Pruning Fruits

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Outline

• Introduction to pruning
• Apple, pear
• Peach
• Bramble
• Blueberry
• Grape
Reasons to Prune

• Develop framework of young plants
• Maintain vigor and productivity
• Eliminate less productive plant parts
• Positioning the fruiting zone
• Positively affect fruit size and quality
• Maintain plant health
Training and Pruning Equipment

- Pruner
- Lopper
- Saw
- Scale
Pruning Terminology

Central Leader

Scaffolds

Trunk

Central Leader Training

Open Center Training

Scaffolds
Pruning Terminology

- Branch angle
  - Strong framework
  - Control growth
  - Encourage early bearing
Sanitation

- Use a disinfectant solution for tools
  - Full strength Lysol
  - 90% isopropyl alcohol
- Remove diseased plant parts
- Remove and destroy prunings
When to Prune

• Dormant season pruning
  – Clearly see the structure of plants
  – Clearly see problems
  – Disease/insect pests less active
  – Best time to prune
    • After coldest weather is past, but before trees begin to grow and develop
    • Last two weeks of February

• Growing season pruning
Relevant, Reliable, Responsive…

Apples

and Pears
Pruning Apples and Pears

• Modified central leader training
  – Strong central trunk
  – Scaffold limbs – 4-9
  – Scaffolds spaced vertically and around the central leader
  – Moderate annual pruning when mature
Pruning Apples and Pears

• Modified central leader training
  – Training – develop the structure of the tree
  – First growing season
    • Head back at planting to 30-32 inches
    • Remove competing leaders
    • Select first whorl of scaffolds, spread for good angles, remove other shoots
Pruning Apples and Pears

- Modified central leader training
  - First dormant season
    - Tip the leader
    - Select the best placed 3-4 scaffolds, remove the rest
    - Spread the selected scaffolds
Pruning Apples and Pears

• Modified central leader training
  – Year 2-4 growing season
    • Select the strongest shoot for the new leader, remove competing shoots
    • Select the next whorl of scaffolds, spread scaffolds
Pruning Apples and Pears

• Modified central leader training
  – Year 2-4 dormant season
    • Select scaffolds from last season’s whorl
    • Remove unneeded watersprouts
    • Trim older scaffolds
    • Spread limbs as needed
Pruning Apples and Pears

Source: clemson.edu
Pruning Apples and Pears

- Pruning bearing trees – “Mold and Hold”
  - Prune back scaffolds to allotted space
  - Contain leader growth – cut to weak side shoot
  - Don’t allow upper scaffolds shade lower scaffolds
  - Don’t allow interiors of trees to become too dense
  - Renew bearing surface of the tree
Pruning Apples and Pears

- Pruning mature apple and pear trees
  - Prune late in the dormant season to minimize cold injury.
  - Prune heavily on neglected trees or vigorous cultivars, less so on less vigorous cultivars.
  - Make all heading back cuts just beyond a bud or branch.
  - Make all thinning cuts just beyond the base of the branch being removed.
  - Avoid pruning too close
  - Don't prune a "shade tree" back to a fruit tree in one year. Spread the thinning over several years.
  - Wound dressings are unnecessary for trees pruned in dormant season.
  - Match pruning tools to the size wood being removed. Use hand shears for small twigs, lopping shears for medium branches, and a saw for larger limbs
Disease Management

• Fireblight
  – Apple and pear disease
Disease Management – Apples and Pears

• Fireblight management and pruning
  – Dormant season
    • Remove blighted branches
    • Remove cankers
  – Growing season
    • Remove blighted flower clusters
    • Remove blighted shoots
  – Remember sanitation!
    • After each pruning cut
    • Lysol, alcohol
Peaches and Stone Fruit
Pruning Peaches

• Open center training
  – No central leader
  – Scaffold limbs connected in a short space on the trunk
  – Short trunk
  – 3, 4, or 5 scaffold limbs form the open center framework
  – Heavy annual pruning necessary when mature
Pruning Peaches

- Open center training
  - First growing season
    - Head tree to 30 inches
    - Select scaffolds from shoots – 18” from ground, good angles, lower scaffold on SW side
    - Pinch back unneeded shoots
    - Spread scaffolds if needed
    - Keep scaffolds growing at the same rate
Pruning Peaches

• Open center training
  – First dormant season
    • Head back vigorous scaffolds
    • Remove interior shoots
    • Remove shoots on trunk below scaffolds
Pruning Peaches

• Open center training
  – Year 2-3 growing and dormant season
    • Minimal pruning
    • Keep scaffolds in balance
    • Remove shoots below scaffolds
Pruning Peaches

