



Raspberry Production Basics





Site Selection

- Well-drained soil with good organic matter
- Good light exposure
- Protected from wind
- Gentle slope, good elevation
- Source of water nearby
- Soil pH: 5.6 to 6.2
- Eliminate weeds, nightshades
- Eliminate wild brambles (500')



Site Preparation

- Soil Test
 - pH, nutrients, o.m.
- Soil Amendments
 - ☞ Lime, dolomite, sulfur
 - ☞ Fertilizer (N-P-K)
 - ☞ Organic Matter
 - compost, manure
- Pre-Plant Cover Crops
 - ↑ Organic Matter
 - ↓ Weeds





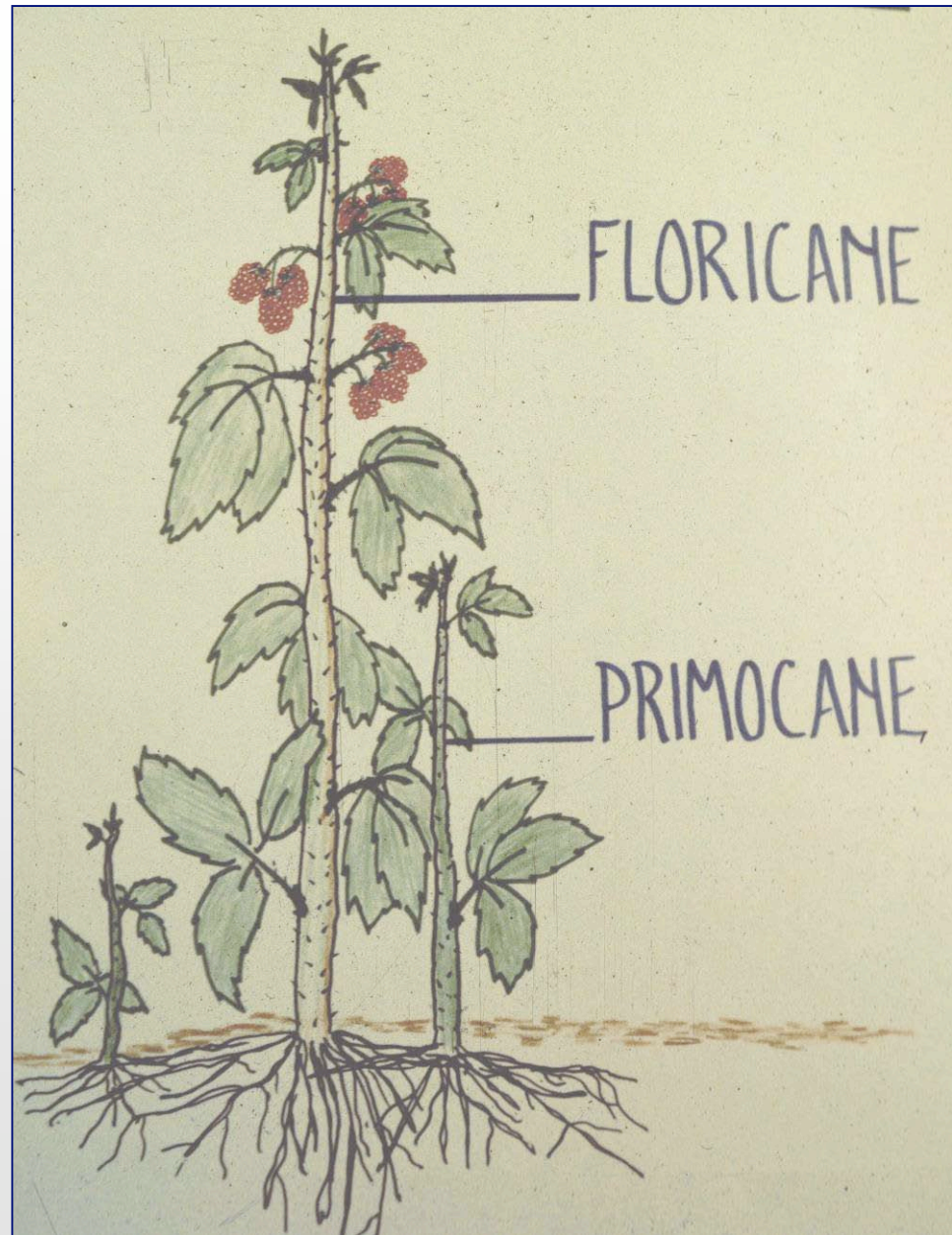
Raspberries

Life Cycle - Biennial

1st year: Vegetative
= Primocane (green)

