Fruit Production

Pruning and Training the Home Orchard

Larry A. Sagers

Horticulture Specialist

Utah State University Extension

Fruit Production

- This Class Is A Joint Presentation of Utah State University and Thanksgiving Point

Fruit Production

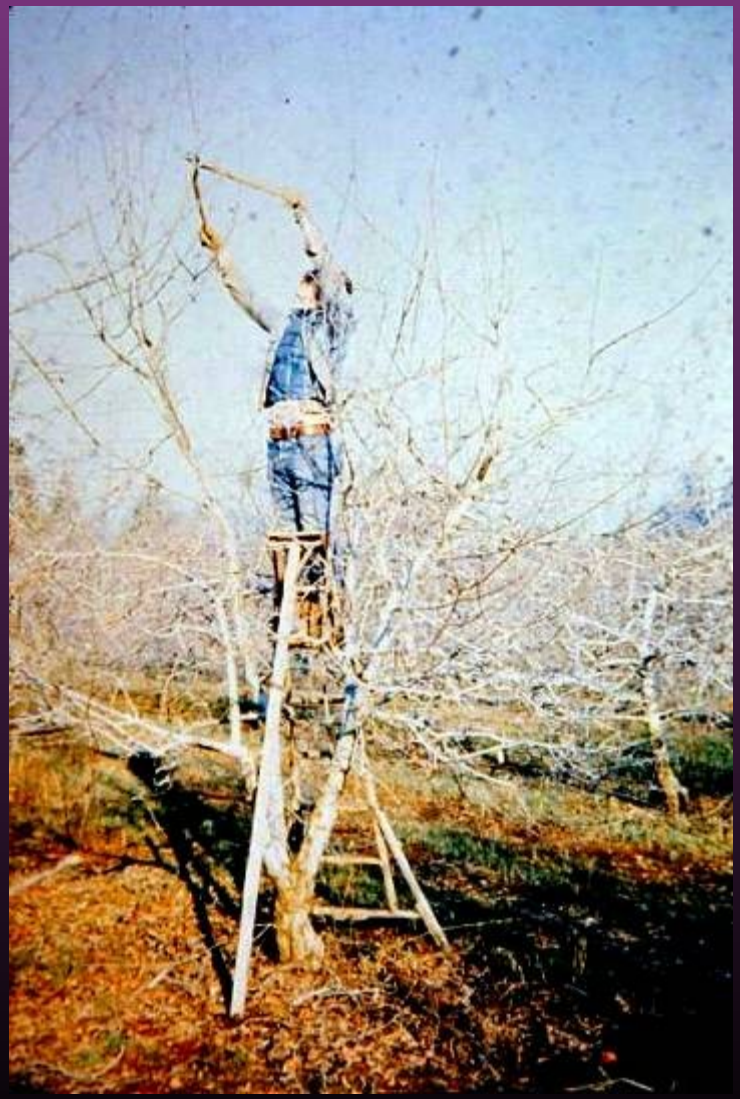
- http://extension.oregonstate.edu/catalog/html/pnw/pnw400/
- Pruning the Home Orchard
- Utah State University Extension Service

Fruit Production

- Pruning Definition
- The Removal Of Selected Plant Parts To Produce A Desired Growth Response

Fruit Production

- 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

Fruit Production

- The Primary Purposes Of Pruning Are To:

Fruit Production

- Improve The Tree Strength So It Will Carry A Load Of Fruit

Fruit Production

Fruit Production

- Facilitate Cultural And Harvesting Operations

Fruit Production

- Adjust Or Partially Control Size And Shape Of Trees

Fruit Production

Unpruned Fruit Trees Become Tall, Dense, And Unmanageable

Fruit Production

- The Interior Of The Tree Becomes A Tangled Mass Of Branches With Very Little Productive Fruiting Wood

Fruit Production

- An Unpruned Tree Is Difficult To Spray And Harvest

Fruit Production

- Pruning Cannot "Ruin The Tree"

  If An Unwise Cut Is Made, The Tree Will Eventually Replace The Removed Part

Fruit Production

- The Greatest Mistake Is Not To Prune

Fruit Production

Fruit Production

There Is No "Right" Or "Wrong" Pruning System

Fruit Production

- Using Pruning And Plant Growth Principles, Develop Pruning Systems To Fit Your Trees

Fruit Production

- No Two Trees Grow And Develop Exactly Alike

Fruit Production

This Is Frustrating When Developing A Desirable Framework In Young Trees

Fruit Production

- Pruning Is Dwarfing. Some Growth Is Stimulated But Total Plant Size Is Reduced

Fruit Production

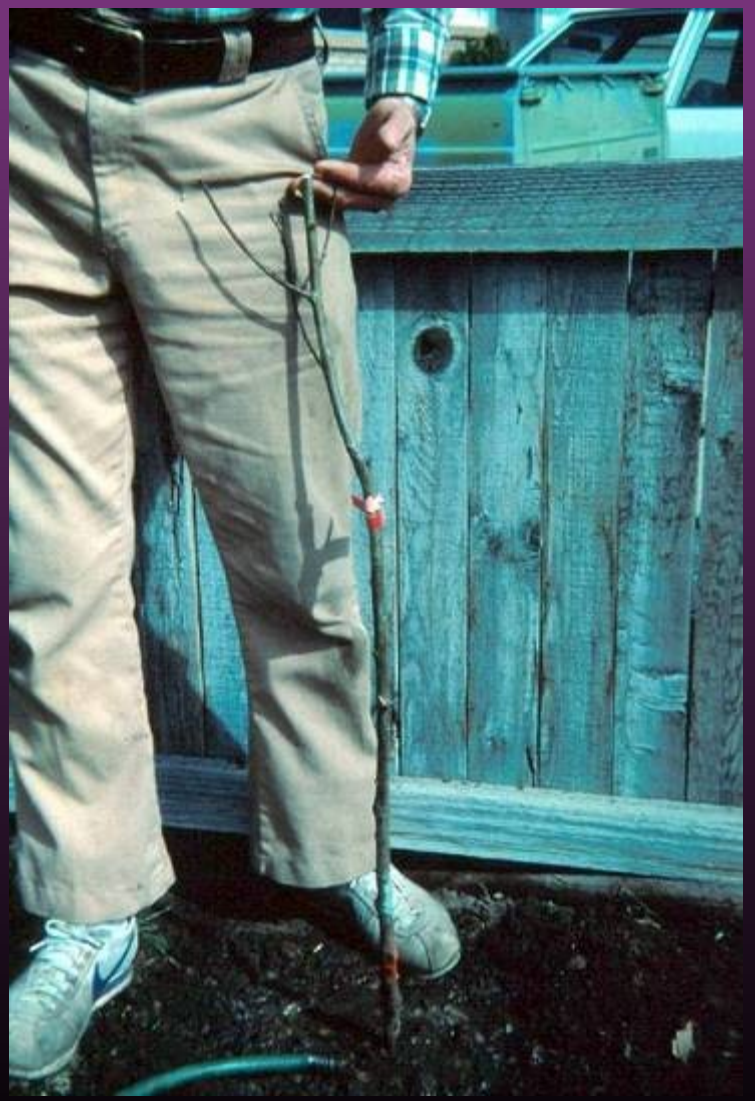
- Know The Ideal And Modify It For The Individual Tree, But Follow The Selected System

Fruit Production

- Annual Pruning Is Important Throughout The Life Of The Tree

Fruit Production

While The Tree Is Young, Annual Pruning Is Needed To Develop The Desired Tree Structure

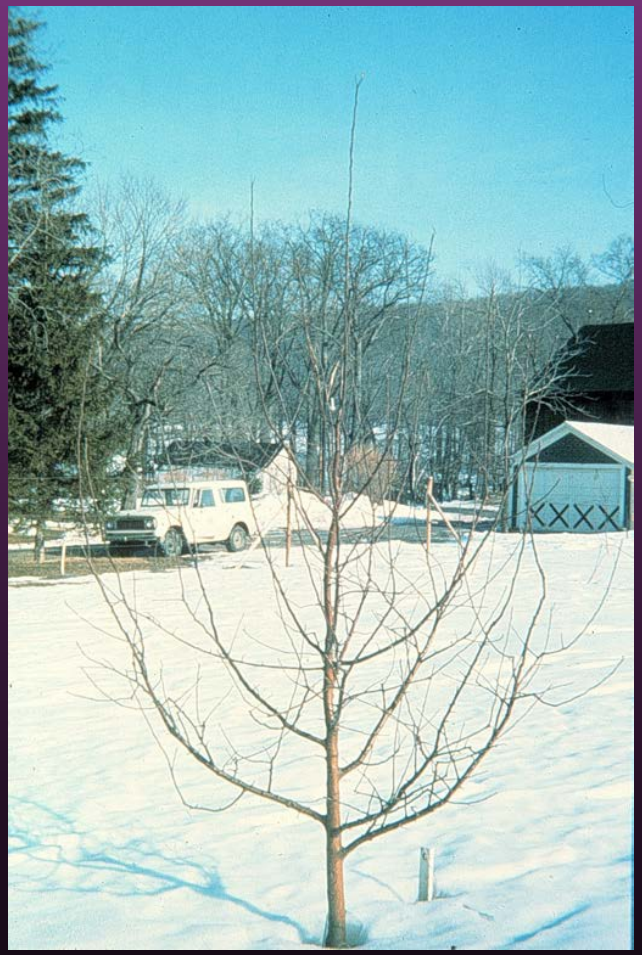


Fruit Production

- Excessive Pruning Of Young Trees Makes Them Less Efficient And Delays The Fruit Bearing

Fruit Production

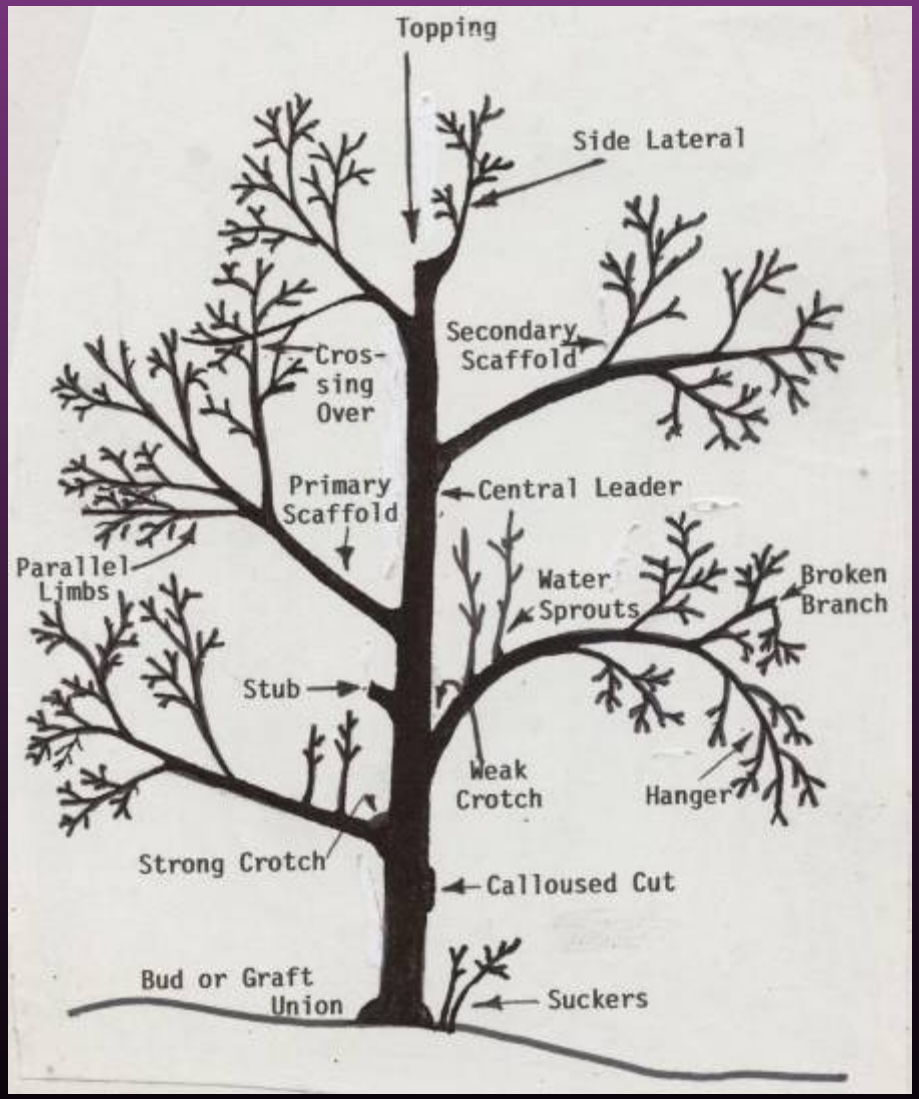
- Moderately Prune Young Trees To Develop A Well-Shaped, Structurally Strong Tree



Fruit Production

- As The Tree Grows Older, Annual Pruning Is Necessary To Keep The Tree Productive And To Prevent It From Becoming Too Large Or Dense

Fruit Production



Fruit Production

Fruit Production

- Fruiting habits
- Apples produce on spurs

Fruit Production

Fruit Production

- Fruiting Habits
- Peaches Produce on Wood That Grew the Previous Year

Fruit Production

Fruit Production

Fruit Production

Fruit Production

TRAINING

To cause to grow in a desired form or fashion

Fruit Production

PRUNING

Removing unwanted wood

Fruit Production

- Pruning is light management

Fruit Production

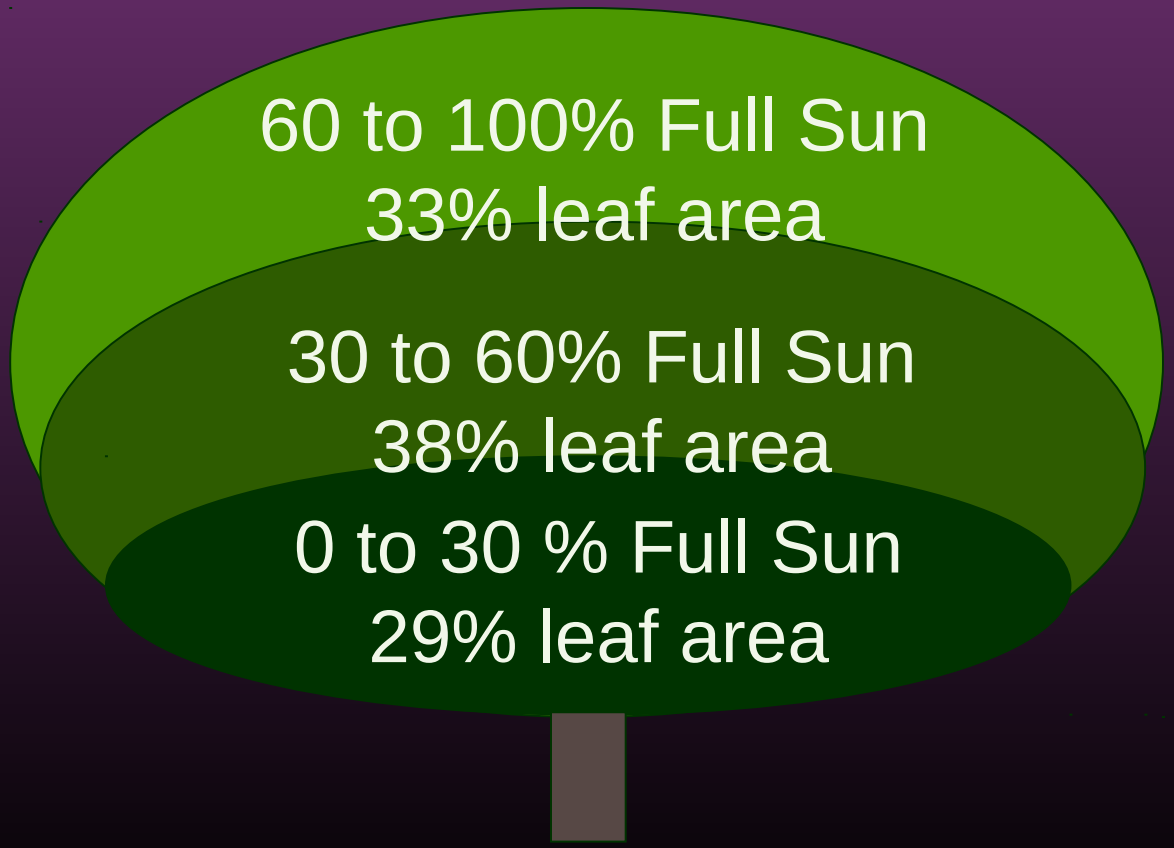
Shading by a single leaf

- **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**

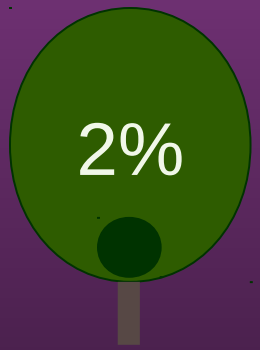
Fruit Production

- The Shade a Tree Casts on Itself is its own Worst Enemy

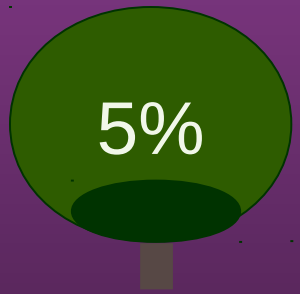
Fruit Production



Fruit Production



Dwarf 8’



