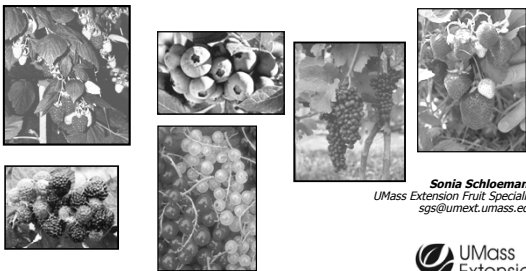



Fruit in the Home Landscape

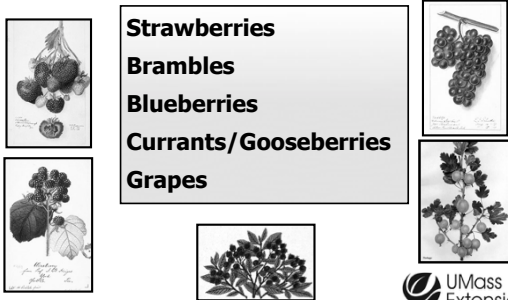


Sonia Schloemann
UMass Extension Fruit Specialist
sgs@umext.umass.edu




Common Berry Crops


the usual suspects




Strawberries
Brambles
Blueberries
Currants/Gooseberries
Grapes



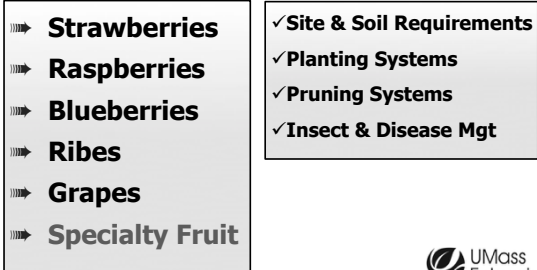
Specialty Berry Crops



Elderberries
Aronia
Saskatoons
Lingonberries
Beach Plums




Horticultural Considerations



Strawberries
Raspberries
Blueberries
Ribes
Grapes
Specialty Fruit

✓ **Site & Soil Requirements**
✓ **Planting Systems**
✓ **Pruning Systems**
✓ **Insect & Disease Mgt**



Landscape Value

- Edible home landscape
- Permaculture Design

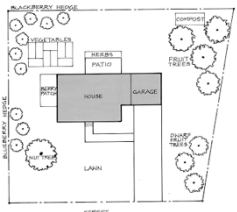


Figure 11. An "edible" landscape.






Photo: Berkshiregrown.org




Site & Soil Requirements



Most Berries:

Soil
 well drained
 sandy loam
 pH = 5.5 - 6.5
 SOM > 3%

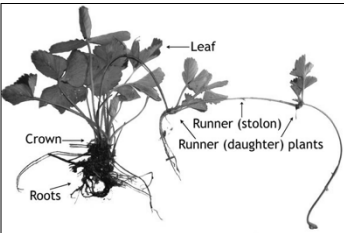
Site
 full sun
 (at least 6 hrs)




Strawberries

General Information

Morphology – Herbaceous perennial	Fleshy Crown
Stolons w/ 'daughters'	Semi-hardy








Strawberries

Types of Strawberries

- June-bearing
- Everbearing/Dayneutral
- Alpine











Landscape Value


Ornamental Flowers – pinks and whites

Edible Fruit – for humans and wildlife

Common use – Patch, foundation plantings, borders, islands, containers, pyramids, hanging baskets