• Open center training
  – Pruning bearing trees
    • Annual heavy pruning is necessary – to stimulate bearing wood, and keep fruit close to trunk
    • Annual pruning renews the bearing surface of the tree
    • Shaded areas are not fruitful!
Pruning Peaches

• Open center training
  – Pruning bearing trees
    • Remove branches growing downward or upward
    • Remove broken or diseased wood
    • Thin or remove branches in center of tree to maintain open center
Pruning Peaches

• Pruning older trees
  – Remove dead or broken limbs
  – Remove shoots in the center of the tree
  – Remove downward growing shoots
  – Maintain desired tree height
Disease Management – Stone Fruits

• Stone fruit diseases
  – Canker
  – Black knot
High Density Orchards

- High density orchards
  - Useful for high value apples on dwarfing rootstocks
  - Require intense management
Pruning Apples and Pears

Espaliered Apples
Espaliered Apples

• Goals
  – Interesting tree form
  – encourage the growth of short fruiting stems, or spurs, that will ultimately produce apples

• Keys to success
  – Dwarfing apples rootstocks
  – Less vigorous cultivars
  – Cultivars with spur type growth habit
Espaliered Apples

• Pruning the espaliered apples
  – Decide on form
  – Provide support structure
  – Decide on cultivar/rootstock
Espaliered Apples

• Plant a whip, and cut back to just above the first set of support wires
• Train two branches to follow the wires, and a third branch to continue the upward growth
• Repeat the process in succeeding years until the form is set
• Remove fruit until the tree fills its space
Espaliered Apples

• Pruning the bearing tree
  – Dormant pruning
    • Remove vigorous upright shoots, making a Dutch cut
    • Thin out weaker shoots
  – Pruning during the growing season
    • Remove strong upright growth in July
    • Do not prune after August 1
Bramble Training and Pruning

- Biennial shoots

- Types of Canes:
  - Primocanes (first year) vegetative
  - Floricanes (second year) bear flowers and fruit
Bramble Training and Pruning

- Blackberry growth habit and age
Bramble Training and Pruning

- Trellis
  - No trellis
  - Steel posts + twine
  - Permanent trellis
Bramble Training and Pruning

• Pruning primocane bearing red raspberries
  – Remove all canes in late winter
Bramble Training and Pruning

• Pruning floricane bearing red raspberries
  ▪ Remove old floricanes in winter
  ▪ Thin remaining canes to 3-4 /ft²
Bramble Training and Pruning

- Pruning black raspberries and erect blackberries
  - Tip primocanes in early summer
  - Remove dead floricanes in winter
  - Thin remaining canes to 3-6 per plant (black raspberries) or 6/sq.ft (blackberries)
  - Shorten laterals to 12-18”
Bramble Training and Pruning

- Tipping primocanes
- Tipping laterals
Bramble Training and Pruning

- Pruning semi-erect blackberries
  - Tip primocanes when they reach top wire
  - Remove old floricanes in winter
  - Select 8-10 strong canes and tie to the trellis in winter or early spring
  - Remove remaining canes
  - Prune laterals to 18-24”
Bramble Training and Pruning

- Pruning semi-erect blackberries
Bramble Insect Control

- Red necked cane borer
  - Prune and destroy galled canes
Understanding the Blueberry Plant

• Cane age

Year 1

Year 2-3

Year 4 and older
Understanding the Blueberry Plant

- Cane Growth
Understanding the Blueberry Plant

• Fruiting buds
Pruning Young Blueberry Plants

• Goals
  – Obtain full production as soon as possible
Pruning Young Blueberry Plants

• Year 1-2
  – Minimal pruning
  – Remove weak twiggy growth
  – Remove damaged or diseased wood
  – Remove flower buds
Pruning Young Blueberry Plants

- Year 3 - 5
  - Minimal pruning
  - Remove weak twiggy growth
  - Remove damaged or diseased wood
  - Allow a small crop in year 3 (0.5-1 pint/bush), gradually increase crop in year 4-5

Before

After
Pruning Mature Blueberry Plants

• Goals:
  – Maximize yield
  – Maximize fruit size and quality
  – Encourage consistent cropping
  – Position the fruiting zone
  – Manage diseases
Pruning Mature Blueberry Plants

- Remove 20% of the oldest canes each year (usually 1-2 canes)
  - Remove to the ground
  - Remove to a strong upright side shoot
Pruning Mature Blueberry Plants

• Remove low growing fruiting wood at base of plant
  – Most efficient harvest is from “knees to face”
Pruning Mature Blueberry Plants

• Detail prune
  – Thin out interior of bush
  – Thin out flower buds
Pruning Mature Blueberry Plants

• Consider growth habit
  – Upright growth habit
    • Remove older center canes to open up bush
    • Bluecrop, Collins, Lateblue, Elliot, Reka, Duke, Legacy, Nelson
  – Spreading growth habit
    • Prune to upright growth
    • Blueray, Berkeley, Coville, Patriot, Nui, Summit, Toro, Chandler
Disease Management - Blueberry