Semi-dwarf 12’

Semi-Standard 16’

Standard 20’

Fruit Production

- Very vegetatively vigorous, upright growth is not fruitful

Fruit Production

- 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

Fruit Production

- General Pruning Rules:
- Clean It Up
- Let The Light In

Fruit Production

- 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

Fruit Production

Fruit Production

Let The Light In

Remove Branches That:

- **Compete With Other Branches For Light**
- **Shade The Center Of The Tree**
- **Grow Back Into The Tree**

Fruit Production

Fruit Production

- Removing Water Sprouts And Suckers During The Summer Is Preferred Over Cutting Them Out In The Dormant Season

Fruit Production

- Water Sprouts Encourage Aphids And Mites Making Pest Control Difficult

Fruit Production

- Corrective Pruning Incorrectly Shaped Young Trees And Trees That Have Not Been Pruned For Several Years Develop These Conditions:

Fruit Production

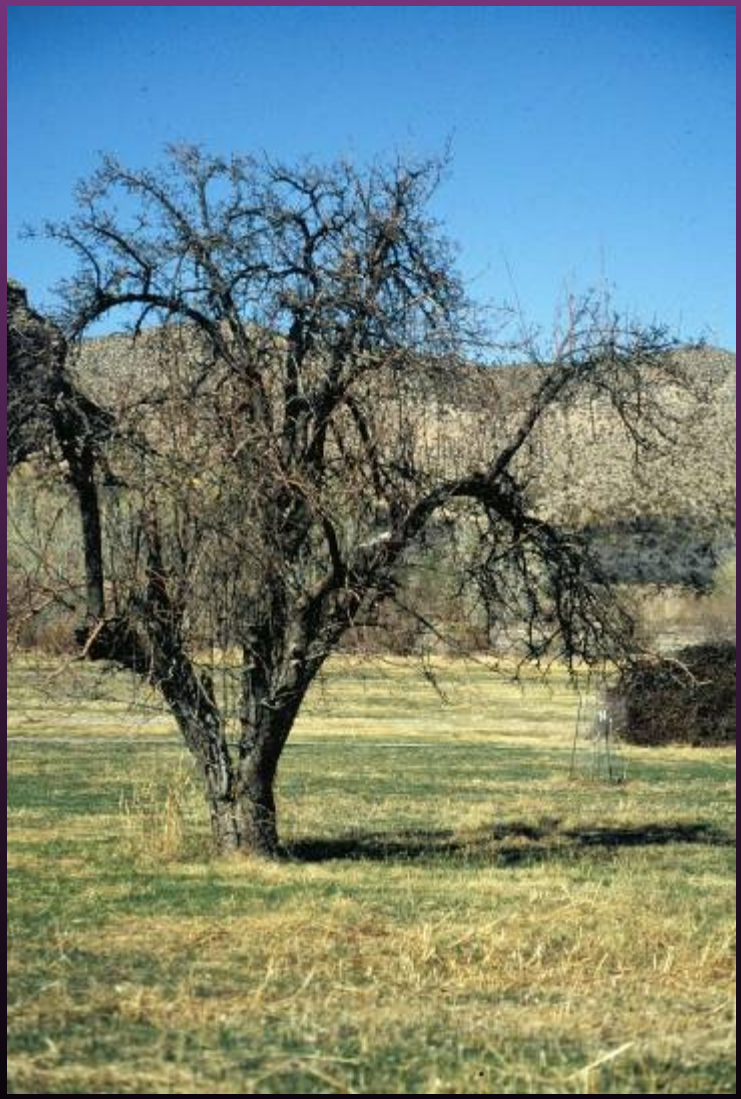
- They Have Too Many Branches
- The Trees Are Tall
- Lateral Branches Are Long
- The Tree Not Strong
- Sunlight Does Not Penetrate The Interior Of The Tree

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

Fruit Production

- Excessive Pruning Promotes Even More Watersprouts That Bears No Fruit

Fruit Production

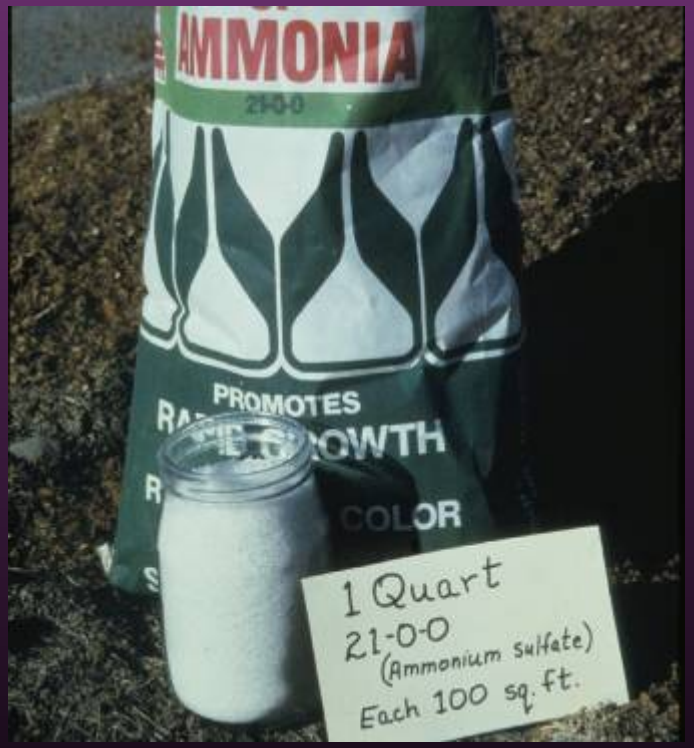
- Shorten Long Or Tall Scaffolds

Fruit Production

- Thinning Out Some Of These Selected Scaffolds Is Probably Needed

Fruit Production

- Do Not Fertilize Trees During This Corrective Pruning Period

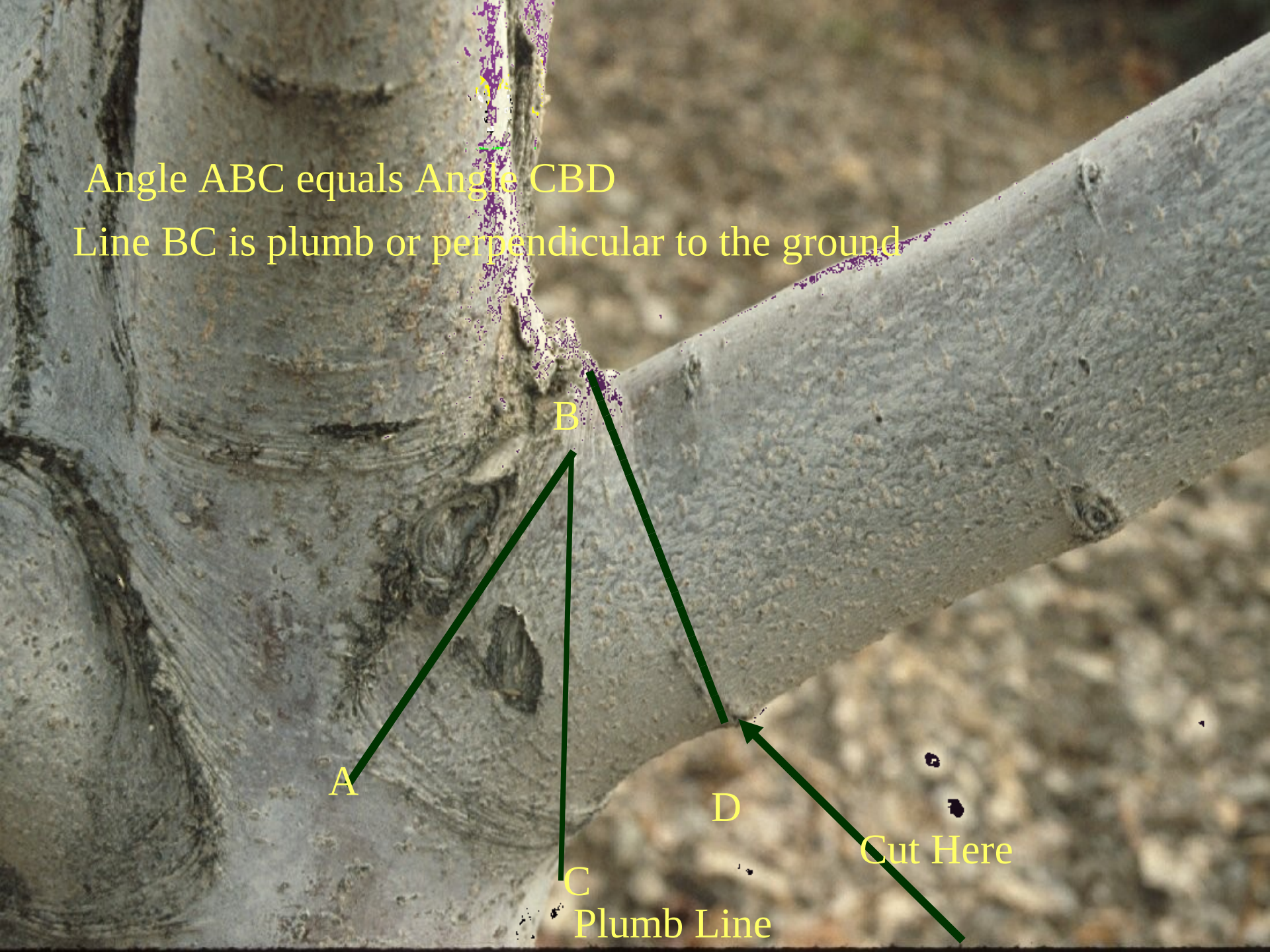


Fruit Production

- The Corrective Pruning Provides Enough Growth Stimulation

Fruit Production

- 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
B
A
D
Cut Here
C
Plumb Line

Fruit Production

- If Latent (Nongrowing) Buds Are Present On The Stub, They Start Growing And Fill Up The Open Area

Fruit Production

- If No Latent Buds Are Present, Stub Dies Leaving The Wood To Rot Before The Wound Closes

Fruit Production

A correctly made cut closes over quickly and evenly

Fruit Production

- A Stub Cut Heals Slowly Allowing Insects And Diseases Into The Wood

Fruit Production

- Wound Compounds Painted On Pruning Cuts Do No Good And May Be Harmful


Training The Home Orchard

Fruit Production

- The Central Leader System Is Suggested For Apples and Pears

Fruit Production

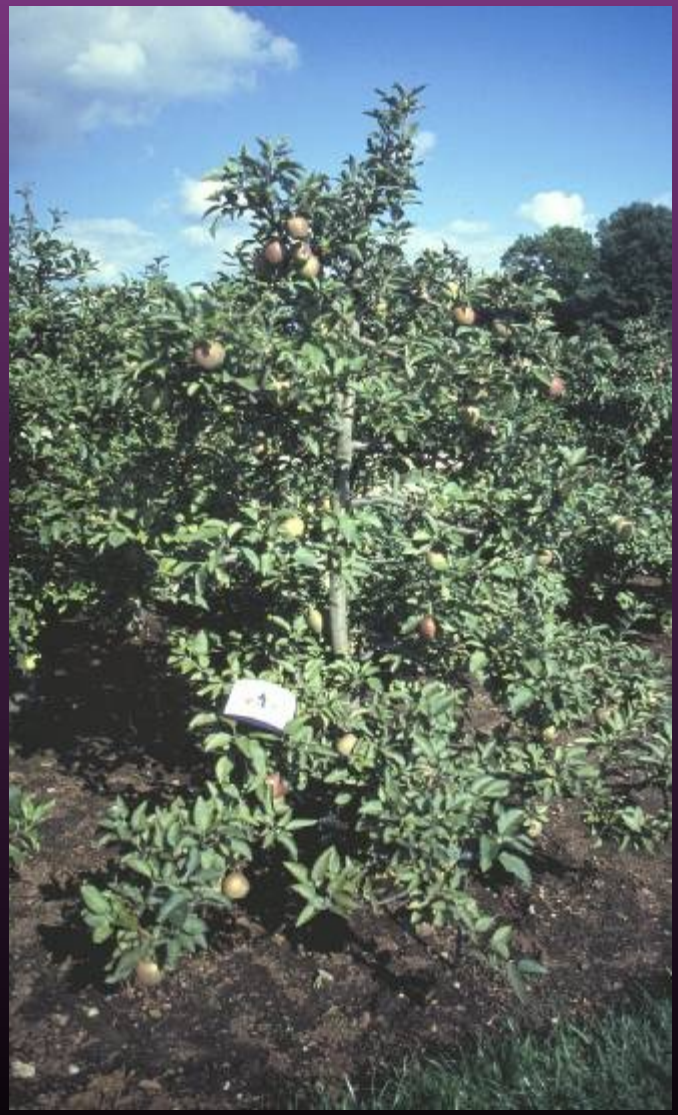
- Use The Open-Center System For Peaches, Nectarines And Plums

Fruit Production

- Train Apricots, Cherries and Japanese Plums To Either System, But The Open-Center System Is Easier To Develop And Maintain

Fruit Production

- Central Leader Training System



Fruit Production

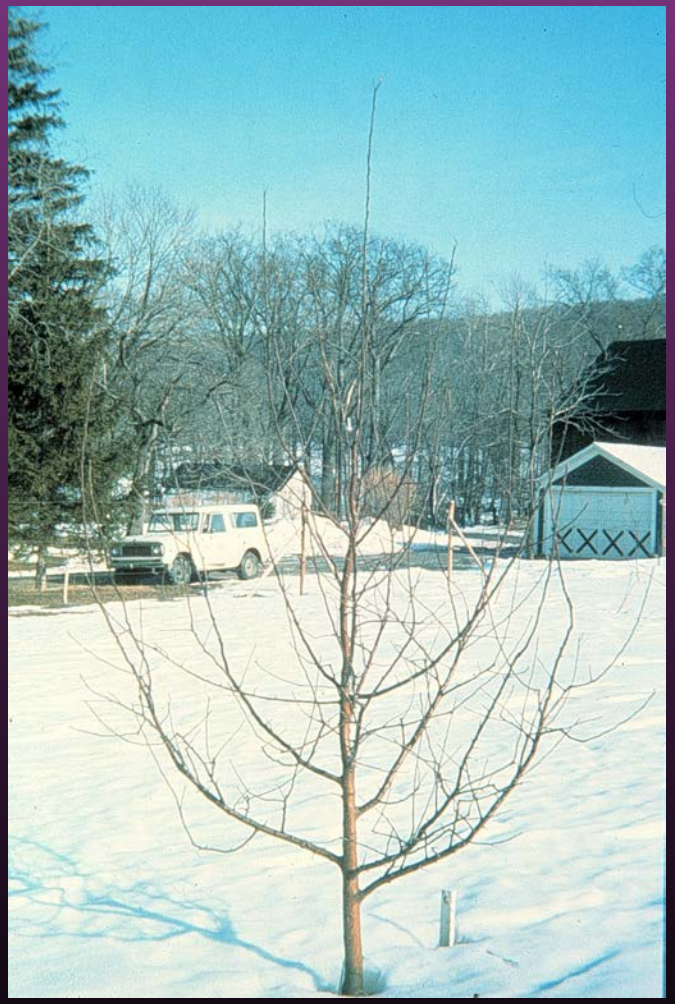
- An Ideal Semi-Dwarf Or Spur-Type Apple Tree Trained And Pruned To The Central Leader System Has These Characteristics