Strawberry Planting Systems




Photo: Univ. of Minnesota


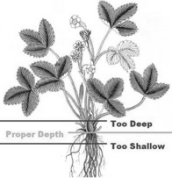



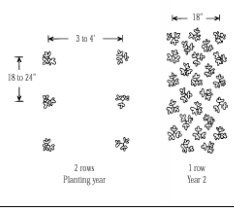
Photo: Univ. of Minnesota



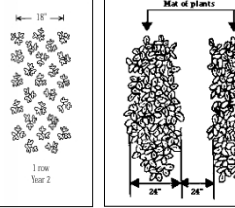
Proper Depth
Too Deep
Too Shallow



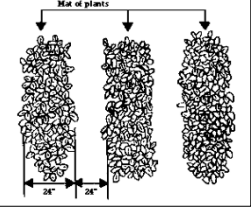
Strawberry Planting Systems




2 rows
Planting year




1 row
Year 2

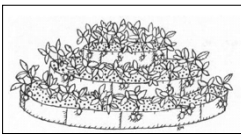



Max. of plants








Strawberry Planting Systems















Strawberry Planting Systems


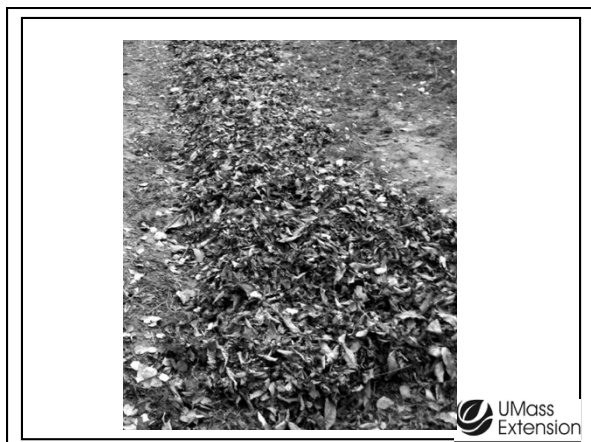


A black and white photograph showing a white pedestal sink repurposed as a strawberry planter. The sink is filled with soil and several strawberry plants are growing in it. The UMass Extension logo is in the bottom right corner.

Mulching



A black and white photograph of a garden bed covered in straw mulch. A person is standing in the background near the garden bed. The UMass Extension logo is in the bottom right corner.



Renovation

This is a process that rejuvenates the plants after harvest is complete.

- Step 1** – mow off the foliage being careful not to damage the crowns.
- Step 2** – narrow the rows and till in the straw between rows
- Step 3** – apply fertilizer
- Step 4** – water regularly until foliage has fully regrown

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Photo: North Carolina State Univ.



Photo: "Grow Food Not Lawns"

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Varieties


Good descriptions in :
Fruit Production for the Home Gardener – <http://extension.psu.edu/gardening/fphg>

Midwest Home Fruit Production Guide – http://www.ca.uky.edu/agcollege/plantpathology/ext_files/PPF5html/Home_Fruit_B591.pdf


See Nursery Source list at: [click here](http://www.fruit.cornell.edu/berry/nurseries/strawberries.html)
<http://www.fruit.cornell.edu/berry/nurseries/strawberries.html>

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Varieties




Jewel




Allstar


Photo credit: David Handley
Univ. of Maine



Varieties




Albion



Seascape

Photo credit: David Handley
Univ. of Maine



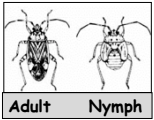

Insect and Disease Mgt

Identification Guides Management Guides




Tarnished Plant Bug

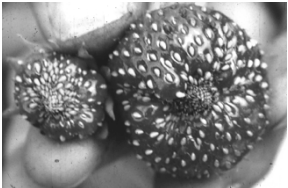

Tarnished Plant Bug *Lygus lineolaris*, is about 1/4 inch long and is brown with yellowish and black dashes and a brassy appearance.




Adult Nymph



Tarnished Plant Bug

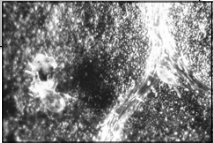
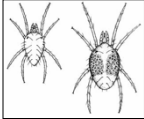
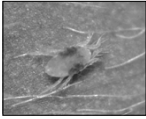

- Adult and immature TPB cause catfacing injury to fruit
- Adults can be trapped using white sticky traps available in catalogs
- Azadaractin (neem) products show efficacy



Two-Spotted Spider Mites

Two-Spotted Spider Mites *Tetranychus urticae*



- Tiny pest that lives on underside of leaves
- Sucks out chlorophyll from leaves leading to yellowing
- Weaken plants over time
- Can be controlled using predators
- Horticultural summer oil effective

Strawberry Diseases



Gray Mold

Botrytis cinerea - usually starts as a blossom blight, which eventually invades the developing fruits, causing them to rot.





