Fruit Production

Pruning and Training the Home Orchard
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Fruit Production

• This Class Is A Joint Presentation of Utah State University and Thanksgiving Point
Fruit Production

- Pruning the Home Orchard
- Utah State University Extension Service
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Pruning Definition
The Removal Of Selected Plant Parts To Produce A Desired Growth Response
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- Pruning Increases The Plant's Usefulness By Removing Of Unwanted Limbs And Wood
• This Skill Comes From Learning About The Plants, Practice And Observing The Results Of Pruning
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• The Primary Purposes Of Pruning Are To:
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- Improve The Tree Strength So It Will Carry A Load Of Fruit
Fruit Production
Fruit Production

- Facilitate Cultural And Harvesting Operations
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- Adjust Or Partially Control Size And Shape Of Trees
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Unpruned Fruit Trees Become Tall, Dense, And Unmanageable
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- The interior of the tree becomes a tangled mass of branches with very little productive fruiting wood.
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- An Unpruned Tree Is Difficult To Spray And Harvest
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• Pruning Cannot "Ruin The Tree"

If An Unwise Cut Is Made, The Tree Will Eventually Replace The Removed Part
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- The Greatest Mistake Is Not To Prune
Fruit Production
Fruit Production

There Is No "Right" Or "Wrong" Pruning System
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• Using Pruning And Plant Growth Principles, Develop Pruning Systems To Fit Your Trees
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• No Two Trees Grow And Develop Exactly Alike
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This Is Frustrating
When
Developing A
Desirable
Framework In
Young Trees
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- Pruning Is Dwarfing. Some Growth Is Stimulated But Total Plant Size Is Reduced
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• Know The Ideal And Modify It For The Individual Tree, But Follow The Selected System

![Image of fruit tree in a field]
Fruit Production

Annual Pruning Is Important Throughout The Life Of The Tree
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While The Tree Is Young, Annual Pruning Is Needed To Develop The Desired Tree Structure
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- Excessive Pruning Of Young Trees Makes Them Less Efficient And Delays The Fruit Bearing
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- Moderately Prune Young Trees To Develop A Well-Shaped, Structurally Strong Tree
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- As the tree grows older, annual pruning is necessary to keep the tree productive and to prevent it from becoming too large or dense.
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Fruit Production

- Fruiting habits
- Apples produce on spurs
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- Fruiting Habits
- Peaches
  Produce on Wood That Grew the Previous Year
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Fruit Production
Fruit Production
Fruit Production

TRAINING
To cause to grow in a desired form or fashion
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PRUNING
Removing unwanted wood
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- Pruning is light management
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Shading by a single leaf

• Lowers light intensity to just 10% of leaves in full sunlight
• Reduces photosynthesis to 28% of leaves in full sunlight
• Limits the carbohydrates going to fruits and spurs
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- The Shade a Tree Casts on Itself is its own Worst Enemy
Fruit Production

60 to 100% Full Sun
33% leaf area

30 to 60% Full Sun
38% leaf area

0 to 30% Full Sun
29% leaf area
Fruit Production

- Dwarf 8’: 2%
- Semi-Standard 16’: 15%
- Semi-dwarf 12’: 5%
- Standard 20’: 30%
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- Very vegetatively vigorous, upright growth is not fruitful
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• Limited To The Top And Outer Edges Where There Is High Light
Fruit Production
Fruit Production
Fruit Production

- Unpruned Trees Bear Inferior Size, Color And Quality Fruit
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• **General Pruning Rules:**

• **Clean It Up**

• **Let The Light In**
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- Clean Up the Tree
Fruit Production

• Clean Up The Tree

This Includes Removing The Following:

• Dead, Diseased, And Broken Branches
• Water Sprouts And Suckers
• Branches That Rub Or Cross
• Weak, Drooping, And Unproductive
• Branches
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Let The Light In

Remove Branches That:

