system, variety selection and cultural practices, etc.

- relative mix of raspberry, blackberry, types, other?
Fresh Raspberry and Blackberry Wholesale Prices
Los Angeles Terminal Market - 2003

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Blackberry production windows
# Variety selection overview

## Raspberry
- Primocane VS floricane fruiting
- Primocane also fall bearing or everbearing
- Upright, minor thorns
- Vigor can vary but newer varieties tend to be vigorous

## Blackberry
- Traditionally only floricane
- New primocane types appear to offer more harvest flexibility
- Erect to trailing, thorny or smooth
- Very vigorous early varieties tend to be thorny
Raspberry

Flowers on new primocanes as well as second year canes

Fruits in year 1
Flexible harvest
Variety selection – raspberry

• Primocane VS floricane fruiting
  - hard to justify floricane types with flexibility available from primocane types, perhaps for pik your own or specific fruit xteristics, or market window?

• Fruit quality, plant vigor, yield

• Fruit type – red / yellow?

• Heritage traditional for firmness in more southern areas, Autumn Bliss, A. Britten,
  - Joan J, Caroline, Himbo Top, Jaclyn, Josephine
  - Polka is showing great potential

• Anne is good yellow variety
Traditional blackberry production …

- inconsistent flavor, quality
- best taste > processing
- floricane fruiting types
- narrow, defined harvest period

- narrow, inconsistent, and limited availability
Variety Selection – blackberries

- Type – erect? spiny?  
  - back to market, timing, etc

- Fruit quality? Sweet is especially important with blackberry

- In California tolerance for redberry mite or escape or treatment is very critical

- Primocane trait?

- Ouchita, Triple Crown of traditional varieties  
  Natchez is promising but no data.  
  - now add Prime Jim, Prime Jan, Ark 45?
Most blackberry flowers on secondary branches of older (2nd yr) canes.
Floricane VS Primocane fruiting
## Newer blackberry varieties in California

<table>
<thead>
<tr>
<th>Erect, lower chill</th>
<th>Primocane fruiting</th>
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<tbody>
<tr>
<td>Arapaho</td>
<td>Ouchita (-T)</td>
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<td>Navajo</td>
<td>Natchez (?)</td>
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<td>Apache (-T)</td>
<td>Chickasaw</td>
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<td>Choctaw</td>
<td>Kiowa</td>
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<td>Triple Crown (-T)</td>
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- Tupy (replaces Brazos) -- little, no chill
- Carmel
- Eureka
- Cowles
Cultural Practices - Establishment

- *Raised beds, - except with sand or sandy loam with mulch*

- *Light or heavy soils if adequate drainage pH 5.5 –7; incorporate P, K and other needed nutrients (except N) in the bed at planting.*

- *Pretreatment with fumigant? Little effect after year 1.*
  - *still need raised beds*
  - *worthwhile for nematodes, analyze soil first*

- *Distance between row depends on equipment needs typically 6 – 10 ft.*
Cultural Practices - Establishment (continued)

- Distance between plants 40”-50” for blackberry and variable for raspberry 1 – 3 ft.

- Irrigation furrow, sprinkler or drip. Drip allows more careful control of water, timely harvest, dry foliage, fertigation

- Trellising system? Single lines with blackberry VS double lines with raspberry

- Cement or heavy wooden posts at end, then wood
Water management

- Design system for hot, dry, windy day in August
- Drip irrigation is important – not impossible without drip but why?
- Inject end near end of set, wet soil but no need to leach routinely,
- Manage EC with leaching irrigations – tunnels?
- Use filter system or plan to replace tape annually
- Weed control costs?
Caneberry roots are concentrated in the top 10-20”

N uptake with shallow irrigation

keep surface soil relatively moist (NOT WET!) to avoid stress

Frequent relatively short irrigations to avoid leaching
Plant establishment - Raspberry
Cultural Practices – pruning

- manage vegetative growth
  - structure for hanging fruit
  - field work

- control of fruit size and quality

- control and assist harvest

- eliminate damage and disease
Cultural practices - Trellising

- manage vegetative growth
  - allow entry of light and improve air circulation
- manage disease
- easier harvest, thinning and pruning
- protect canes
Plant development - Raspberry

Eventually forms a solid hedge from suckers

Primocane fruiting raspberry can be selectively pruned down cane by cane or mowed down to the soil surface following harvest

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Trellising and pruning - raspberries

- prune raspberries at ground level following harvest
- often can prune raspberries at 4-5 ft for extending the picking.
Pruning and trellising - raspberries

Raspberries form continuous rows with double wires.
Plant development - blackberry

Blackberry plants do not fill in – can distinguish individual plants. Set up single row of wires branches tied to wires
Caneberry N needs

- **Mid April – July enter in period of high N demand**
  - tunnels? -could be Dec or Sept?
  - **primocanes ankle to knee high**
  - **floricane branches 6-12”**

- **New developing canes and leaves need high N**

- **Thick canes and large leaves >>>**
  - large fruit, more fruit
Red spider mite (Tetranychus sp.)
- Pest mite

Phytoseiulus persimilis
- Predator mite
How to Manage Pests

Caneberries

UC IPM Pest Management Guidelines—University of California's official guidelines for pest monitoring techniques, pesticides, and nonpesticide alternatives for managing pests in agriculture, floriculture, and commercial turf. More

| Authors/credits | Index to crops | PDFs to print | Recent updates |

General Information
- Relative Toxicities of Insecticides and Miticides Used in Caneberries to Natural Enemies and Honey Bees (1/10)
- General Properties of Fungicides Used in Caneberries (12/09)
- Growth and Development (12/09)
- Tunnel Culture (12/09)

Insects and Mites
- Greenhouse Whitefly (1/10)
- Leafhoppers (12/09)
- Leafrollers (1/10)
- Raspberry Crown Borer (12/09)
- Raspberry Horntail (12/09)
- Redberry Mite (1/10)
- Root Weevils (12/09)
- Sap Beetles (12/09)
- Spotted Wing Drosophila (12/09)
- Twospotted Spider Mite (1/10)

Diseases
- Armillaria Root Rot (12/09)
- Botrytis Fruit Rot (12/09)
- Cane and Leaf Rust (12/09)
- Cladosporium Fruit Rot (12/09)
- Downy Mildew (12/09)
- Late Leaf Rust (12/09)
- Leaf Spot (12/09)
- Orange Rust (12/09)
- Phytophthora Root Rot (12/09)
- Powdery Mildew (12/09)
- Verticillium Wilt (12/09)
- Yellow Rust (12/09)

Abiotic Disorders
- White Druplet (12/09)
- Crumbly Fruit (12/09)
- Glyphosate Injury (12/09)

Weeds
- Integrated Weed Management (12/09)
- Special Weed Problems (12/09)
- Common and Scientific Names of Weeds (12/09)
- Susceptibility of Winter Weeds to Herbicide Control (12/09)
- Susceptibility of Spring/Summer Weeds to Herbicide Control (12/09)
- Herbicide Treatment Table (12/09)
Forced air pre-cooling

*Forced air removes field heat more quickly and extends shelf life*
Getting Started in Caneberry Production
A Western (California) perspective

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