Gray Mold

- Overwinters on leaf residue
- Primary infections take place during bloom
- Narrow rows
- Wide row spacing
- Sprays

Red Stele

- More common in wet soils ('water mold')
- Can persist in soil for many years
- Plant resistant varieties
- Use clean plant material
- Avoid saturated soil/Improve soil drainage
- Rotate location of strawberries

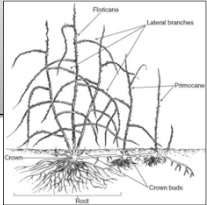






Brambles

General Information


Morphology – perennial roots and biennial shoots

- hardy (with variation)
- two types of canes
 - primocanes (1st yr)
 - floricanes (2nd yr)





Bramble Types

Summer-bearing floricane fruiting
Red/Black/Purple/Yellow Raspberries & Blackberries






Fall-bearing (primocane fruiting)
Reds/Yellows & Blackberries
 Fruit on 1st year canes
 Need less pruning and trellising



Landscape Value

- Not very ornamental; except with trellis elements
- Edible Fruit
- Main use as a patch separate from other plantings

Trellising



Planting



Full mid-summer canopy



Varieties

Good descriptions in :

Fruit Production for the Home Gardener –
<http://extension.psu.edu/gardening/fphq>

Midwest Home Fruit Production Guide –
http://www.ca.uky.edu/aqcollege/plantpathology/ext_files/PPFShtml/Home_Fruit_B591.pdf

See Nursery Source list at: [click here](#)

<http://www.fruit.cornell.edu/berry/nurseries/strawberries.html>



Pruning

Steps in Pruning Summer Bearing Varieties:

- 1) Remove spent floricanes (fall - winter)
- 2) Thin remaining primocanes to 6 – 8" apart, weed out spindly or broken canes, keep healthy, robust canes (March)
- 3) Re-establish 12 – 18" row width (March or later)

Red raspberry pruning

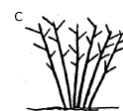
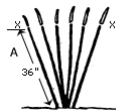


Figure 7.1



Steps in Pruning Blackberries


1. Tip canes in summer to promote growth of laterals; leave at least 6" above top trellis wire (summer)
2. Remove spent floricanes (fall - winter)
3. Thin remaining canes to 5 – 6 canes per plant; remove spindly/damaged canes first (March)
4. Head back laterals to 6 – 8" (March)





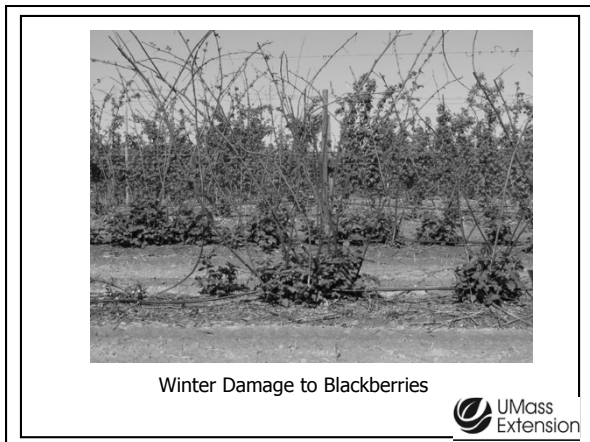
Steps in Pruning Fall Bearing Red/Yellow Raspberries:

1. Mow all canes to 1 – 2" from the ground



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Trellis Support

Brambles -

Insect Pest Management

Tarnished Plant Bug

- Attracted by white flower petals
- Feed on developing fruit
- Worse in weedy areas
- White sticky traps reduce population
- Azadirachtin (neem) effective

Insect Pest Management



Cane Borers

- Occasional pest
- Scout for damage
- No insecticides labeled - cut out infested canes

Raspberry Cane Borer


Red Necked Cane Borer

Cane Borers





Raspberry Cane Borer

Red Necked Cane Borer





Raspberry Diseases




Botrytis Gray Mold

- Overwinters on leaf residue
- Primary infections take place during bloom
- Narrow rows
- Wide row spacing






Raspberry Diseases




Cane Diseases


- Cane blight, spur blight, botrytis, anthracnose
- Plant and prune for good drying conditions
- Dormant Lime Sulfur sprays
- Summer fungicide sprays




Spotted Wing Drosophila on Fruits




Male




Female

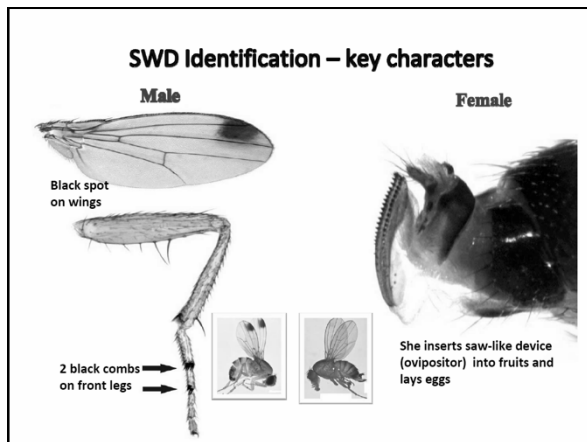





SWD Host Plants (partial list)