- Stem blight
  - Remove blighted shoots as soon as possible
  - Sanitize pruners
Terminology - Grapes
Training systems

• High Wire Bilateral Cordon
  – Low to moderate vigor situations
  – Outward and down growth habit
  – Usually spur pruned
  – Trellis is easy to build and economical
  – Vine management is straightforward
  – Adapted to mechanization
  – Widely used in Midwest for many cultivars
Training systems

High Wire
Bilateral Cordon
Training systems

• Low Wire Bilateral Cordon
  – Low to moderate vigor situations
  – Upward growth habit
  – Usually spur pruned
  – Trellis is easy to build and economical
  – Vine management is more intense
  – Adapted to mechanization
  – used in Midwest for certain cultivars – Chardonel, Traminette, Vignoles
Training systems

Low wire bilateral cordon
Training young vines

• At planting time
  – Cut back to 2-4 buds

• First year training
  – Trellis should be in place
  – Train strongest shoot(s) to develop straight trunks
    • Bamboo stakes
    • Twine
    • Grow tubes
  – When shoot(s) reach fruiting wire, develop cordons
Training young vines
Training young vines

- Double vs single trunks
  - Double trunks are insurance
  - Useful with less hardy cultivars
  - Useful for cold production areas
Training young vines

• Second year training
  – Continue developing trunk and cordons as dictated by the training system
  – Remove shoots below the cordons and from base of vines
  – Remove fruit
  – If vine growth was weak during first season, cut back and start over
Training young vines

Vine during the second dormant season
What is balanced pruning?

• This approach to pruning balances vegetative growth with fruiting

• The potential of a vine to produce a balanced canopy and an optimum crop is evaluated by the amount of wood produced by the vine the previous season
What is balanced pruning?

• The pruning formula
  – The pruning formula is used to relate the amount of wood produced by the vine to the number of bud retained at pruning
  – Examples (at 8’ x 10’ spacing):
    • Norton, Concord – 30 + 10
    • Chardonel, Chancellor – 20 + 10
    • Vignoles – 15 + 15
    • Seyval, Vidal – 15 + 10
    • Many others – 20 + 20
What is balanced pruning?

- What do the numbers mean?
  - Example: 30 + 10, 30 refers to 30 buds retained for the first pound of prunings, and 10 buds retained for each additional pound of prunings
- Based on experience, cluster size, number of clusters per shoot
- Changes with cultivar, location, spacing
- Has minimum and maximum:
  - minimum: generally given by the first number in the formula
  - maximum: 65-75 buds for 8 x 10 spacing
What is balanced pruning?

• Norton, 30+10, with 5.5 lbs pruning weight:
  – 30 buds for the first pound of prunings
  – 10 * 4.5 = 45 for the remaining weight
  – 75 buds would be left on this vine

• Vines with weights under 1 pound of pruning weight should be defruited
What is balanced pruning?

- Roughly prune:
  - Leave extra spurs and extra buds
- Weigh one year old wood only
- Calculate bud number
- Adjust bud number
- For uniform rows or vineyards: weigh and average several plants
- Adjust numbers slightly for high or low vigor plants
- Leave renewal buds
Position and orientation of spurs

• Location of spurs:
  – Close to the cordon

• Spacing the spurs:
  – Space evenly along the cordon

• Orientation of spurs:
  – Up or down, depending on training system
What to prune

• Quality of canes:
  – Medium thickness
  – Intermediate internode length
  – Color
  – Disease free, unbroken
  – Exposed to the sun - fruitfulness
When to prune

• Any time that vines are dormant

• Advantages of waiting
  – More buds will frequently be killed in late winter/early spring
  – Best to evaluate percentage of bud kill after coldest weather (by slicing through a bud: green, live; brown dead)

• Prune hardier cultivars first

• Prune last in low areas (frost pockets)
When to prune

- Long pruning or double pruning:
  - Initial pruning
    - Leave longer fruiting spurs (extra buds)
    - Leave more spurs than needed
  - Fine tune the pruning around bud break
    - Some ‘bleeding’ is not harmful
The Home Vineyard

- For a healthy, vigorous bilateral cordon vine that produced a good crop last season
  - Prune all shoots back to spurs
  - Weigh the wood (if you are conscientious)
  - Calculate how many buds to leave
  - Divide this number by 5 (if leaving 5 bud spurs) to determine how many spurs to retain
  - Divide the number of spurs by 2 to determine how many spurs to retain per cordon
  - Space these spurs out on each cordon
Any Questions?

It’s Time to Prune Fruit Trees

Source: http://sonomacountynurseries.com