Fruit Production

- One Main Trunk 8 To 15 Feet High With A Central Leader

Fruit Production

- Lowest Tier Of Branch 24 To 36 Inches From The Ground



Fruit Production

- 3-4 Scaffold Branches In Each Of Three Tiers

Fruit Production

- Space The Branches 6 To 12 Inches Apart Vertically Along The Trunk

Fruit Production

- 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

Fruit Production

- 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)

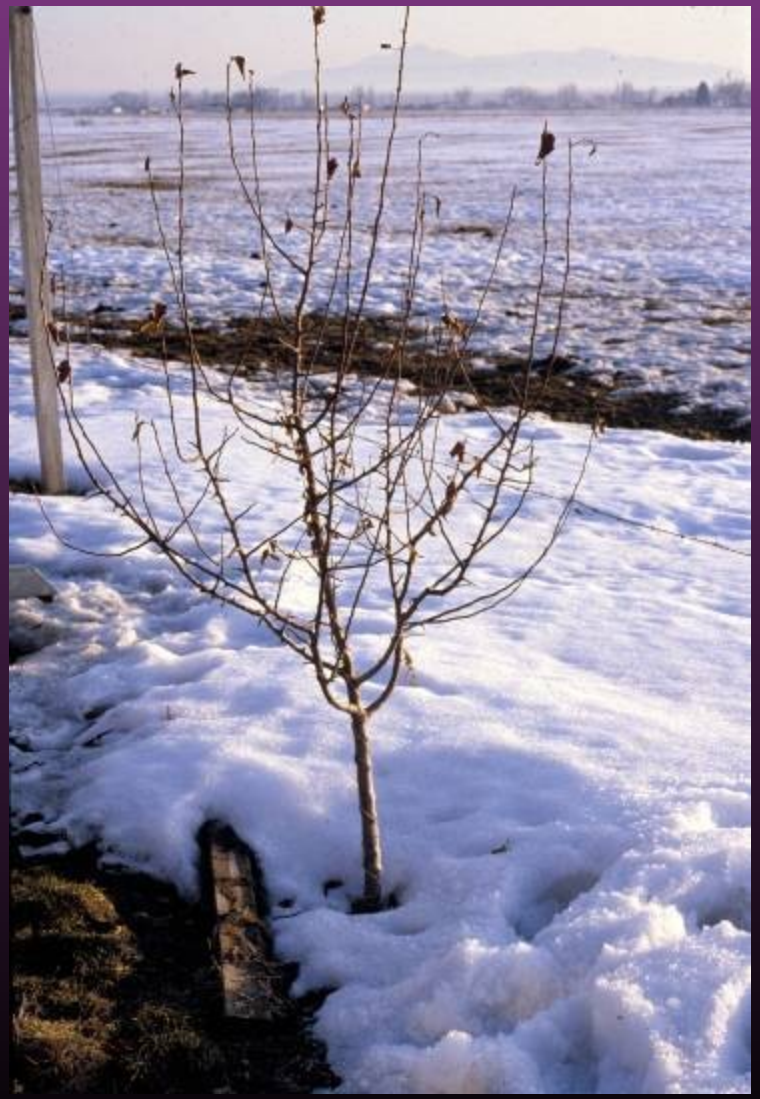
Fruit Production

- Properly Shaped, A Central Leader Tree Has Low And Well-Spaced Branches And Well-Distributed Fruiting Wood

Fruit Production

- It Is Low Enough To Make Pruning, Spraying, And Picking Easier

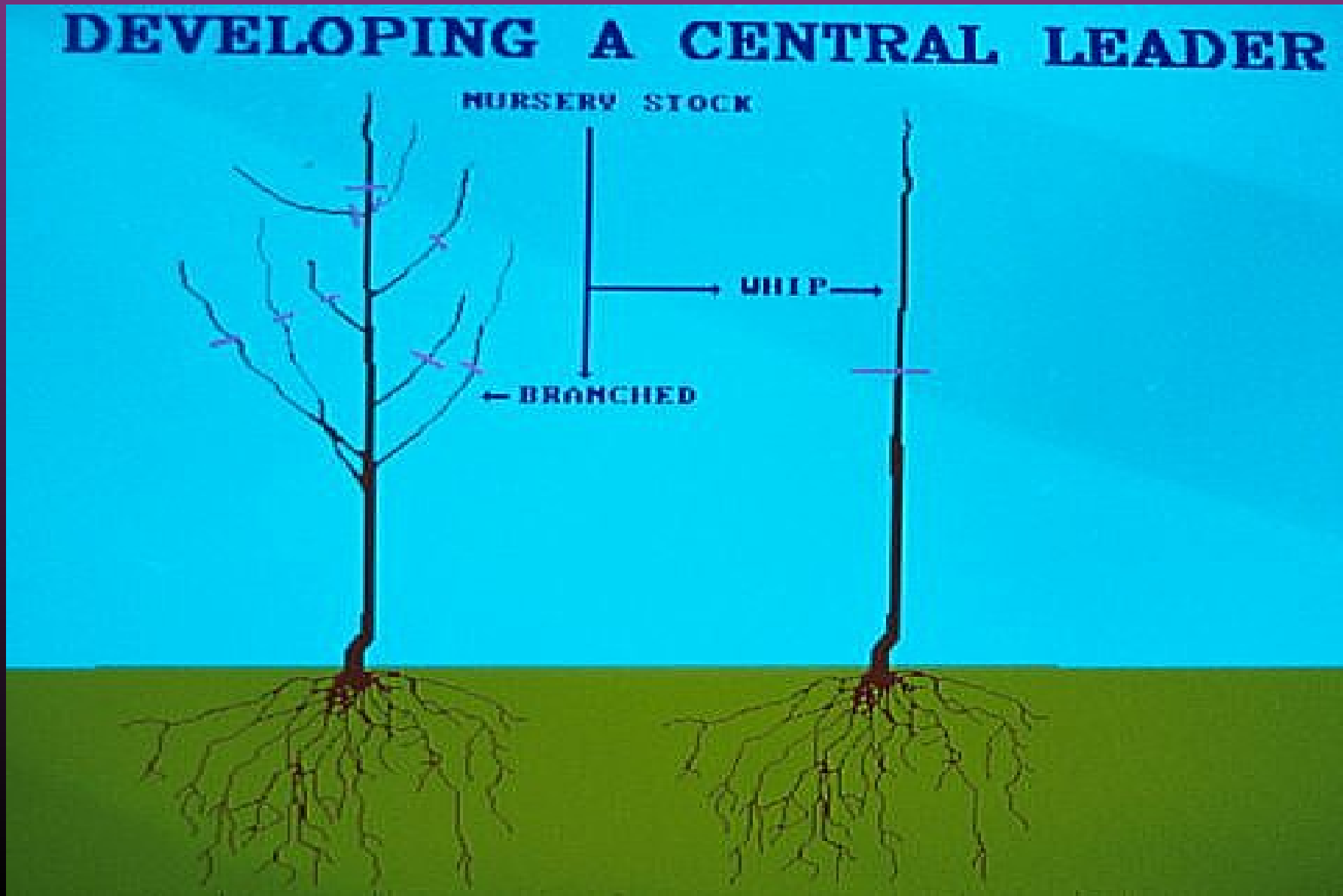
Fruit Production



Fruit Production

Fruit Production

Fruit Production



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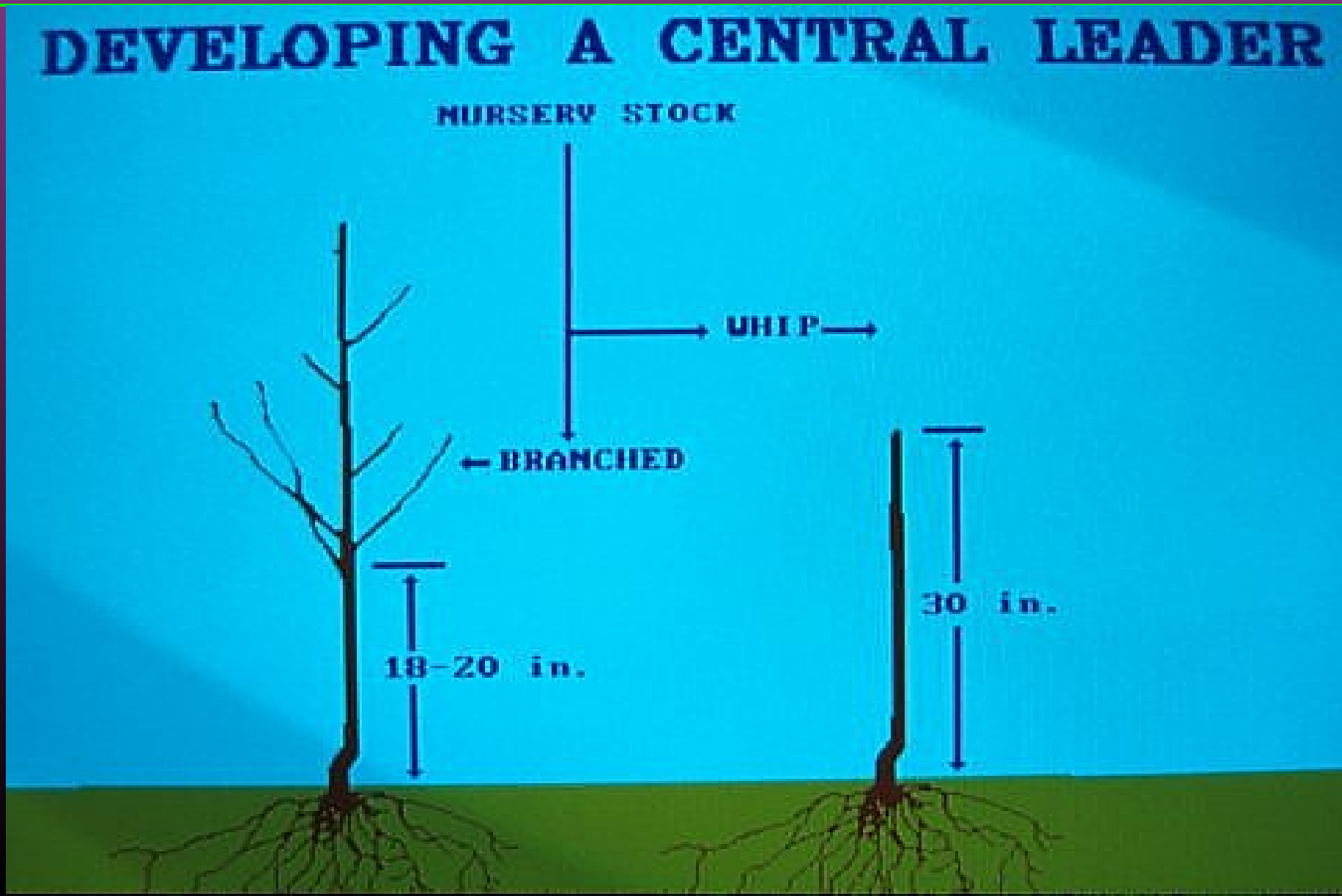

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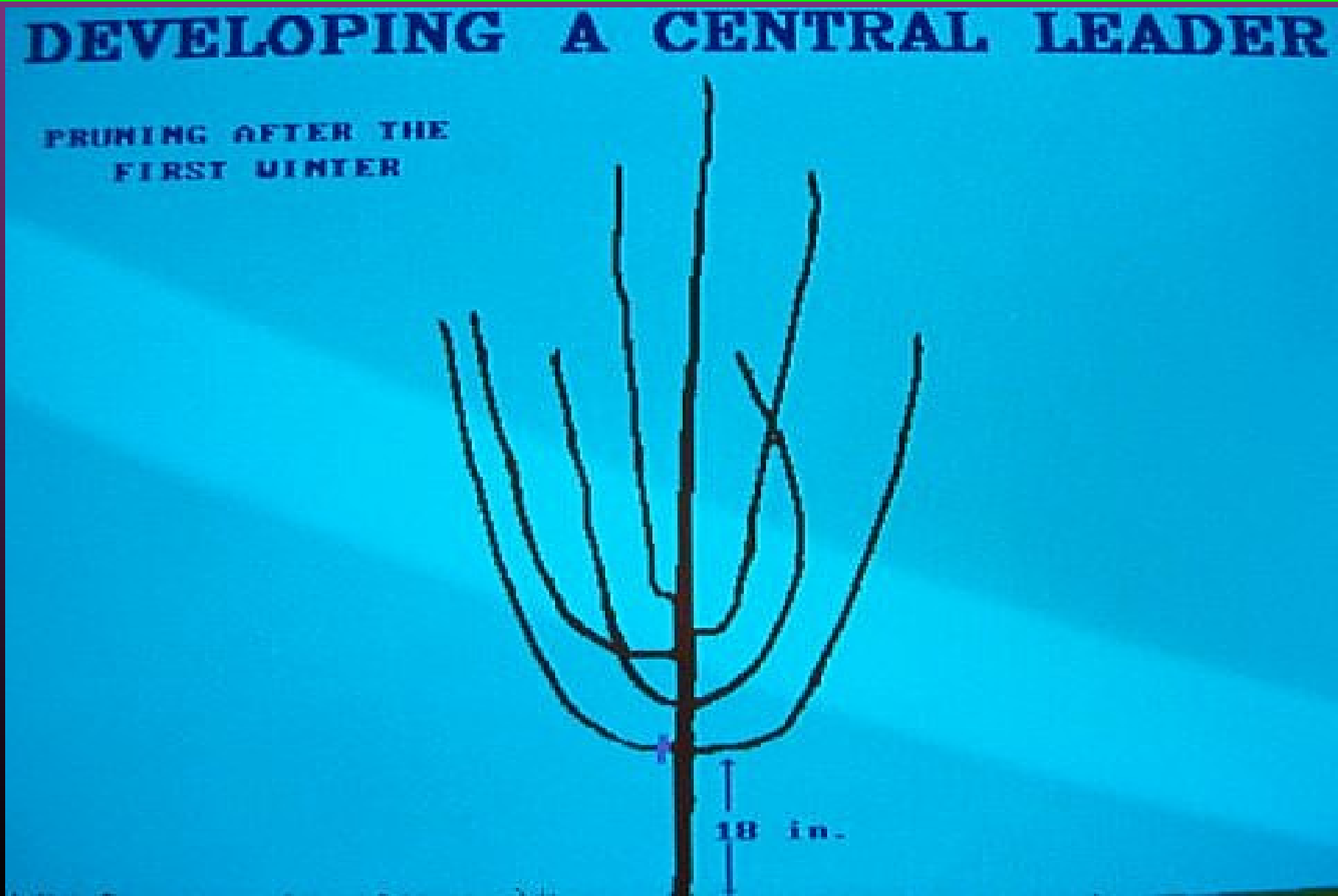