2nd year: Reproductive
= Floricane (brown)

After fruiting,
floricanes die



Hardy Red Raspberry Varieties

- Boyne 
- Encore
- Killarney 
- Latham 
- Lauren
- Nova 
- Prelude*
- Reveille
- Taylor



Everbearing Red Raspberries

Bear fall crop on primocane tips,

summer crop on lower buds of floricanes

- Autumn Bliss*
- Autumn Britten*
- Caroline
- Heritage
- Polana*
- Joan J?



**Best for more northern sites*



Planting Raspberries

- Early spring
- Dormant canes "handles"
- Same depth as nursery
- 20 to 30 inches w/in rows
- 8 to 12 feet between rows
- Cut off handles at 3" to 4"





Planting Raspberries

Raised Beds

- Improve drainage
- Reduce root diseases
- Increase drought
 ·irrigation
- Increase winter injury?



Photo: P.R. Bristow



First Season Care

First Season Care

- Clean cultivation
 - Straw mulch?
- Water (trickle system)
- Maintain 1.5' row width
- Control weeds
- Fertilize June & August
 - ~20 lbs. N/acre





First-Second Season Care

- Establish ground cover
 - between rows
 - weak perennial grass
- Mulch
 - Bark, chips (no straw)
 - within rows
 - 4-8" deep
- Weed control
- Maintain 1.5' row width at base of plants

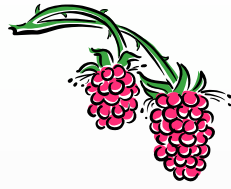




Fertilizing Raspberries

- Maintain soil pH at 5.8 to 6.5
- Mid-April: 20 lbs. each:
 - N, P_2O_5 , K_2O per acre
- June & August: 20 lbs. N/acre
- Soil test every 2 years
- Tissue analysis for problems
 - Late July, primocane leaves



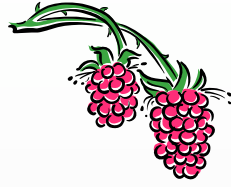


Raspberries

T - Trellis System

- Posts ~ every 25' - 30'
- > 2' depth to prevent heaving
- Anchor end-posts
- Cross arms ~ 4' high, 3' wide
- Wire supports for floricanes
 - attach with twine, etc.





Raspberries

V - Trellis System

- Posts ~ every 25' - 30'
- > 2' depth to prevent heaving
- Anchor end-posts
- Posts at 20°-30° angle
- Wire supports for floricanes

"V" Trellis





Raspberries

Established Planting

- 3-4 years to full production
- Fruiting canes outside -
- Primocanes inside
- Average life span
= 10-15 years





Pruning Raspberries

Summer Thinning

- Maintain 1.5' row width
- Remove primocanes on row edges
- Remove weak, infested canes
- Remove spent floricanes?
 - May wait until late winter
 - Especially in far north