• Compete With Other Branches For Light
• Shade The Center Of The Tree
• Grow Back Into The Tree
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• Removing Water Sprouts And Suckers During The Summer Is Preferred Over Cutting Them Out In The Dormant Season
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- Water Sprouts Encourage Aphids And Mites Making Pest Control Difficult
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- Corrective Pruning
  Incorrectly Shaped Young Trees
  And Trees That Have Not Been
  Pruned For Several Years
  Develop These Conditions:
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- They Have Too Many Branches
- The Trees Are Tall
- Lateral Branches Are Long
- The Tree Not Strong
- Sunlight Does Not Penetrate The Interior Of The Tree
Fruit Production

They Have Too Many Branches
Fruit Production

• The Trees Are Too Tall
Fruit Production

• Lateral Branches Are Too Long
Fruit Production

- The Tree Is Not Strong
Fruit Production

- Sunlight Does Not Penetrate The Interior Of The Tree
Fruit Production

• Before Cutting The Trees Make A Corrective Pruning Assessment
• What Should Stay
• What Should Go
Fruit Production

- Decide Which Branches Should Be Left As Permanent Scaffold Branches
Fruit Production

- These Are The Larger Branches With Wide-angle Crotches
Fruit Production

- Cut Out Other Branches Arising From The Trunk Over A Three Year Period
Fruit Production

- Spreading Branch Removal Over Three Years Reduces Tree Shock
Fruit Production

- Excessive Pruning One Year May Upset Normal Bearing Several Years
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- Excessive Pruning Promotes Even More Watersprouts That Bears No Fruit
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• Shorten Long Or Tall Scaffolds
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• Thinning Out Some Of These Selected Scaffolds Is Probably Needed
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- Do Not Fertilize Trees During This Corrective Pruning Period
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• The Corrective Pruning Provides Enough Growth Stimulation
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• Make Pruning Cuts Next To The Branch Collar, And Do Not Leave Stubs
Angle ABC equals Angle CBD
Line BC is plumb or perpendicular to the ground.
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- If Latent (Nongrowing) Buds Are Present On The Stub, They Start Growing And Fill Up The Open Area
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• If No Latent Buds Are Present, Stub Dies Leaving The Wood To Rot Before The Wound Closes
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A correctly made cut closes over quickly and evenly
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- A Stub Cut Heals Slowly Allowing Insects And Diseases Into The Wood
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- Wound Compounds Painted On Pruning Cuts Do No Good And May Be Harmful
Training The Home Orchard
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- The Central Leader System is suggested for apples and pears.
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• Use The Open-Center System For Peaches, Nectarines And Plums
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- Train Apricots, Cherries and Japanese Plums To Either System, But The Open-Center System Is Easier To Develop And Maintain
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- Central Leader Training System
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• An Ideal Semi-Dwarf Or Spur-Type Apple Tree Trained And Pruned To The Central Leader System Has These Characteristics
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• One Main Trunk 8 To 15 Feet High With A Central Leader
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- Lowest Tier Of Branch 24 To 36 Inches From The Ground
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- 3-4 Scaffold Branches In Each Of Three Tiers
Fruit Production

- Space The Branches 6 To 12 Inches Apart Vertically Along The Trunk
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- Scaffold Branches Should Form Three Tiers, Each Having 3 To 4 Branches With The Crotches Forming A 45 To 90 Degree Angle With The Trunk
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• The Number And Spacing Of Scaffold Branches And Height Of The Leader Varies With The Type Of Tree (Dwarf, Semi-Dwarf Or Standard) And The Type Of Fruit (Apple, Cherry, Pear Or Plum)
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- Properly Shaped, A Central Leader Tree Has Low And Well-Spaced Branches And Well-Distributed Fruiting Wood
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• It Is Low Enough To Make Pruning, Spraying, And Picking Easier
Fruit Production
Fruit Production
Fruit Production

DEVELOPING A CENTRAL LEADER

NURSERY STOCK

WHIP

BRANCHED
Fruit Production

DEVELOPING A CENTRAL LEADER

MURSERY STOCK

WHIP

BRANCHED

18-20 in.