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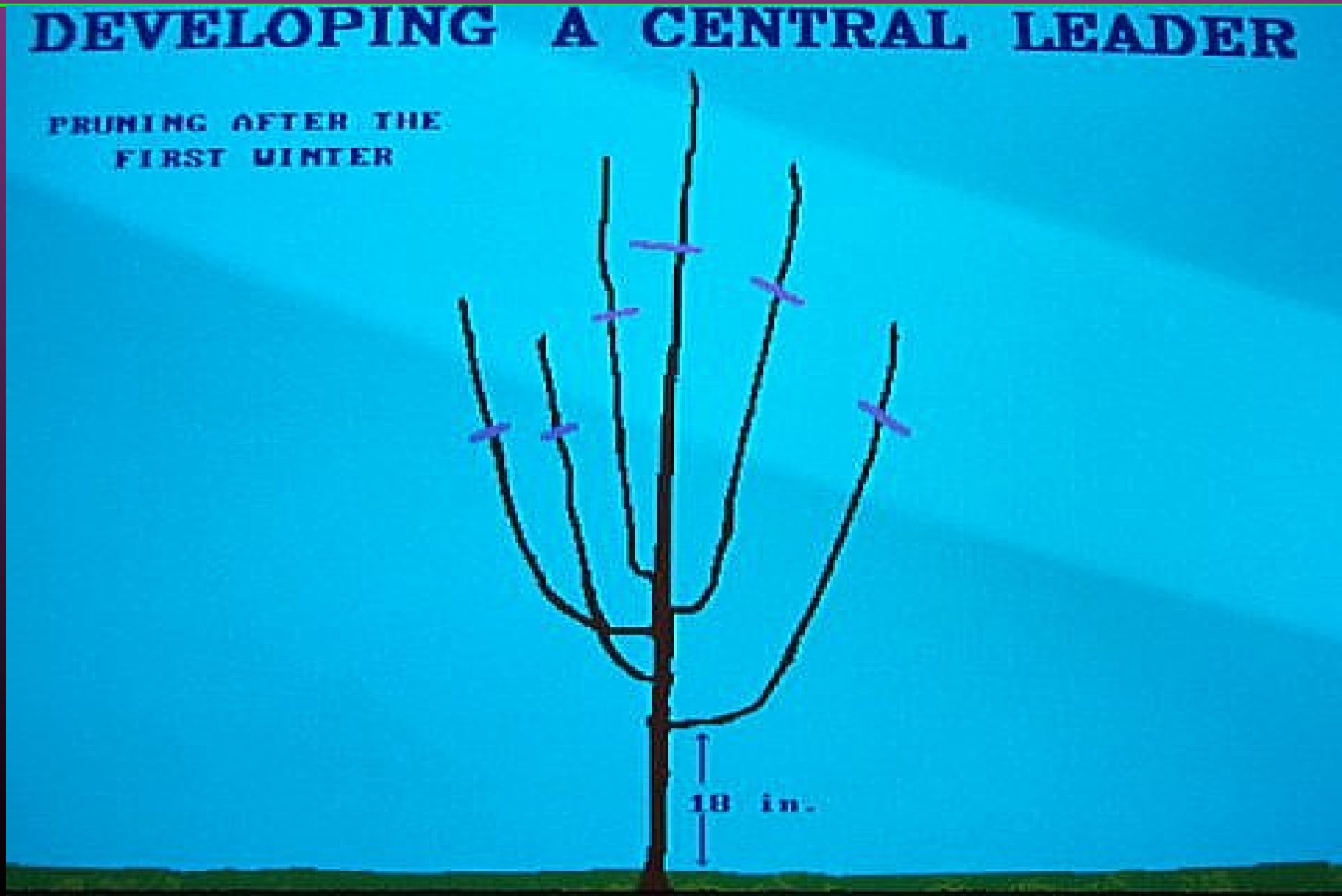

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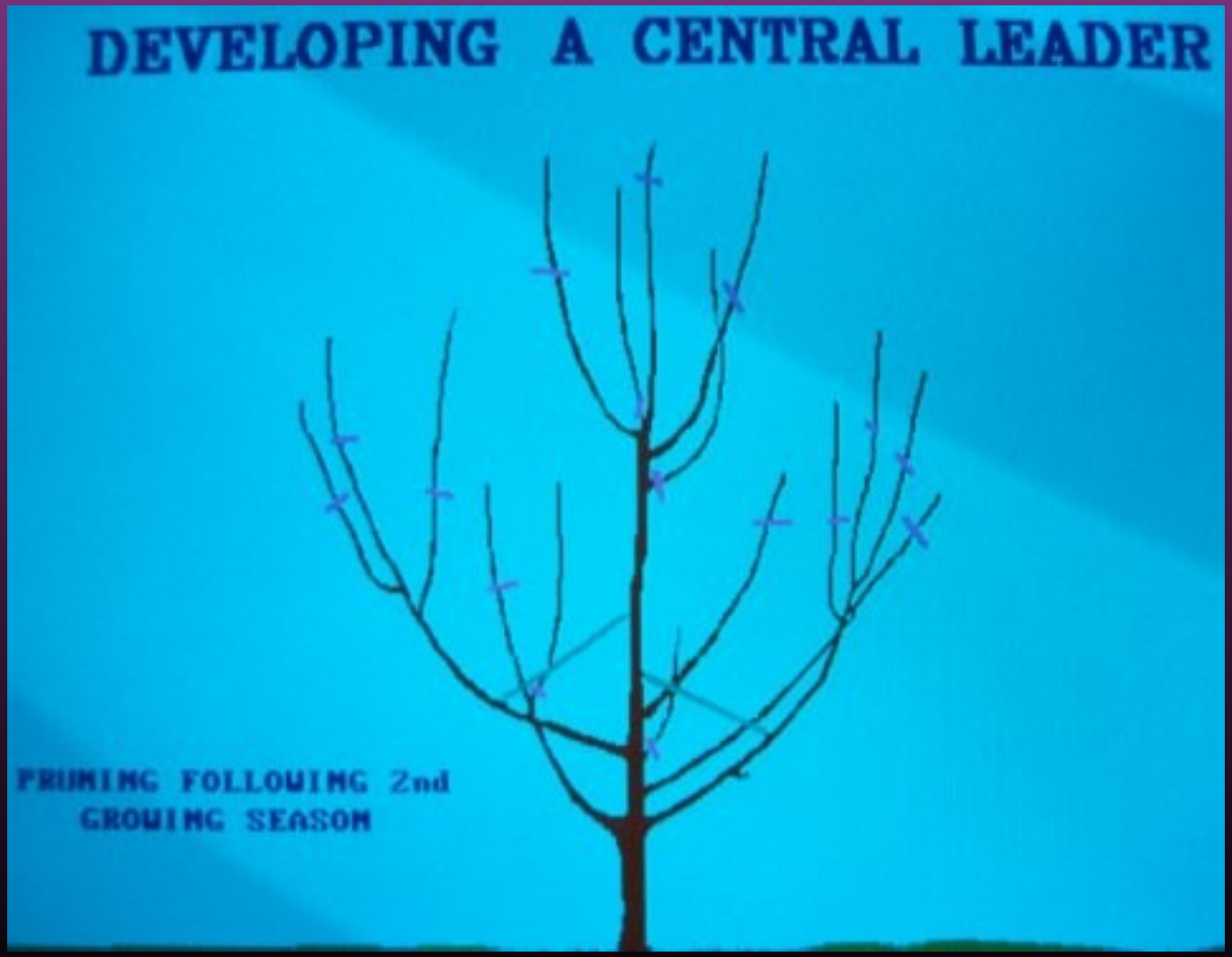

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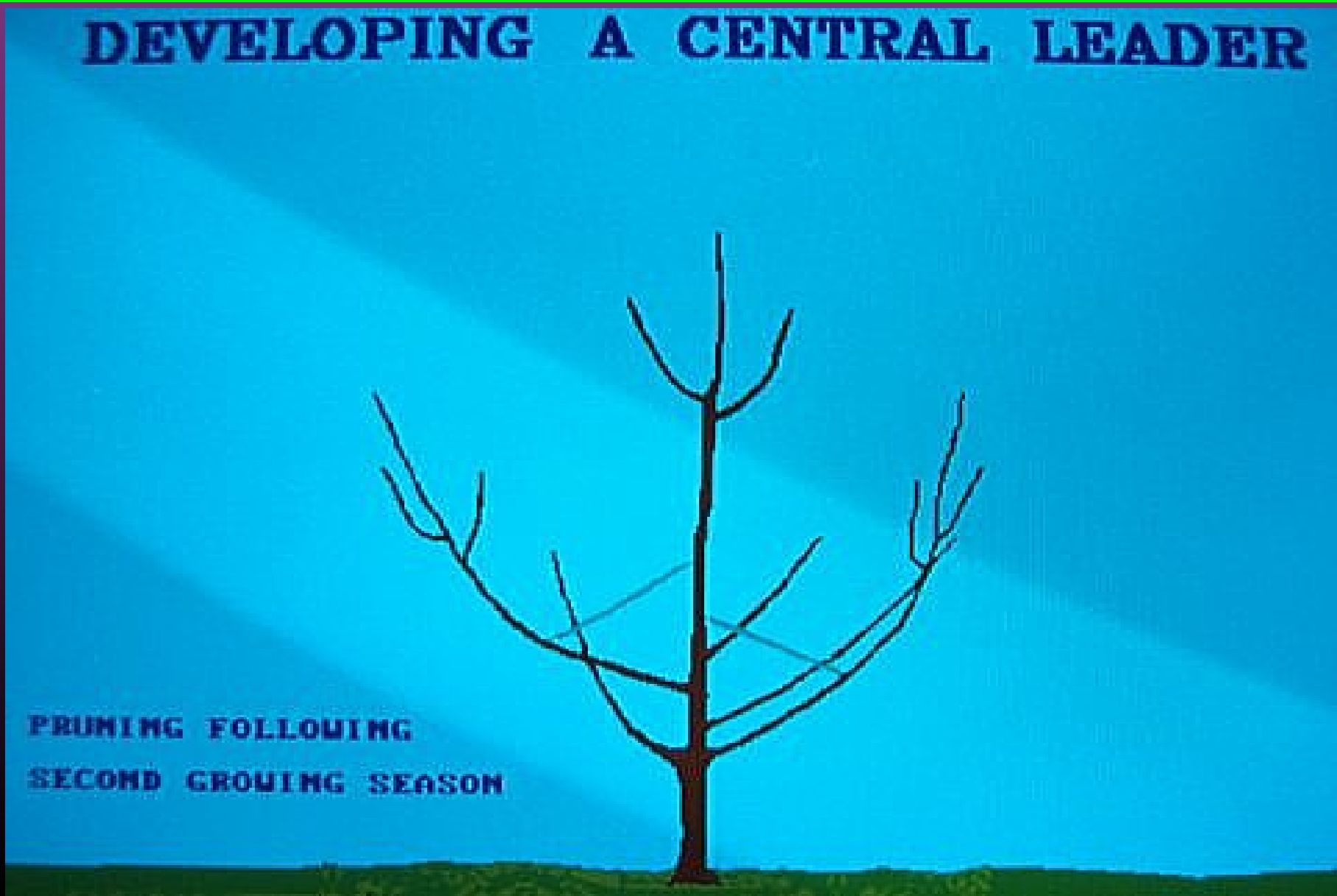


Fruit Production

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:

Fruit Production

- 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

Fruit Production

- Scaffold Branches Form A Crotch Angle Of 40 To 90 Degrees With The Trunk And Are Uniformly Spaced