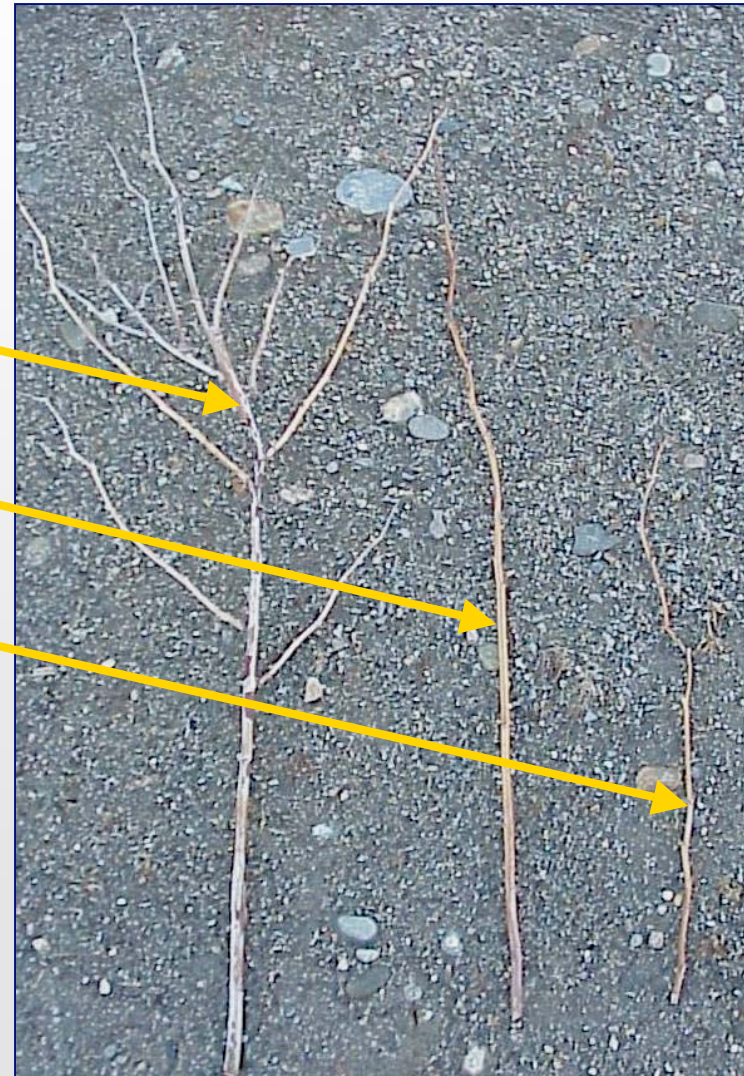
Pruning Raspberries

Dormant Cane Types

Spent Floricane

Healthy Floricane

Weak Floricane





Pruning Raspberries

Dormant - Late Winter

- Remove spent floricanes
- Remove floricanes at row edges
 - Maintain 1.5' row width
- Remove weak, infested canes
- Thin, leaving tallest, thickest canes
- Final density = 3 to 4 canes / foot
- Remove and destroy prunings





Pruning Raspberries

Before





Pruning Raspberries

After



Pruning Raspberries - Mowing



Pruning Raspberries - Mowing

Summer - Bearing

Biennial fruiting: Mow every other row or plot every other year

Ever-Bearing

Annual fruiting on primocanes, i.e. fall crop only, no summer floricanes crop





Handling Bramble Fruit

- Harvest late July-Sept.
- Pick fruit cool & dry
- Use shallow containers
- Cool immediately
- Store fresh fruit at 0°C



Weed Management

Average bed life 10-15 years

- Most common reason for early bed failure: **Weeds**
- Pre-plant preparation
- Cultivation
- Mulch
- Hand-pulling



Raspberry Fruitworm

- Adult beetle 1/4" long, brown, fuzzy
- Feeds on flower buds in spring, lay eggs on flowers



Raspberry Fruitworm

- Larvae 3/8" long, tan, dark head
- Feeds fruit, receptacle
- Often drops into picking container



Raspberry Fruitworm

Management

- Control weeds
- Scout for injury at fruit bud stage
- Holes in buds, leaves
- Apply insecticides prebloom



Raspberry Cane Borer

- Adult black beetle $\frac{1}{2}$ " long, orange thorax, long antennae
 - Lay eggs in tips of primocane, girdles cane
- Larvae: whitish grub
 - Bores in pith of canes



Raspberry Cane Borer

Damage

- Cane tips girdled twice about 2" apart, egg laid between
- Tips of primocanes wilt, dry up



Raspberry Cane Borer

Management

- Destroy wild brambles
 - Within 500' of planting
- Remove wilted tips
 - 2+'' Below lower girdle
- Insecticides
 - @ flower bud stage on floricanes
 - Pyrellin



Red Necked Cane Borer

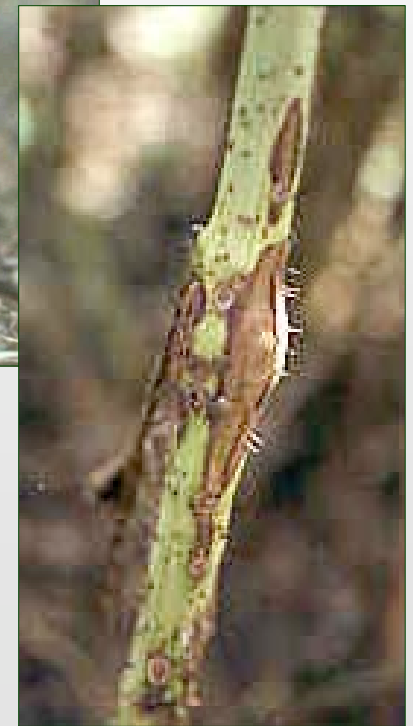
- Adult black beetle $\frac{1}{2}$ " long, reddish thorax, short antennae
 - Lay eggs near base of primocane
- Larvae: whitish grub
 - Bores in pith, cambium of cane
 - Cane forms gall