Crop Host	Crop Host	Wild Host
Apple	Grapes	American Pokeweed
Asian Pear	Italian Plums	Autumn Olive
Asian Plum	Mulberries	Beach Plum
Blackberries	Nectarines	Climbing Nightshade
Blueberries	Peaches	Crabapple
Boysenberries	Persimmons	Fox Grape
Cherries	Plumcots	Japanese Yew
Cold Hardy Kiwis	Raspberries	Kousa Dogwood
Elderberries	Strawberries	Porcelainberry
	Tomatoes	Wild Rose






MONITORING




Cider vinegar + alcohol

Cider vinegar + alcohol
Yeast + sugar + whole wheat flour





Steps for SWD Management

1. Try to eliminate wild hosts near your crop
2. Monitor using 'vinegar' traps
3. Harvest frequently
4. Keep planting open and with good air-flow
5. Have spray materials on hand and be familiar with your spray equipment
6. Add 2#sugar/100gal spray volume to increase efficacy (0.1#sugar/5gal)





Exclusion Netting





Exclusion Netting





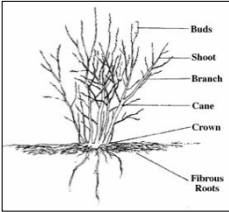
Hummingbirds!





Blueberries



General Information

- *Morphology* - Woody perennial plant
- Hardy
- Very shallow root system
- Roots lack root hairs
 - *Need soils w/ high OM*
 - *Mycorrhizae*






Blueberries

Soil
 well drained
 sandy loam
 pH = 4.5 - 5.5
 SOM > 5%



Site
 full sun
 access to water




Blueberries

Types of blueberries

- Highbush
 - *Vaccinium corymbosum*
- Lowbush/Wild
 - *Vaccinium angustifolium*
- Half-high
 - hybrid of highbush and lowbush










Blueberries

Landscape Value:

- Ornamental flowers
- Edible fruit
- Fall foliage color
- Mixed plantings - soil requirements like azaleas, rhododendrons.
- Ground covers








Planting

Steps in Planting Blueberries

1. Prepare soil (adjust pH, add organic matter) 1 yr ahead
2. Spacing:
 - 4-6 feet between bushes
 - 8-10 feet between rows
3. Use 2 yr old dormant bare root plants from nursery or potted plants from garden center
4. Water thoroughly for 2 weeks or more after planting
5. Spread mulch beneath plants to suppress weeds, conserve moisture and add organic matter



Mulching




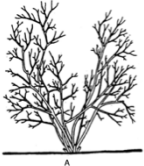
Be sure mulch material is aged



Pruning

Steps in Pruning Established Bushes

1. Remove broken, weak or canes
2. Remove canes older than 5 – 8 years
3. Keep 6-10 canes of mixed ages
4. Keep only 2-3 best new canes each year
5. Open the interior the bush to let in sunlight and improve air circulation






Varieties

Good descriptions in :
Fruit Production for the Home Gardener –
<http://extension.psu.edu/gardening/fphg>

Midwest Home Fruit Production Guide –
[http://www.ca.uky.edu/agcollege/plantpathology/
ext_files/PPFShtml/Home_Fruit_B591.pdf](http://www.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/Home_Fruit_B591.pdf)


See Nursery Source list at: [click here](#)
[http://www.fruit.cornell.edu/berry/nurseries/
strawberries.html](http://www.fruit.cornell.edu/berry/nurseries/
strawberries.html)





Pollination


- Plant 2 or more varieties for cross pollination
- Ensure adequate pollinating insects
 - nest & forage habitat




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Blueberry Maggot




- Invade field as fruit begins to ripen
- Females lay single egg in fruit/mark
- Each female can lay 100 eggs




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Blueberry Maggot




Oviposition Markings



Larvae in Fruit



Blueberry Maggot




Yellow Sticky Traps


- Bait
- Attracts male and female flies
- One per bush can trap out




Fruit Rots



Botrytis Blight



Mummyberry



Fruit Rots

Management:

- Good air circulation
- Sanitation
 - clean up inoculum from beneath plants (fruit/leaves)
- Fungicides



Stem Blights and Cankers



Fusicoccum Canker



Phomopsis Stem Blight



Stem Blights and Cankers

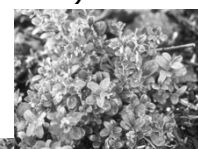
Management:

- Good air circulation
- Sanitation
 - clean up inoculum from beneath plants (prunings)
- **Avoid late N-fertilization**
- Fungicides





Lingonberries (*Vaccinium vitis-idea*)


- Upland Cranberry
- Native to Northern Canada and Northern Europe
- Commercial cultivars available
 - 'Koralle'
 - 'Red Pearle'
 - 'Suissi'
 - 'Sanna'




Harvesting Lingonberries

Yield is about 3 lbs per square yard




Currants and Gooseberries



Types of Ribes -

Gooseberries	<i>Ribes uva-crispa</i>
Red/White Currants	<i>R. rubrum, R. sativum</i>
Black Currants	<i>R. nigrum</i>
Josta Berries	<i>R. nidigrolaria</i>




Site and Soil Requirements -

Soil pH 5.5 - 6.5


Soil Type sandy loam

SOM > 5%

Sun full sun preferred, can tolerate some shade





Currants and Gooseberries



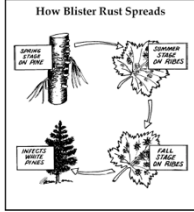
Landscape Value:

- Some varieties w/ showy flowers
- 'Consort' black currant has unique summer and fall foliage
- Fruit highly flavored, nutritional and can be showy
- Can be incorporated into mixed landscape plantings
- Can be planted as a separate patch


Currants and Gooseberries

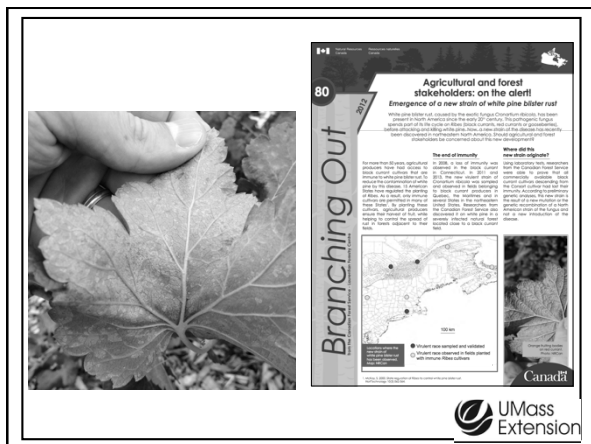
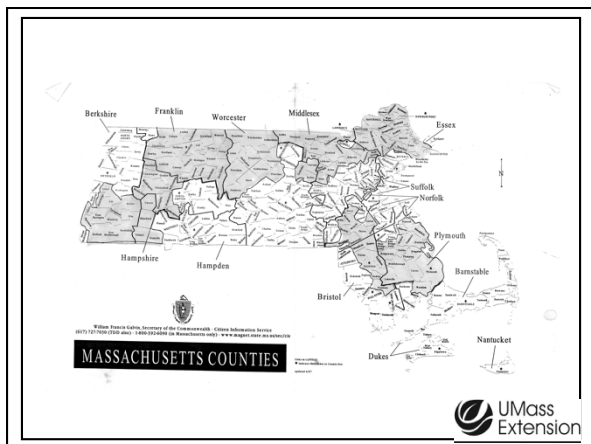
How Blister Rust Spreads



White Pine Blister Rust

- Introduced into US in 1890's (12,000 acres of commercial currants)
- Federal Quarantine and Eradication Program - 1920's and 1930's
- Quarantine Lifted in 1960's





Pruning

The objectives are:

- 1) to give the plant the shape of an open bush;
- 2) to achieve and maintain equal proportions of three-, two-, and one-year-old stems; and
- 3) to distribute the fruiting wood and the year's shoots equally around the bush.

a

cut back all canes to 1 – 2 buds

b

remove all but 6 - 8 of most vigorous shoots

c

keep 4 each of 1-yr and 2-yr shoots: 8 shoots total

d

keep 3 each of 1, 2, and 3-yr shoots

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Grafting

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Thank You!



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Any Questions?