Fruit Production

- 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

Fruit Production

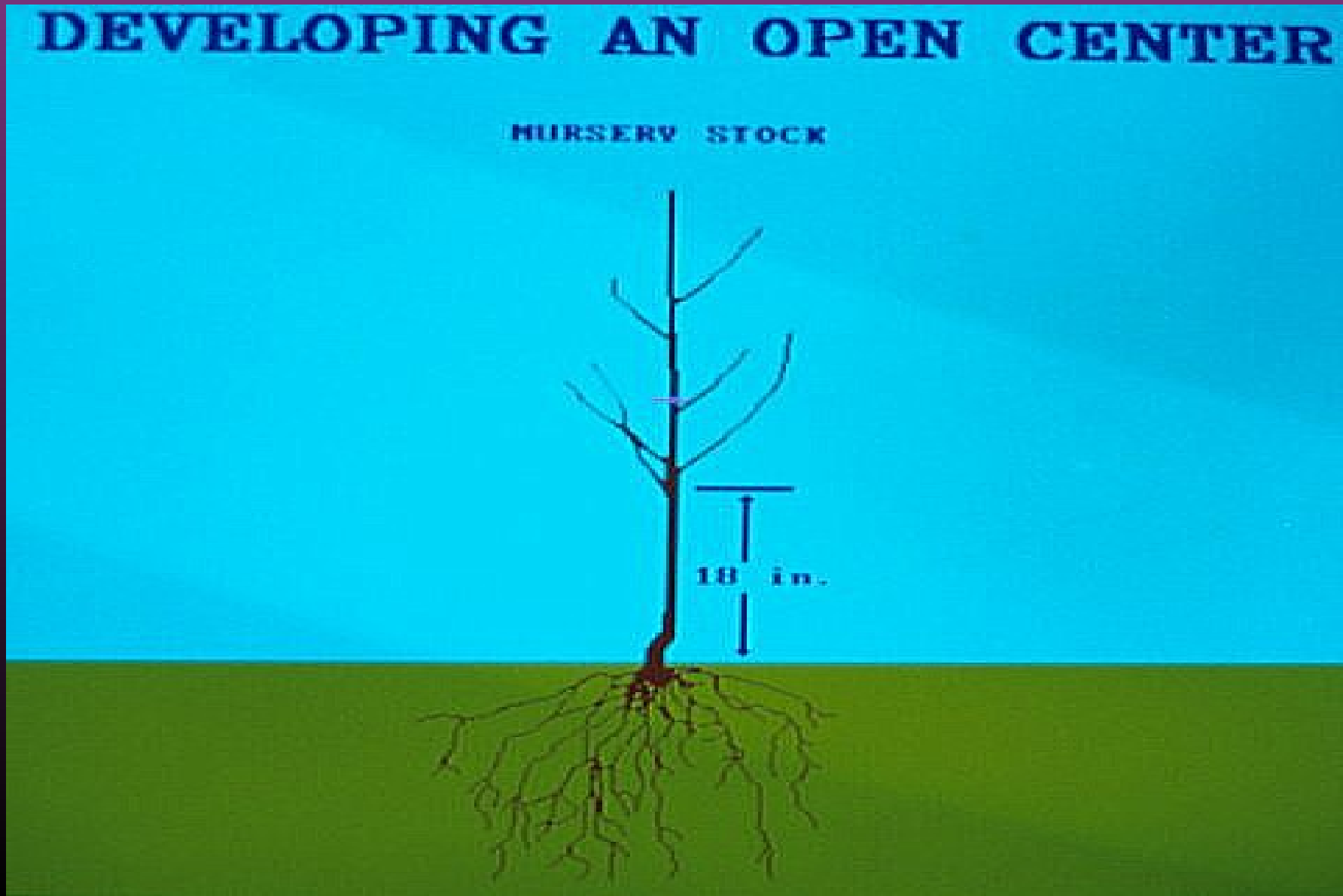
Fruit Production

Fruit Production

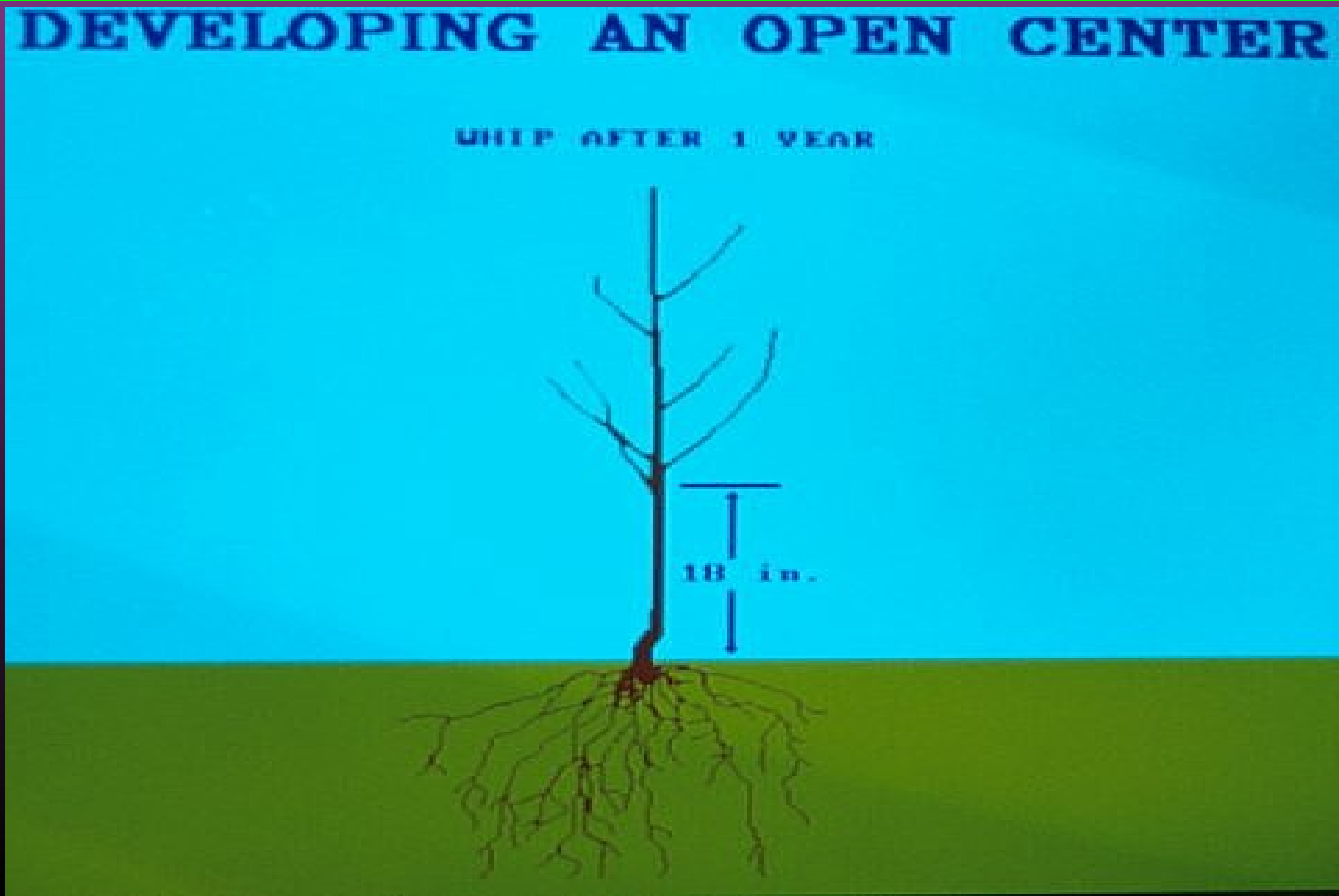
Fruit Production

Fruit Production

Fruit Production



Fruit Production



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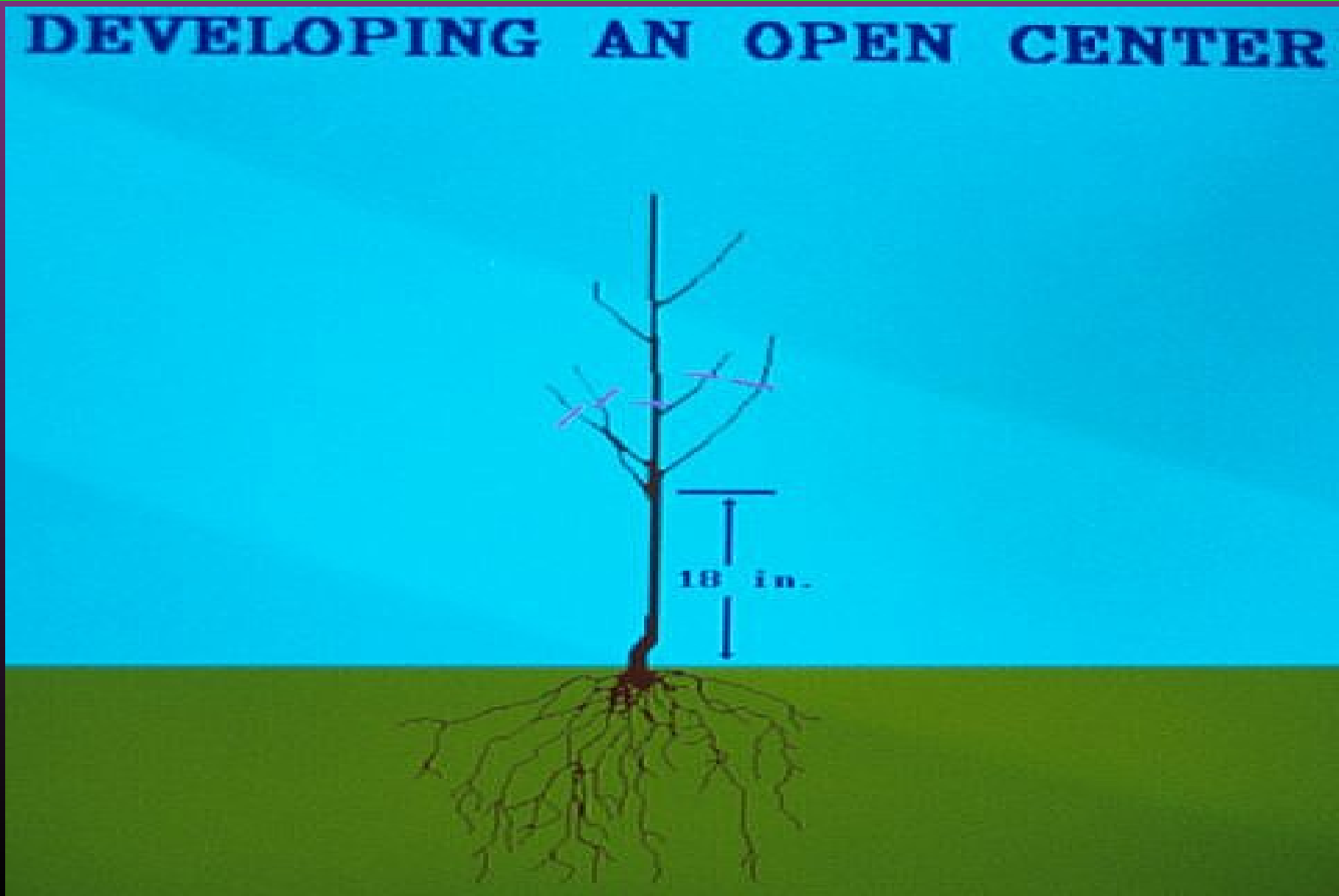

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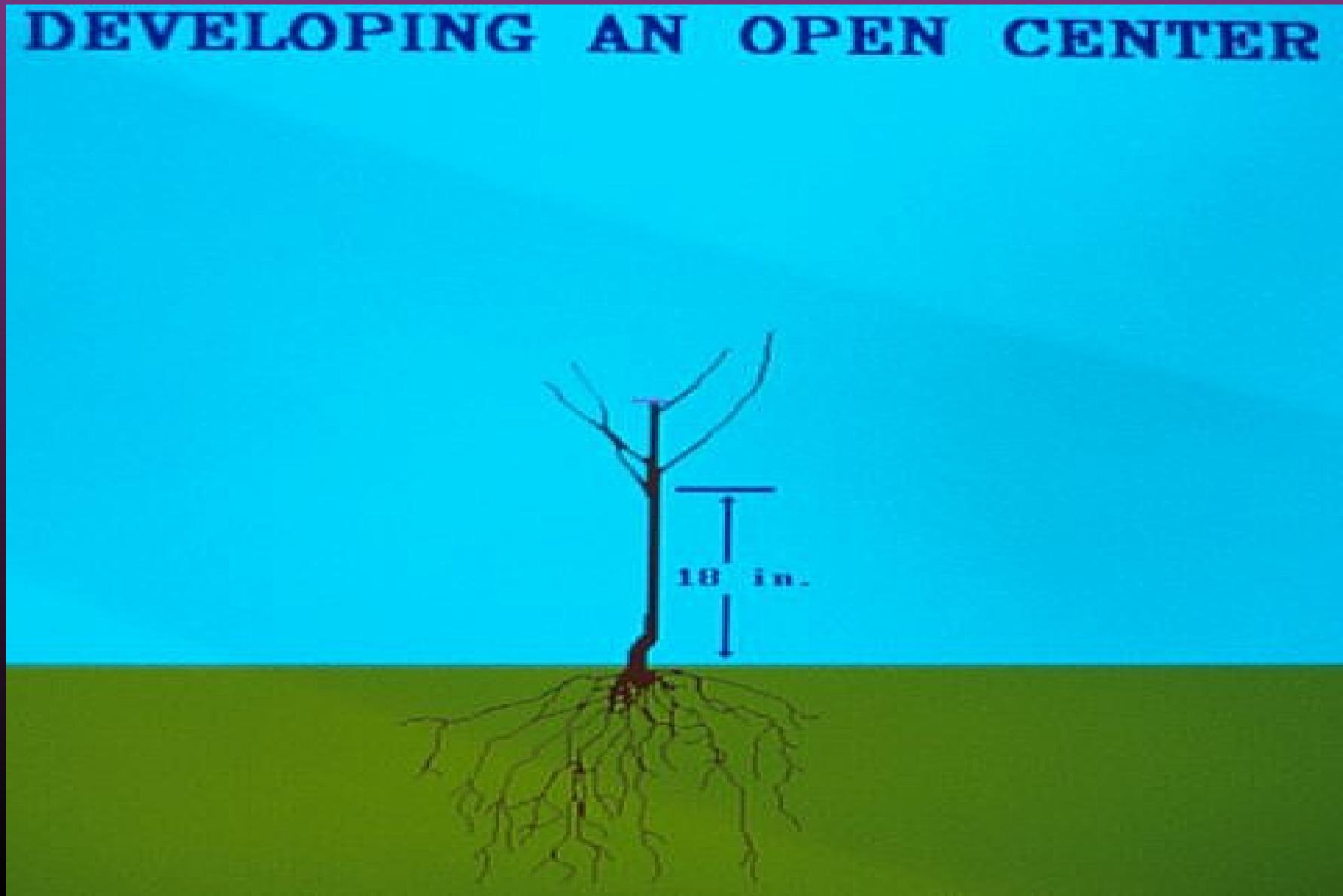

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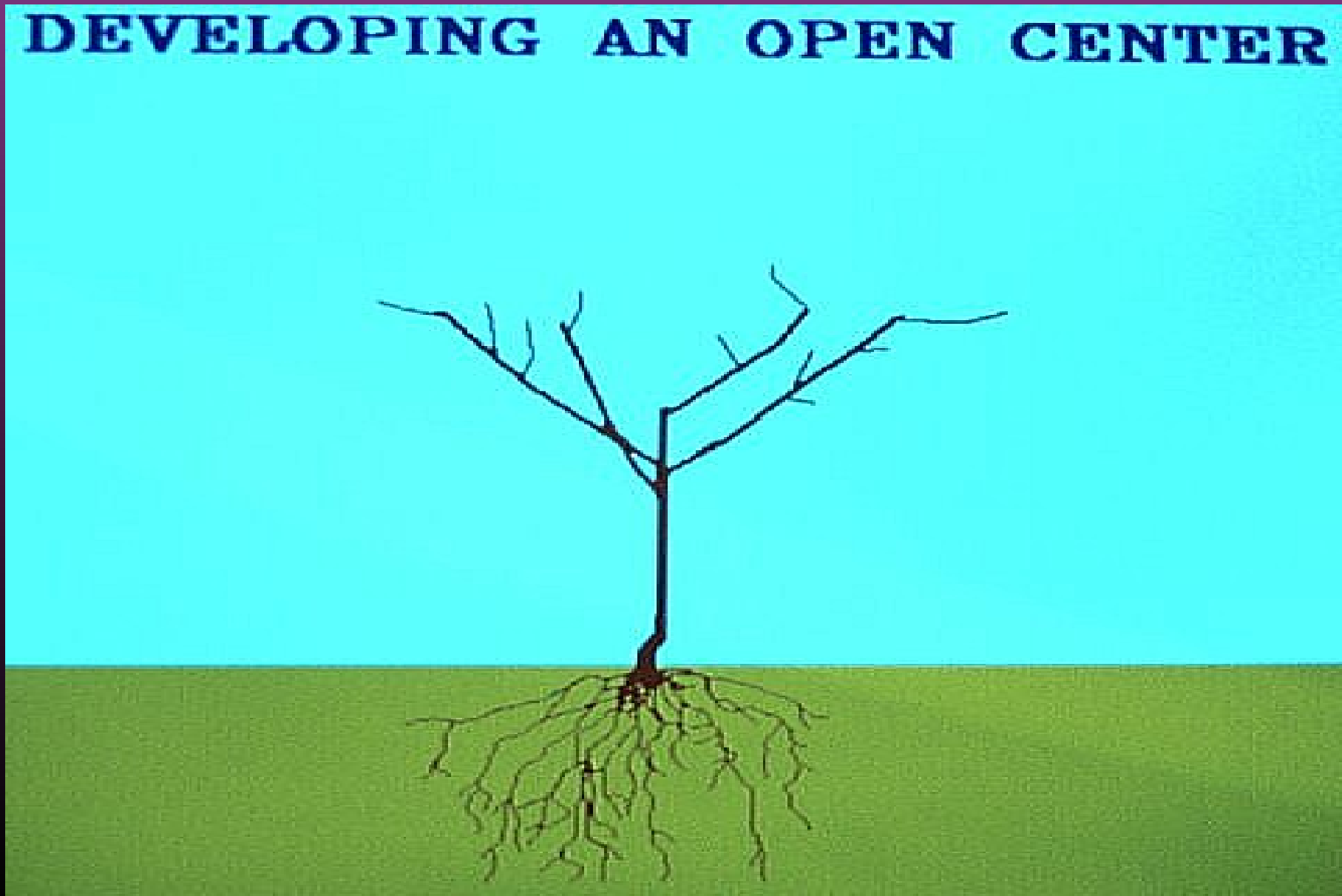