Red Necked Cane Borer

Damage

- Grubs tunnel in cane near base
- Gall Forms
- Weakened Cane
 - Often breaks
 - Dies in spring



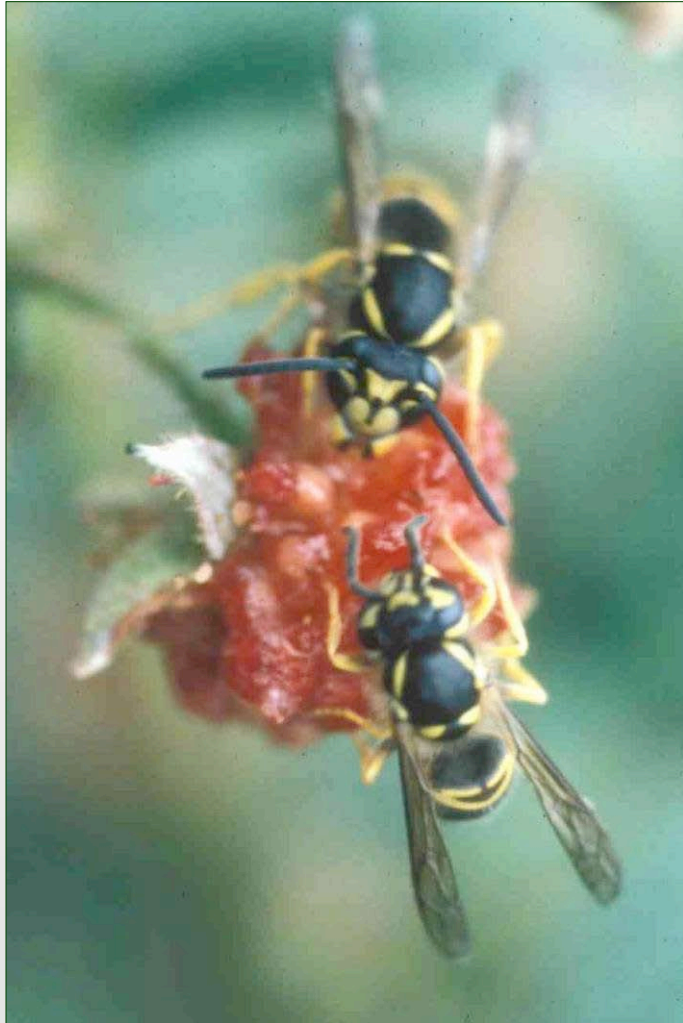
Red Necked Cane Borer

Management

- Destroy wild brambles
 - Within 600' of planting
- Remove canes with galls
- Insecticides
 - @ flower bud stage on floricanes
 - Pyrellin



Wasps



- Yellow Jackets
- Bald-faced Hornets
 - Feed on ripe fruit
 - Dry conditions
 - Deter pickers

Wasps

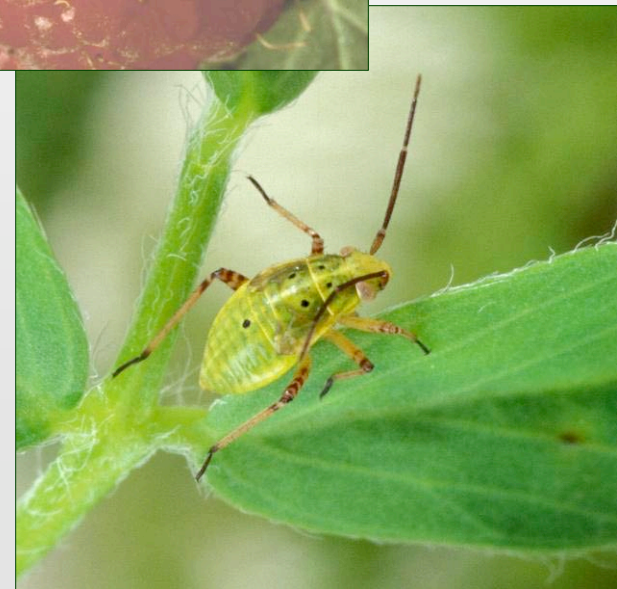
Management

- Early season control
 - Queens vs. workers
- Eliminate food
 - Rotten fruit, compost
- Find & destroy nests
- Trapping
- Spraying
 - Days to harvest



