

UNIVERSITY OF ILLINOIS EXTENSION



PREPARING A NEW GENERATION OF ILLINOIS FRUIT AND VEGETABLE FARMERS

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GROWING A NEW GENERATION OF ILLINOIS FRUIT AND VEGETABLE FARMERS

TRAINING AND PRUNING FRUIT PLANTS

Elizabeth Wahle

(with contributions from Sonja Lallemand)

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Today's Objectives

- Understand the basic principles of
 - Pruning
 - How to prune tree fruits, including pome and stone fruits
 - How to prune small fruit, including blueberries, brambles and grapes



Goals of Annual Pruning

- Develop good framework in young plants
- Remove poor, unproductive wood
 - And broken and pest damaged wood
- Increase light penetration
- Increase air flow
- Maintain the tree height and spread



Goals of Pruning cont.

- To maintain the proper balance between vegetative growth and fruit production to obtain high yields of quality fruit each year
- Maintain fruiting wood throughout the tree canopy
 - Positioning of fruit zone
 - Positively affect fruit size



Dormant Pruning vs. Summer Pruning

- Dormant pruning
 - Invigorating process
 - "Heavy" dormant pruning promotes excessive vigor and reduced fruit growth and development
- Summer Pruning
 - Devigorating



Equipment

- Pruner
- Lopper
- Saw
- Scale (Grapes)





Pruning technique









Pruning Cuts







Encourage growth

Encourage fruiting

Produce strong vertical growth at the cut





Pruning cuts

- Thinning cut to direct new growth
- Heading cut to produce new growth







Pruning cuts

"Bench cuts"









Pruning technique can affect *Cytospora* infection in stone fruits

Treatment	% Cytospora infection	Cvtosporg a fungal	
Pruning time		disease most	
January	(35.4 a)	destructive in peaches,	
March	20.0 a	sweet cherries.	
August	21.3 a		
Type of cut			
Stub	26.5 ab		
Flush	31.0 a		
Collar	19.3 b		











- Modified Central Leader training
 - Strong central trunk
 - Scaffold limbs 4-7
 - Scaffold placed
 vertically and around
 the leader
 - Moderate annual pruning when mature







- Pruning bearing trees "Mold and Hold"
 - Prune back scaffolds to allotted space
 - Contain leader growth cut to weak side shoot
 - Do not allow upper scaffolds to shade lower scaffolds





- Do not allow interior of tree to become too dense
- Renew bearing surface of tree



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Peaches and Nectarines





Peaches and Nectarines

- 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





Peaches and Nectarines

Open center training

- pruning bearing trees
 - Annual heavy pruning is necessary to retain quality bearing wood, stimulate bearing wood and keep fruits close to trunk
 - Annual pruning renews the bearing surface of the tree
 - Bearing wood should be ¼" to 3/8" in diam., 12-24" long, (no longer than 30") reddish-brown in color



Effect of shoot length on fruit diameter (cm) and fruit weight (G)

Shoot length	Fruit diameter (cm)	Weight (G)
less than 1"	6.44	143
1" to 12"	6.54	148
18' to 24"	6.80	165
P - value	0.0214	0.0462

Effect of retaining long (>12") or short (<12") shoots on yield, average fruit weight (FW) and crop value of 'Redheaven' peaches.

Treatment	Fruit per tree	Yield (lbs) per tree	Avg. FW (G)	Crop value (\$/tree)
Short shoots	1593	404	106	20
Long shoots	1813	416	111	30

From R. Marini, 2004 Fruit Grower News 43 (4) 17-20



Blueberries







- Cane age
 - Year 1
 - Year 2-3



Year 4
 and after







- Cane growth
 - New canes are reddish in color
 - Older canes
 have a
 heavier,
 grayish bark





- Fruiting buds are round,
 - plump, and
 - produce flowers
- Vegetative buds are smaller, elongated, can
 produce lateral
 branches and
 leaves







Fruiting bud

Vegetative bud





Pruning Young Blueberry Plant

- Year 1-2
- Minimal pruning
- Remove weak twiggy growth
- Remove damaged or diseased wood
- Remove flower buds







Pruning Young Blueberry Plant

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











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





- Remove low growing fruiting wood at base of plant
- Most efficient harvest is from "knees to face"





- Detail prune
- Thin out interior of bush
- Thin out flower buds





- 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







Before



After



Cane Fruits --Brambles







- Summer-bearing Raspberries
 - Red
 - Purple
 - Black
- Fall- Bearing
 - Red and Yellow
 Everbearing





- Blackberries
 - Erect thorny
 - Erect thornless

Eastern semi-erect





- Biennial plants
- Types of Canes:
 - -Primocanes
 - vegetative
 - -Floricanes

bear flowers and fruit



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Trellis

- No trellis
- Steel posts + twine
- Permanent trellis













- Pruning fall-bearing red raspberries
 - Remove all canes in late winter

- Red (and Purple)
 Summer-bearing
 Raspberries
 - Remove old floricanes in winter
- Thin remaining canes to 3-4 /ft²

- Pruning black raspberries and erect blackberries
 - Tip primocanes in early summer 36-40"
 - 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"

Pruning Erect Blackberries

Before

After

- Pruning semi-erect blackberries
- One or two –wire trellis system
 - Top wire 6 ft. from ground
- Summer tip primocane when they reach the top wire

- Pruning semi-erect blackberries
 - 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"

Pruning Semi-erect Blackberries

References

- Byer, P. 2009. *Pruning Fruits*. Missouri State University Dept. of Agriculture
- Miller, S. 2008. Peach Systems: Training and Production; USDA-ARS, AFRS, Kearneysville, WV
- Westwood, M. N. 1993. Temperate Zone Pomology Physiology and Culture. Timber Press

Resources

How to Prune Young and Bearing Apple Trees

http://www.wvagriculture.org/images/Literature/How to Prune Young and Bearing Apple Trees.pdf

Pruning Peach Tree <u>http://pubs.ext.vt.edu/422/422-020/422-020_pdf.pdf</u>

YouTube video - Pruning a Mature Peach Tree

http://www.youtube.com/watch?v=u42z2WuC4Nw

YouTube video - Pruning Apple Trees

http://www.youtube.com/watch?v=tEwUeCmuTMI

To reach us

Contacts	Contact information
Elizabeth Wahle	wahle@illinois.edu
Jeff Kindhart	<u>jkindhar@illinois.edu</u>
Rick Weinzierl	weinzier@illinois.edu

If you have questions ...

- University of Illinois Extension Local Food Systems and Small Farms team
 - http://web.extension.illinois.edu/smallfarm/
- USDA's Start2Farm site
 - <u>http://www.start2farm.gov/</u>