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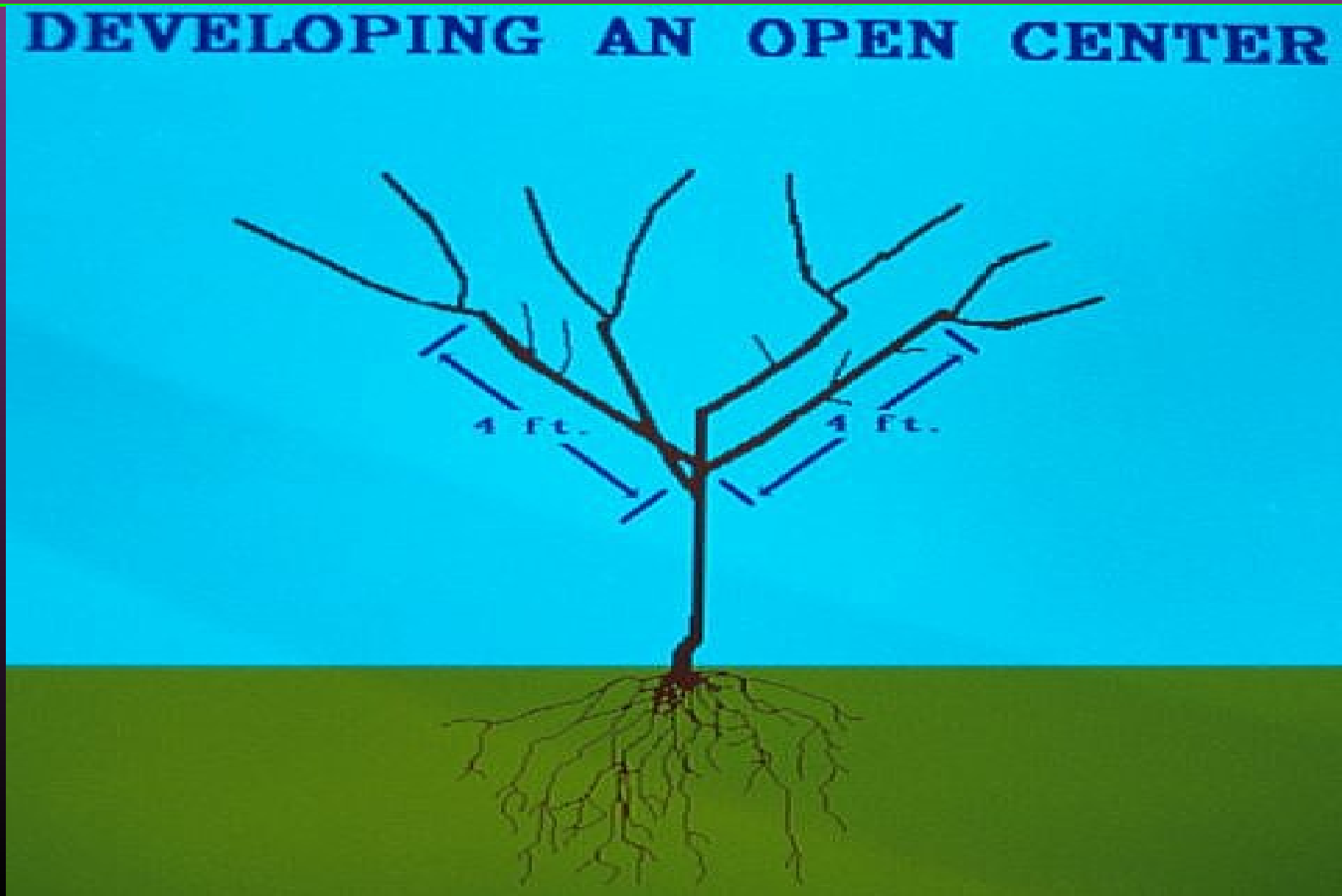
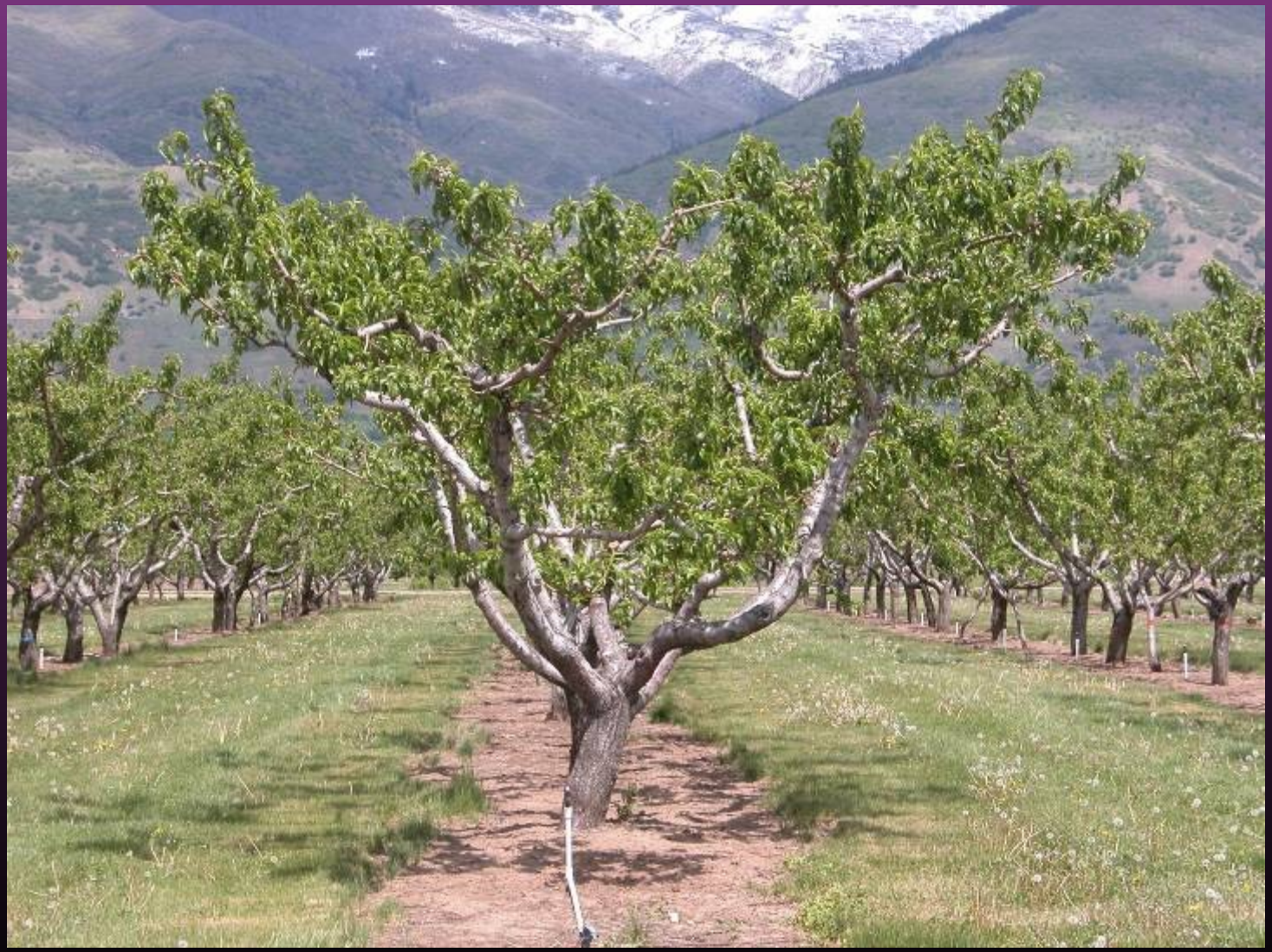


Fruit Production

Fruit Production

Fruit Production



Fruit Production

Fruit Production

Fruit Production


• Developing Good Angles And Strong Crotches

Fruit Production

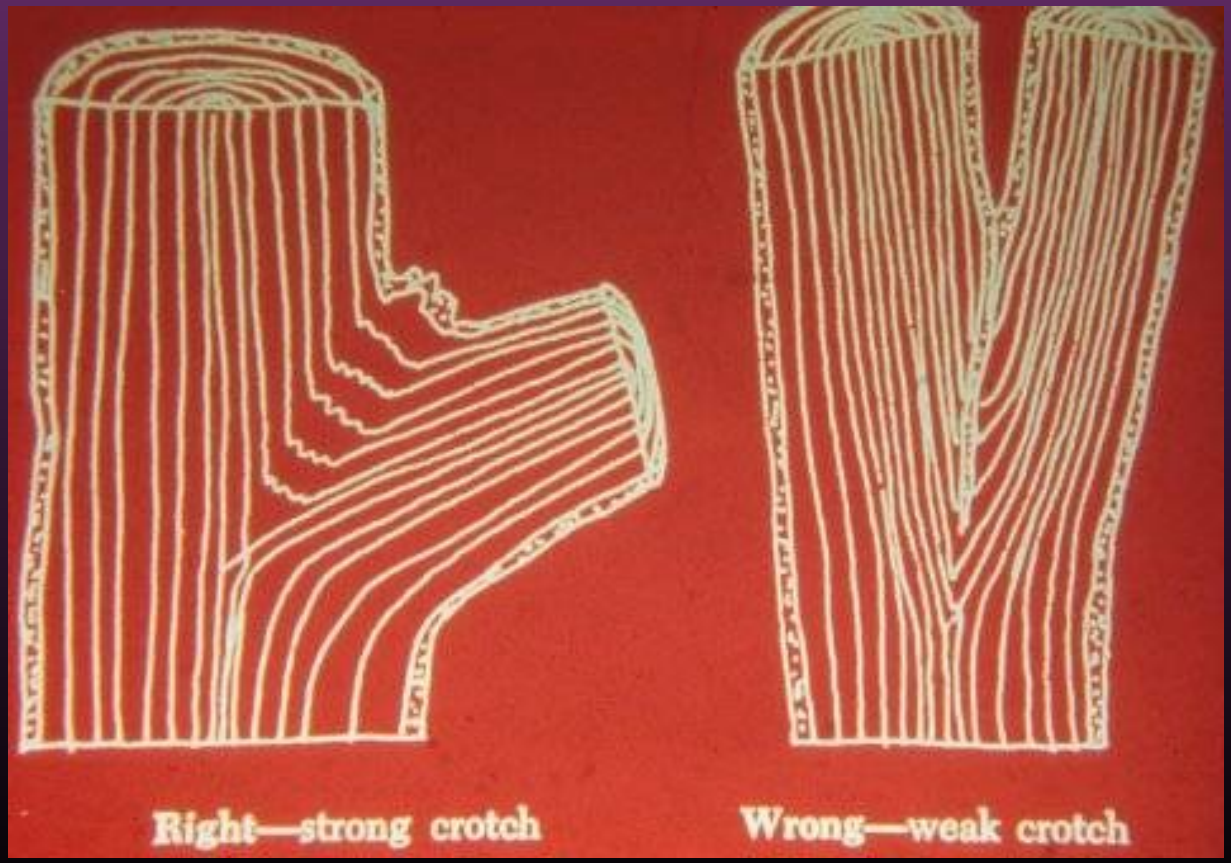
- Under Some Situations Trees Need To Have Their Branches Spread

Fruit Production

- This Develop Strong Crotch Angles

Fruit Production

- The Wide-Angle Is Stronger Than The Narrow Angle Crotch



Fruit Production

- Branch Spreaders Help Train Young Trees

Fruit Production

- Use Boards With A Nail In Each End, Stiff Wires, Or Sharpened Metal Rods To Make Branch Spreaders

Fruit Production

- Many Branches Curve And Grow Straight Up Even Though The Crotch Is A Good Angle