Tarnished Plant Bug

- Adult bugs 1/4" long, bronze
- Nymphs green, active, don't fly
- Feed on flowers, developing fruit
lay eggs in stems



Tarnished Plant Bug

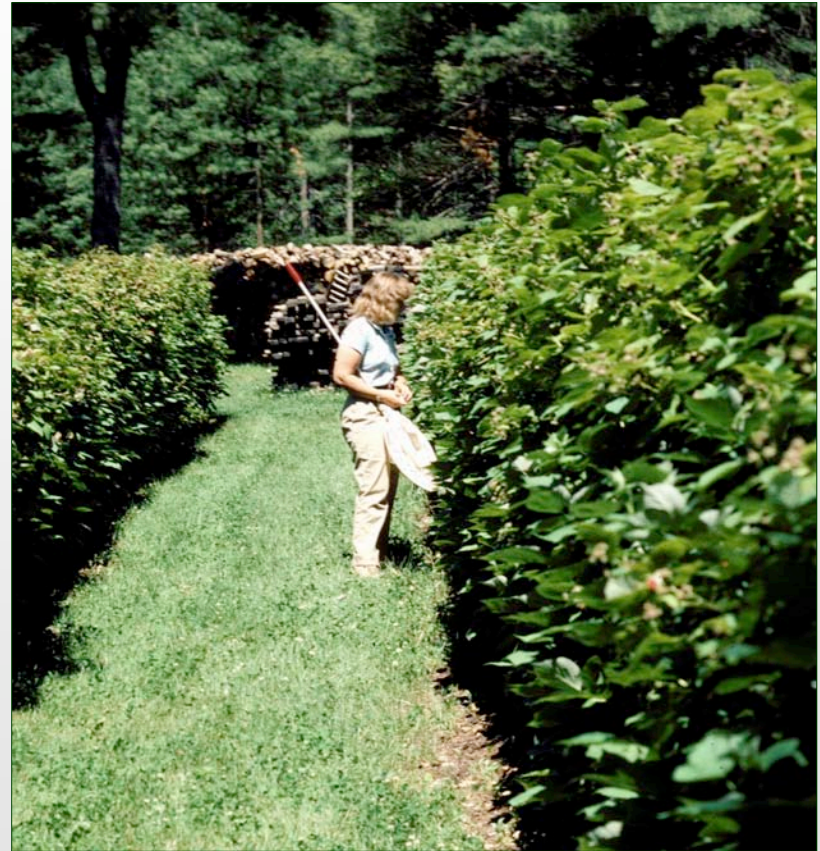
- Feeding kills developing drupelets
- Fruit misshapen, poorly filled, crumbly



Tarnished Plant Bug

Management

- Control weeds
- Scout for bugs at bud-bloom stage
- Apply insecticides pre-bloom, post-bloom
 - PyGanic



Aphids



Small, soft bodied

- Green, yellow, pink
- Wingless, slow moving
- Live young
- Sucking mouthparts
 - Feed on stems and underside of leaves
 - Leaves distorted, chlorotic
- **Vectors of viruses**

Viruses

Mosaic, Leaf Curl

Source: wild brambles



Raspberry Mosaic



Raspberry Leaf Curl

Aphids / Viruses



Management

- Buy certified plants
- Remove all wild brambles
 - 600 feet
 - Windbreaks
- Scout & rogue infected plants
- Insecticides
 - When aphids noticed
 - Pyrethrum

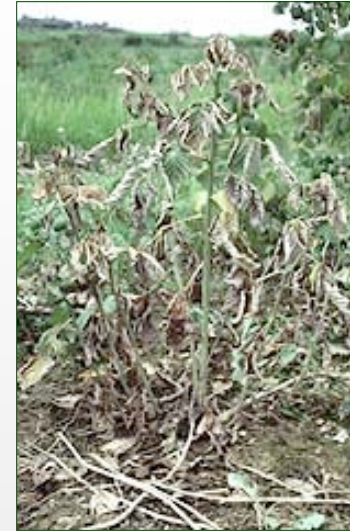
Phytophthora Root Rot



Phytophthora Root Rot

Management

- Good soil drainage
 - tiling
 - raised beds
 - optimum organic matter
- Resistant varieties?
 - Newburgh, Latham
- Gypsum?