30 in.
Fruit Production

DEVELOPING A CENTRAL LEADER

PRUNING AFTER THE FIRST WINTER

18 in.
DEVELOPING A CENTRAL LEADER

PRUNING AFTER THE FIRST WINTER

18 in.
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DEVELOPING A CENTRAL LEADER

PRUNING FOLLOWING 2nd GROWING SEASON
Fruit Production

DEVELOPING A CENTRAL LEADER

PRUNING FOLLOWING SECOND GROWING SEASON
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Fruit Production
Fruit Production
Fruit Production
Fruit Production

Open-Center

An Ideal Standard Peach Tree Trained And Pruned To The Open-Center System Has These Characteristics:
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- A Single Trunk 18 To 30 Inches High With 3 Or 4 Scaffold Branches, All Located 6 To 8 Inches Apart Vertically Near The Top Of The Trunk And Kept About Equal In Size By Pruning
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- Scaffold Branches Form A Crotch Angle Of 40 To 90 Degrees With The Trunk And Are Uniformly Spaced
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- To Facilitate Pruning, Spraying And Picking, Develop A Low-Headed, Open-Center (Or Vase) Shaped Tree
Fruit Production

• The Open Center Allows Light Penetration For Fruiting Formation And Coloring
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Fruit Production
Fruit Production
Fruit Production
Fruit Production
Fruit Production

DEVELOPING AN OPEN CENTER MURSERY STOCK

18 in.
Fruit Production

DEVELOPING AN OPEN CENTER

WHIP AFTER 1 YEAR

18 in.
Fruit Production

DEVELOPING AN OPEN CENTER

18 in.
Fruit Production
Fruit Production

DEVELOPING AN OPEN CENTER
Fruit Production

DEVELOPING AN OPEN CENTER

4 ft.  4 ft.
Fruit Production
Fruit Production
Fruit Production
Fruit Production
Fruit Production
Fruit Production
• Developing Good Angles And Strong Crotches
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- Under Some Situations Trees Need To Have Their Branches Spread
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- This Develop Strong Crotch Angles
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- The Wide-Angle Is Stronger Than The Narrow Angle Crotch
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• Branch Spreaders Help Train Young Trees
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- Use Boards With A Nail In Each End, Stiff Wires, Or Sharpened Metal Rods To Make Branch Spreaders
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- Many Branches Curve And Grow Straight Up Even Though The Crotch Is A Good Angle
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Spreaders Help To Keep The Branches Growing At The Desired Angle
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Fruit Production
Fruit Production

- There Are Many Systems For Training Trees But None Of Them Work Unless You Do
• Plan To Attend The Upcoming Pruning Demonstrations
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Fruit Production

• The Training Of Fruit Trees To Grow In Various Forms, Including Picturesque Shapes On Walls Or Other Permanent Structures, Is A Long Standing Technique In Europe
Fruit Production

- This Method Also Makes It Possible To Grow Fruit Where The Area Is Very Limited, As On A Small Home Lot.
Fruit Production

• Through Proper Pruning And Fastening Of Shoots Or Branches In Place, The Grower May Develop Any Design Desired
VIGOROUS UPRIGHT GROWTH AND PREVENT SHADING.

THIRD GROWING SEASON
Fruit Production
Fruit Production

terminals
leader

secondary scaffold
primary scaffold
suckers

height of head
TIME OF PRUNING

dormant

early summer

early August

most invigorating

less invigorating, regrowth

reduces vigor, hardiness
APPLE GROWTH HABITS

I

spur types

II

standard

III

Golden

IV

Rome

Delicious

Delicious

Beauty
Fruit Production
Fruit
Right—strong crotch
Wrong—weak crotch
Fruit Production
Fruit Production

Central Leader Tree Training System
Fruit Production

- Central Leader
- French Axe
- Slender Spindle
- Hytec
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• Thanks For Attending Our Thanksgiving Point And Utah State University Extension Service Class