Fruit Production

Spreaders Help To Keep The Branches Growing At The Desired Angle

Fruit Production

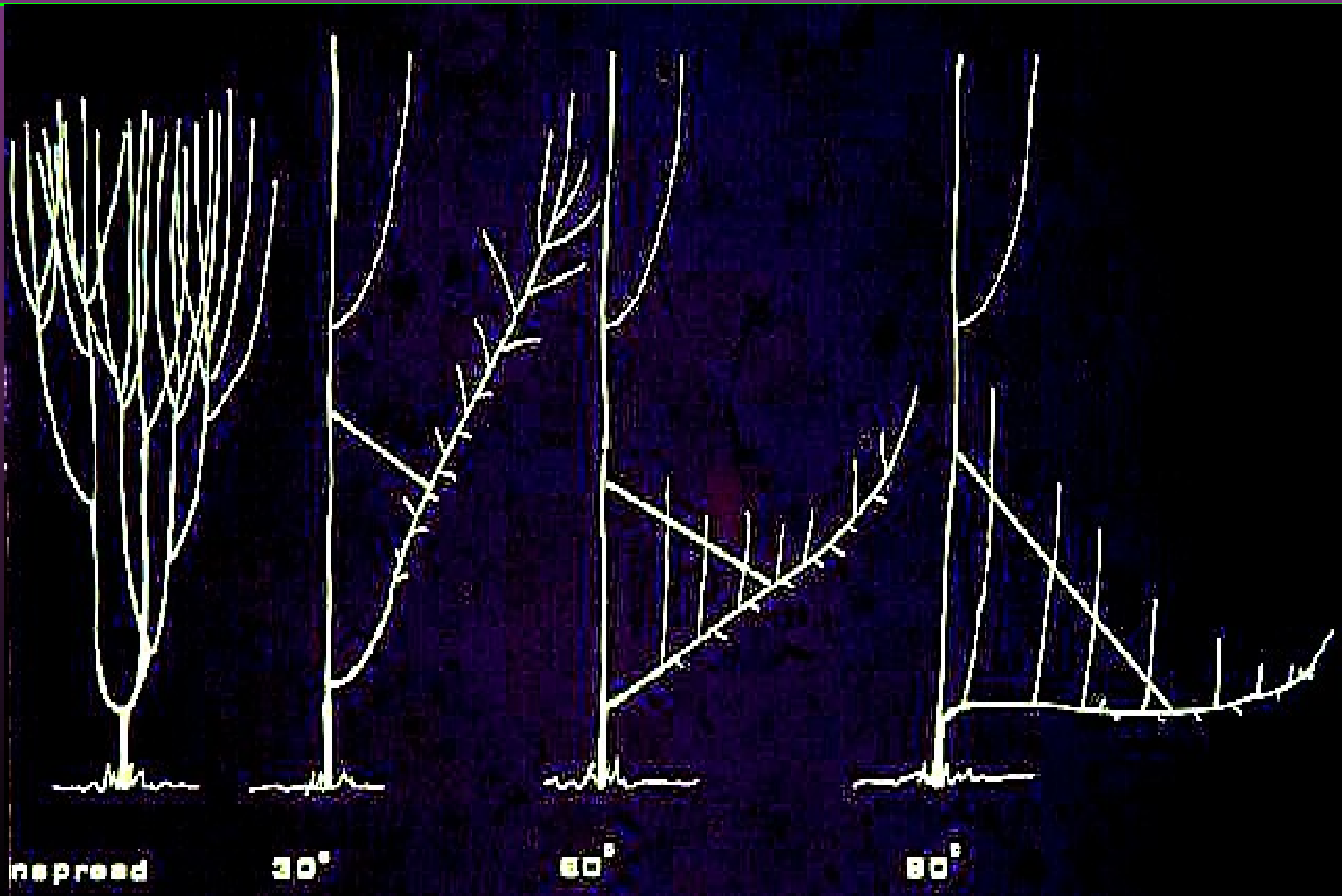
Fruit Production

Fruit Production

- There Are Many Systems For Training Trees But None Of Them Work Unless You Do


• Plan To Attend The Upcoming Pruning Demonstrations

Fruit Production



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

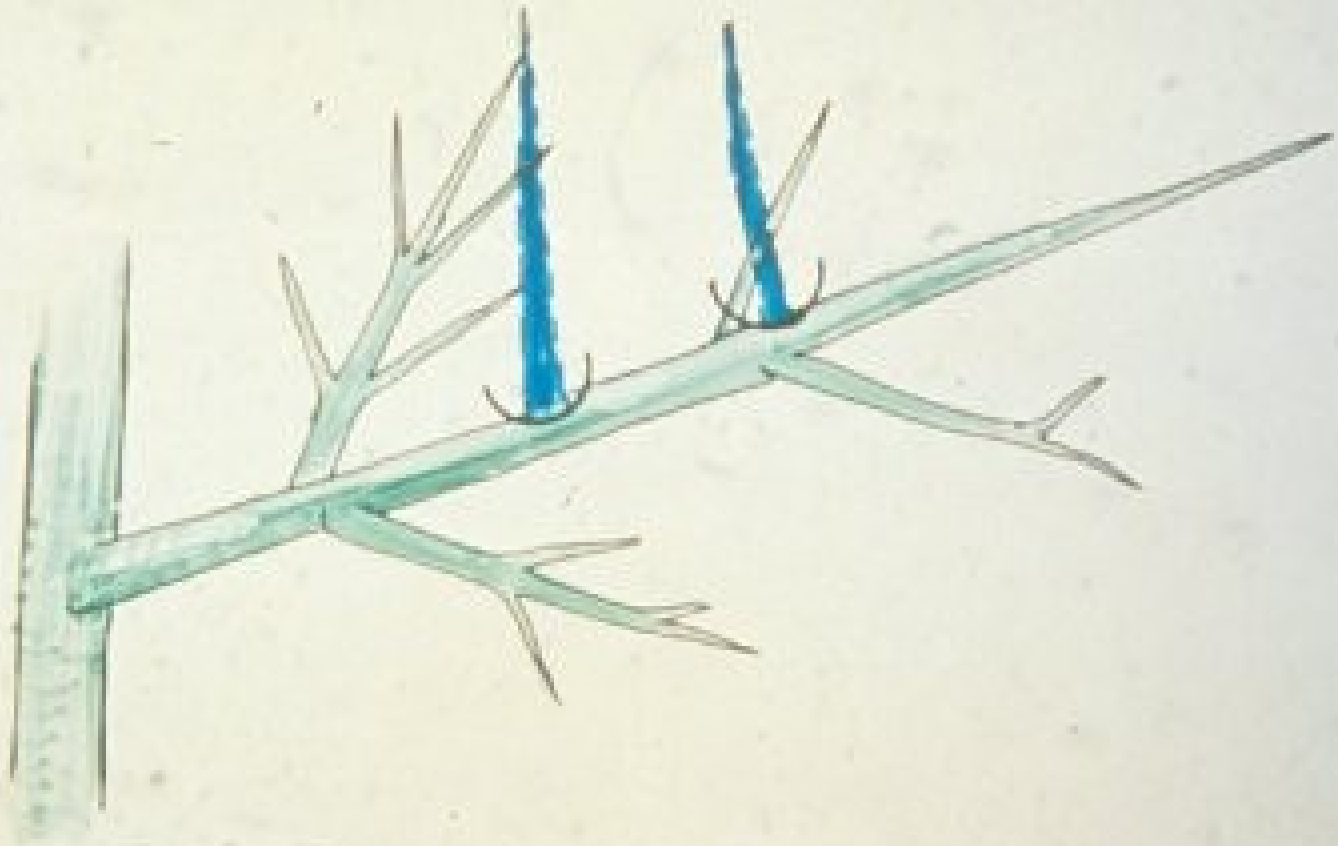
Fruit Production

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

Fruit Production

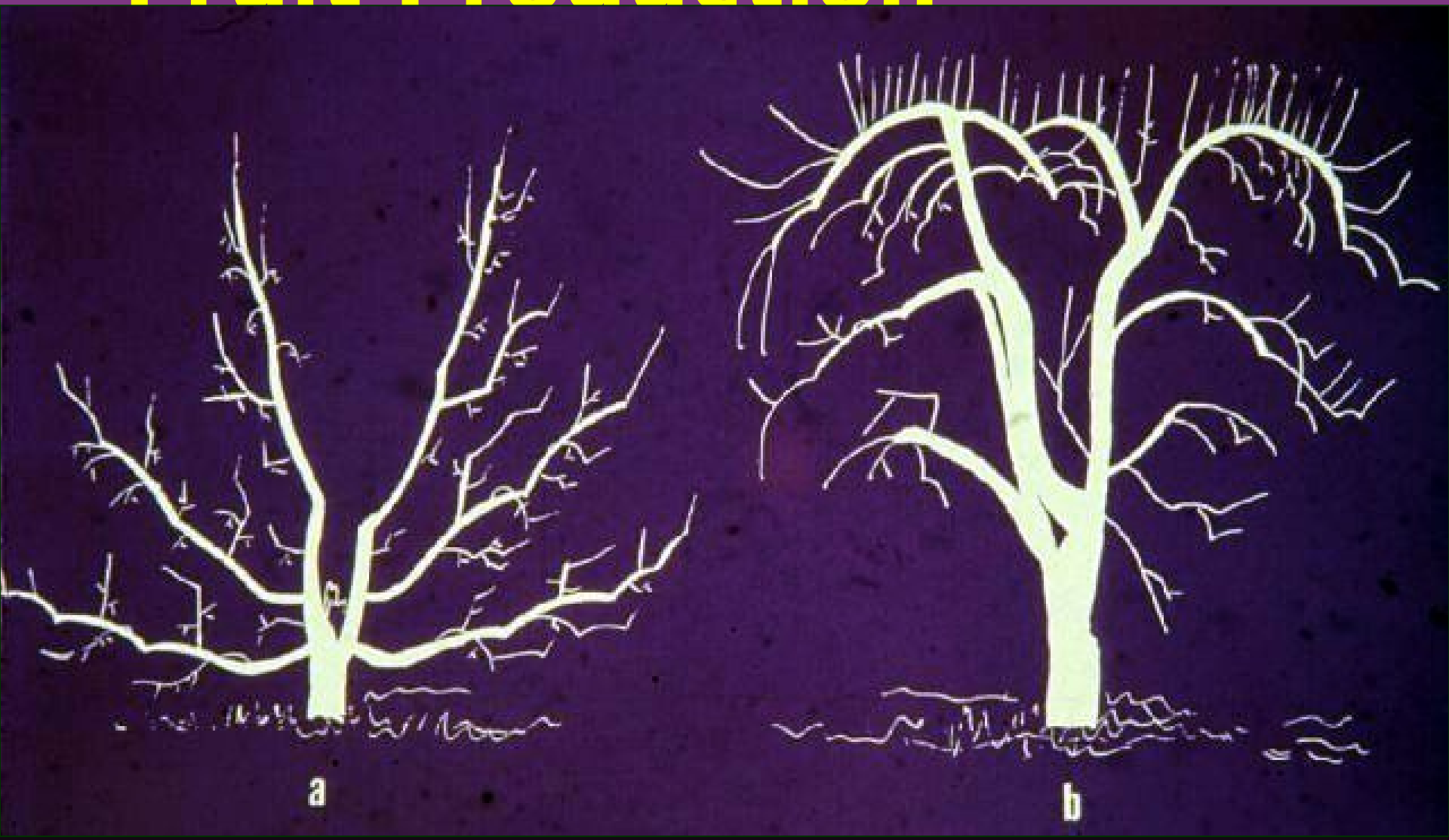
- Through Proper Pruning And Fastening Of Shoots Or Branches In Place, The Grower May Develop Any Design Desired

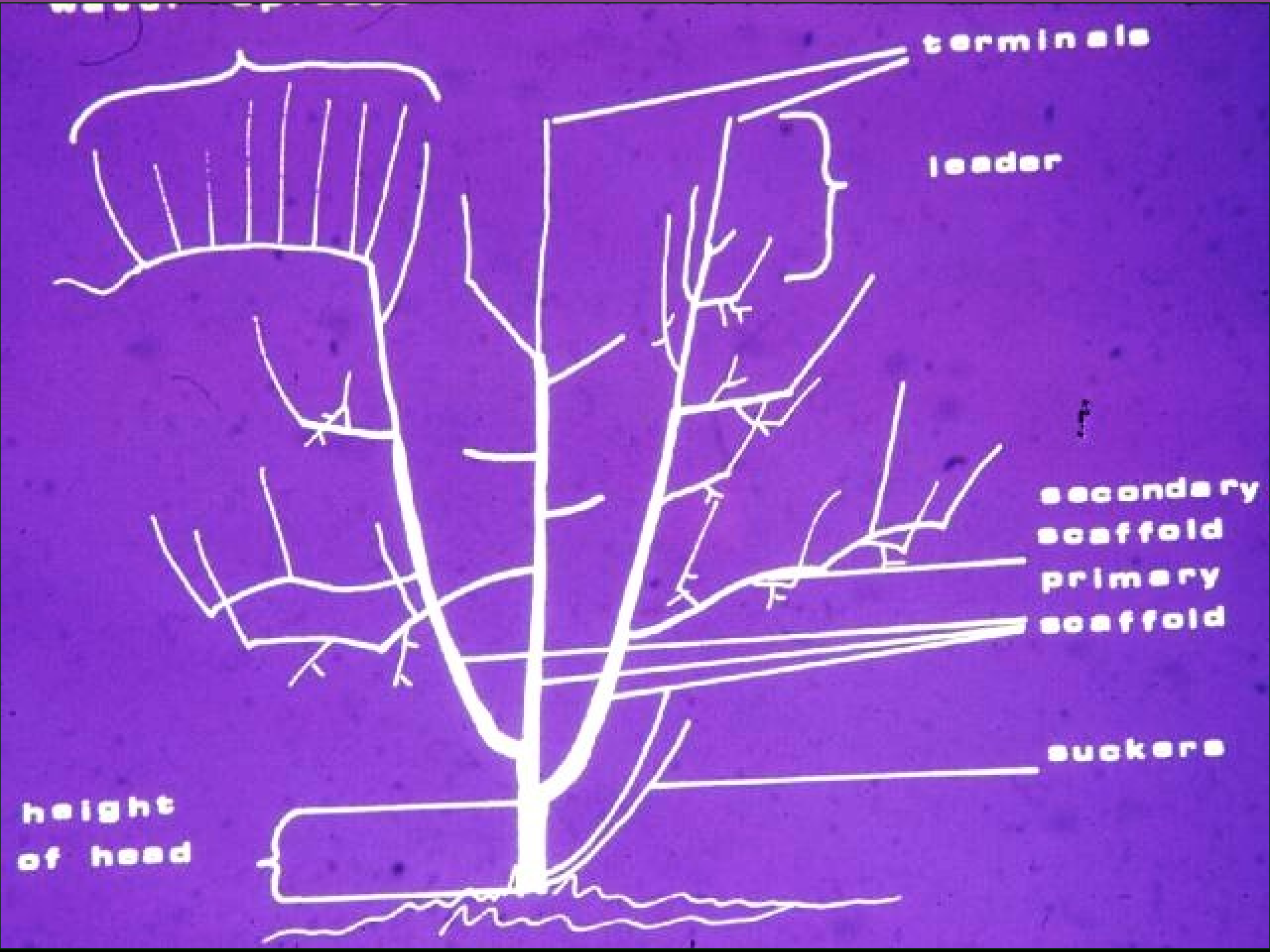
VIGOROUS UPRIGHT GROWTH AND PREVENT SHADING.