Anthracnose



Anthracnose

Management

- Good air circulation
 - pruning, narrow rows
- Sanitation
- Fungicides
 - Lime Sulfur



Spur Blight



Spur Blight

Management

- Good air circulation
 - pruning, narrow rows, trellis
- Sanitation
- Fungicides
 - Longe Sulfur



Botrytis (*Gray Mold*)



Botrytis

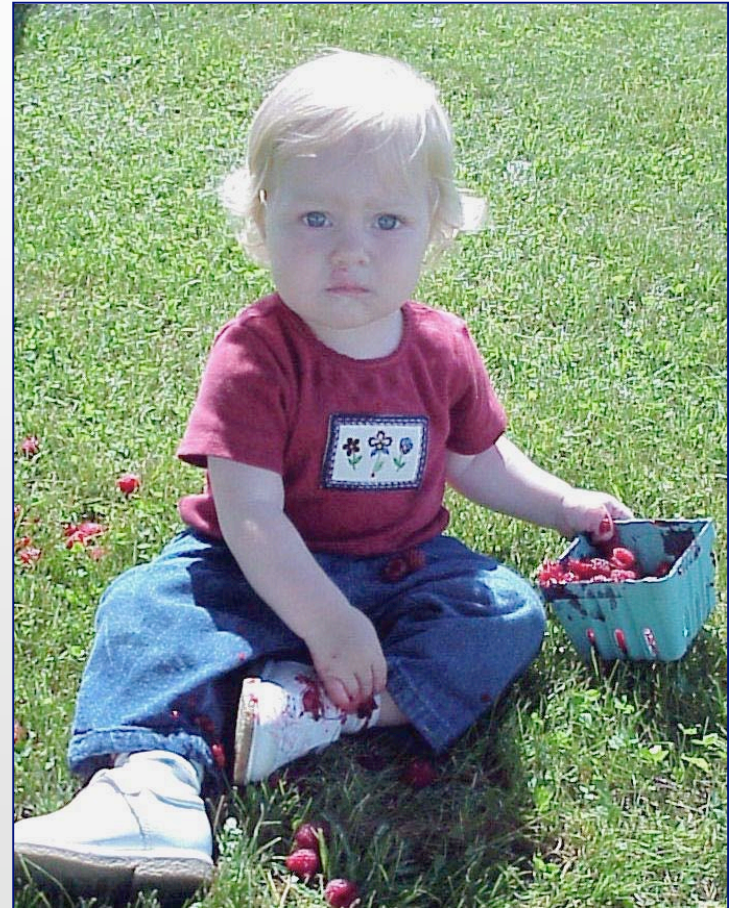
Management

- Good air circulation
 - pruning
 - narrow row width
 - trellis
- Sanitation
- Fungicides applied at bloom
 - Rovral
 - Captan
 - Elevate
 - Pristine
 - Switch



Marketing Bramble Fruit

- Pick-Your-Own
 - Timing, labor and price issues
- Pre-Picked
 - Labor, labor and labor issues
- Retail
 - Good demand; price resistance?
- Wholesale
 - Good demand; storage & transportation issues





Raspberries: Bottom Line

- Establishment Costs (years 1-3)

- \$3000 - \$5000

- Prep, plants, trellis, labor, etc.

- Maintenance Costs (years 4 +)

- \$6000 - \$7000

- mostly labor

- Net returns (above costs)

- \$0 - \$6000

- Dependent upon:

- Yield (0-6,000 lbs./acre)



Bramble Information

New England Small Fruit Pest Management Guide

<http://www.umass.edu/fruitadvisor>

Raspberry & Blackberry Production Guide NRAES - 35

• nraes@cornell.edu or 607-254-7654

ATTRA: Organic Culture of Bramble Fruits

<http://www.attra.org/attra-pub/PDF/bramble.pdf>