THIRD GROWING SEASON

Fruit Production




terminals
leader
secondary scaffold
primary scaffold
suckers
height of head

TIME OF PRUNING

dormant

most invigorating

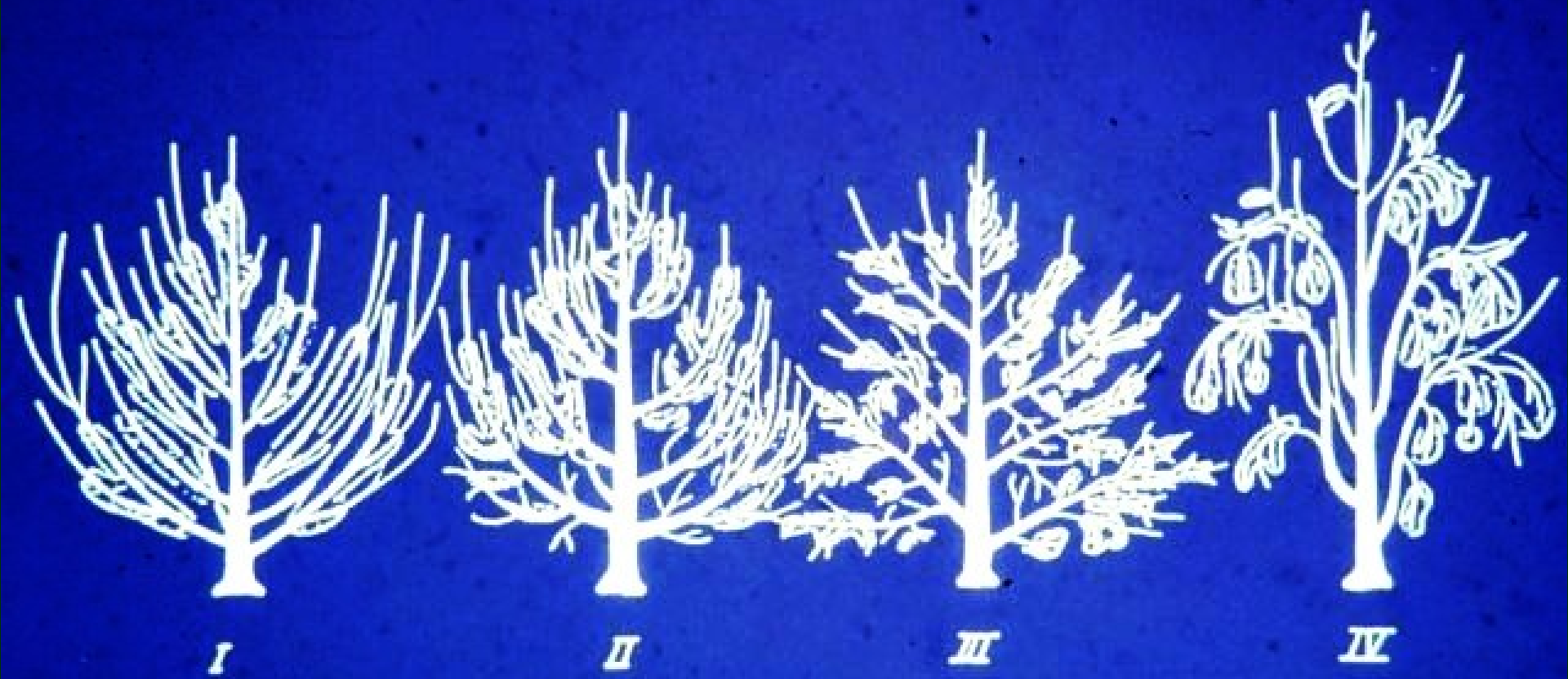
early summer

less invigorating, regrowth

early August

reduces vigor, hardiness

APPLE GROWTH HABITS



I II III IV

spur types standard Golden Rome

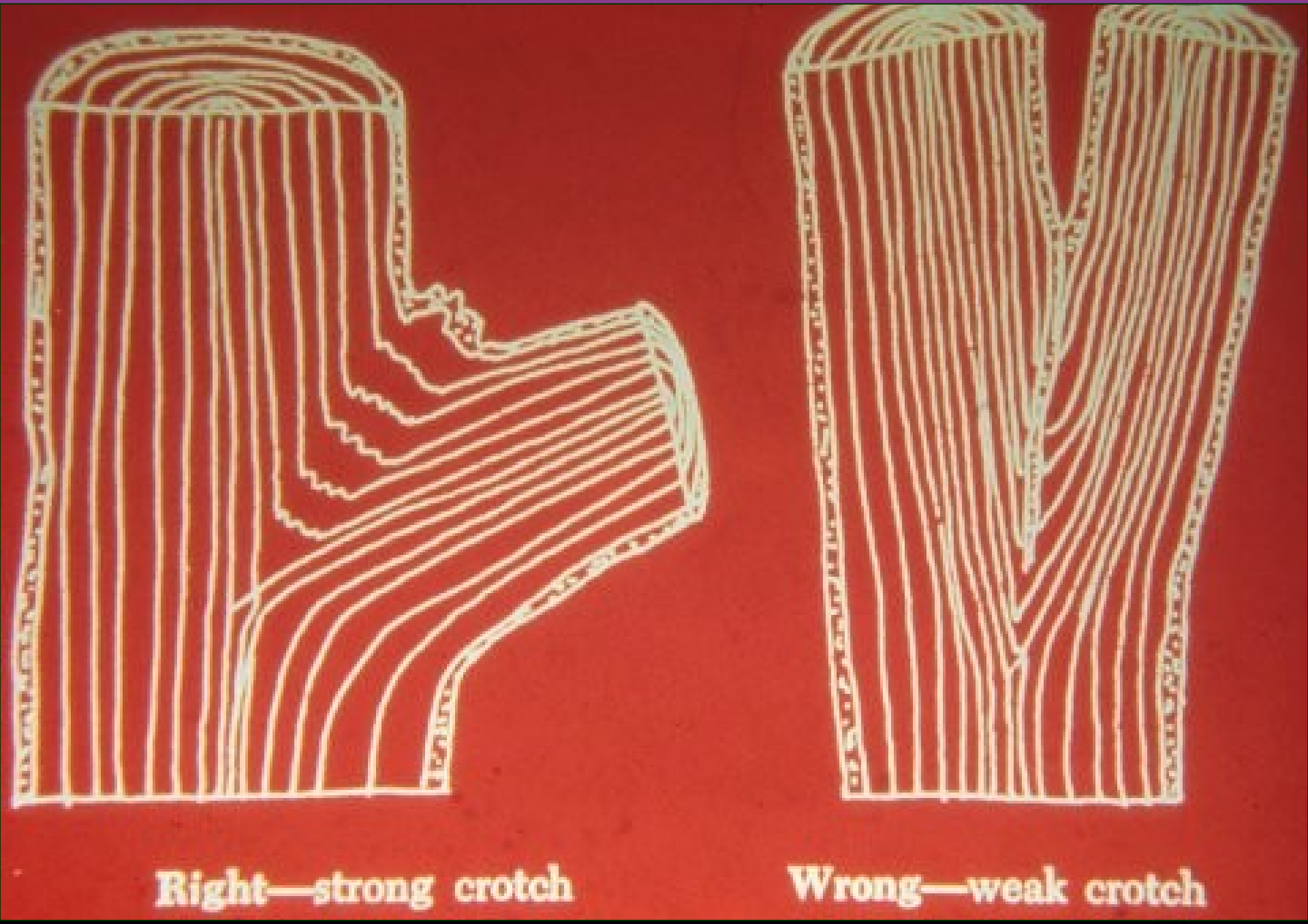
Delicious Delicious Beauty

Fi

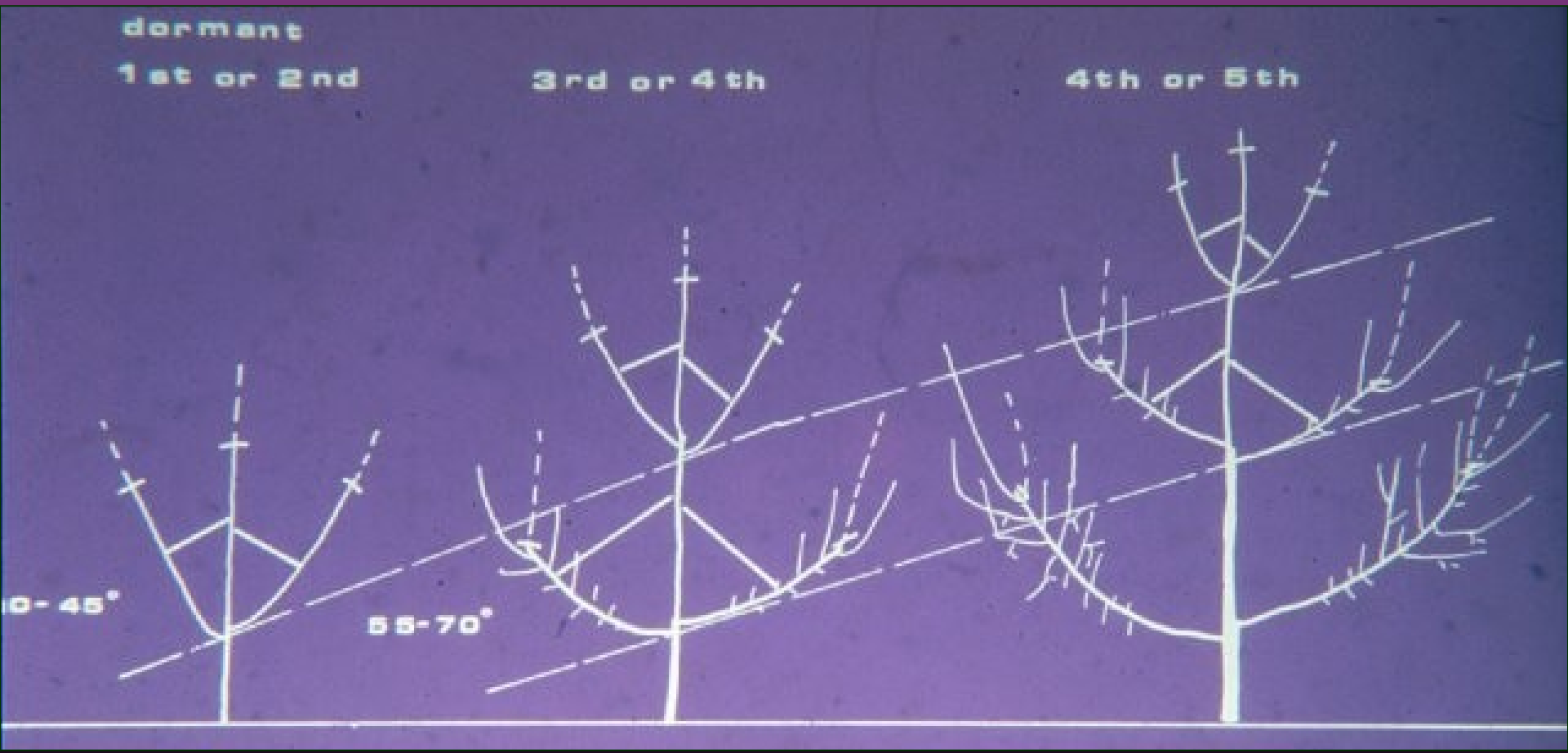
Fru

Fruit I

Fruit


Right—strong crotch
Wrong—weak crotch

Fruit Production



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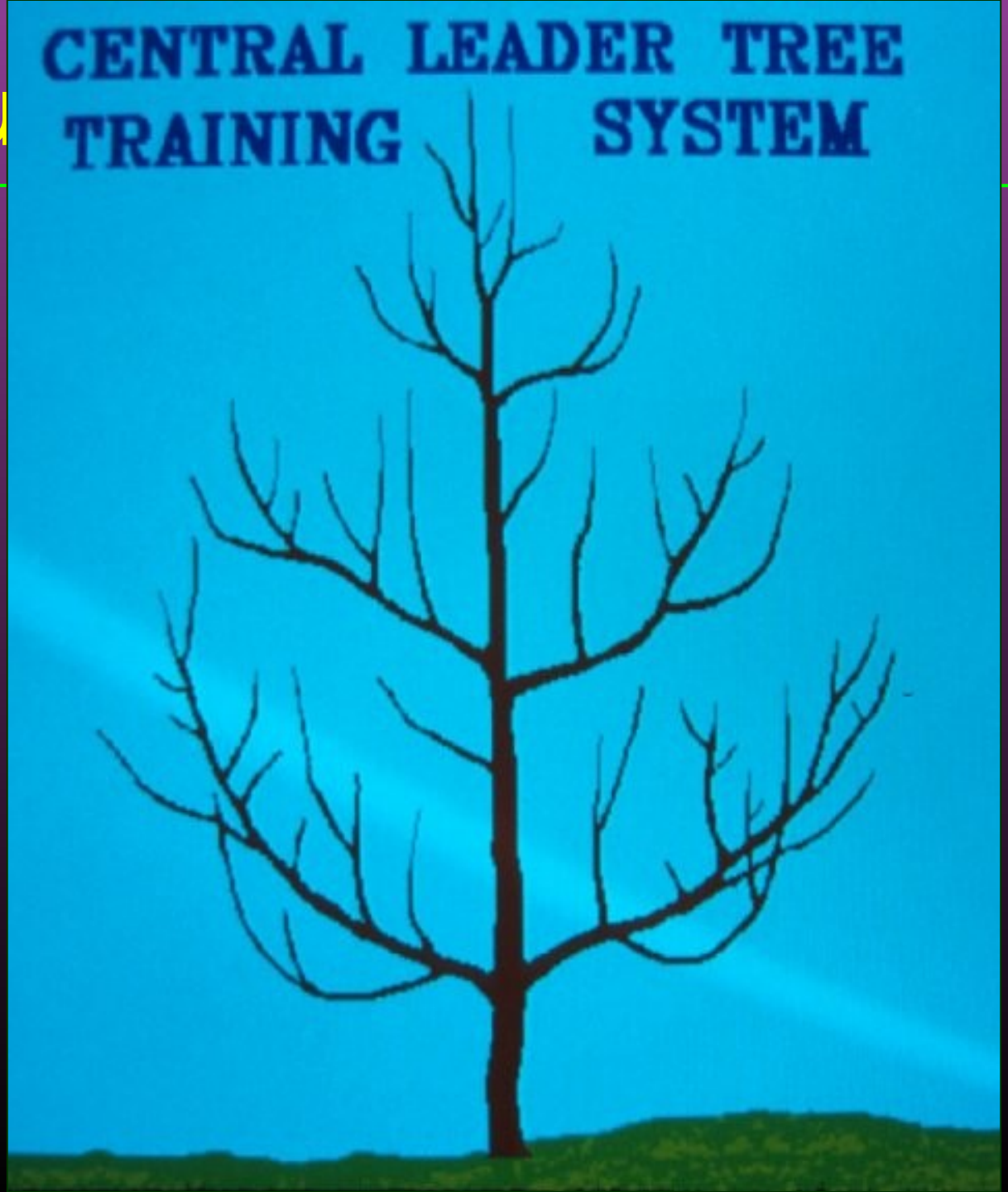

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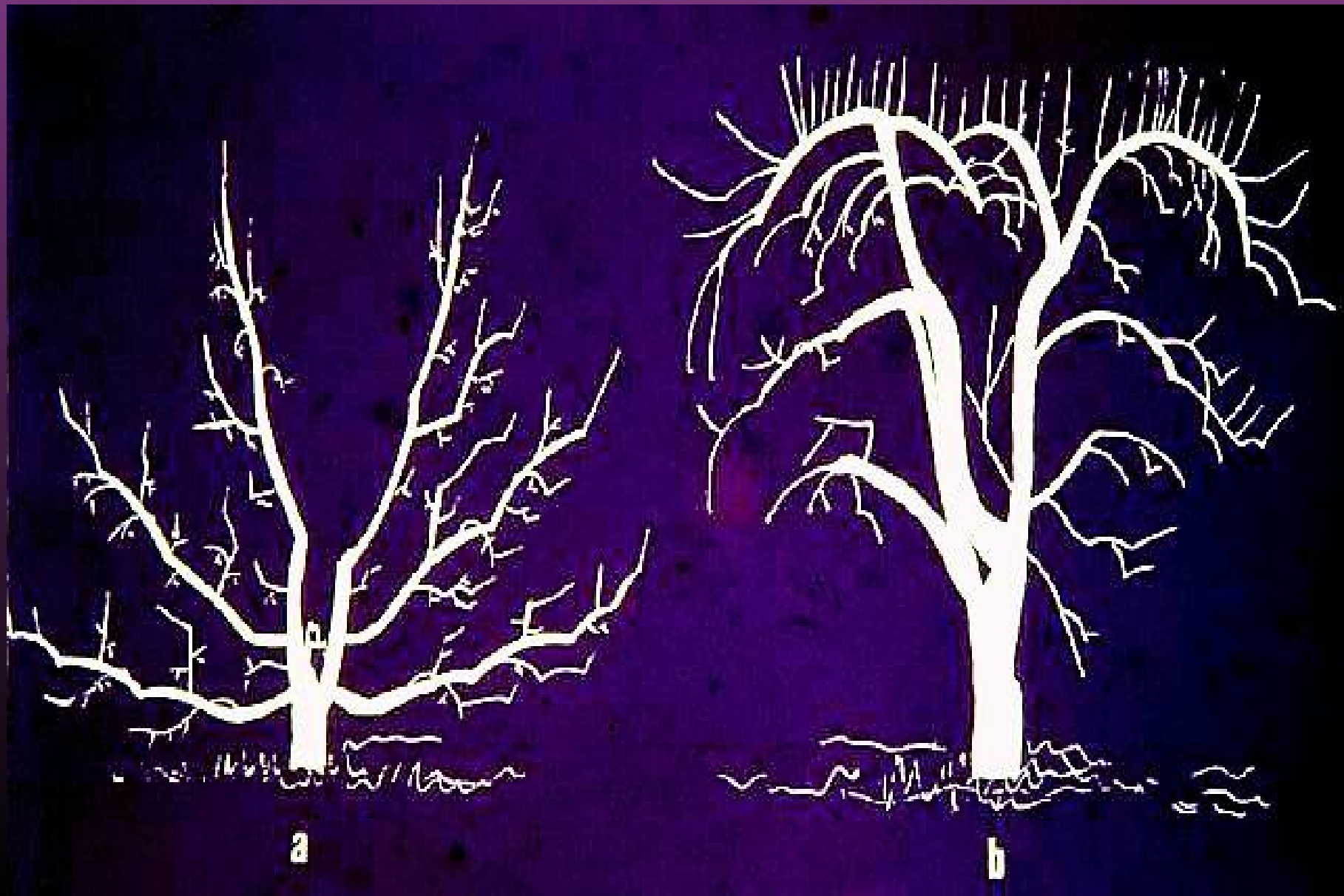

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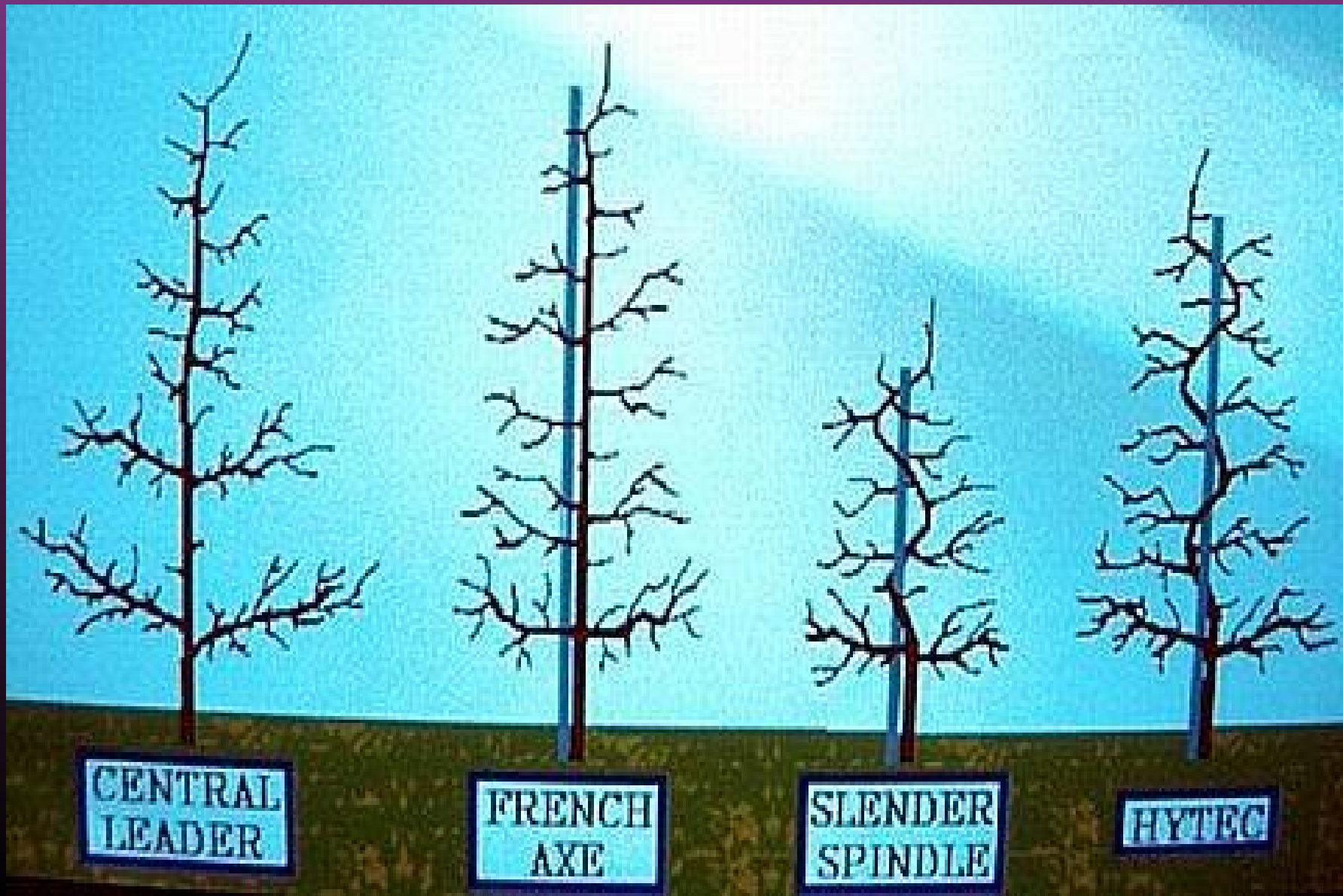

Fruit Production

- Thanks For Attending Our Thanksgiving Point And Utah State University Extension Service Class