

Module 20: Home Fruit Production Basics



LSU AgCenter Home Gardening Certificate Course

Dr. Joe Willis, Dr. Paula Barton-Willis, Anna Timmerman & Chris Dunaway

Fruits Common in Home Gardens



Blueberry



Strawberries



Persimmon



Cherries



Avocados



Raspberries



Blackberries



Kiwifruit



Plums



Grapes



Citrus



Papaya



Pawpaw



Peaches



Figs



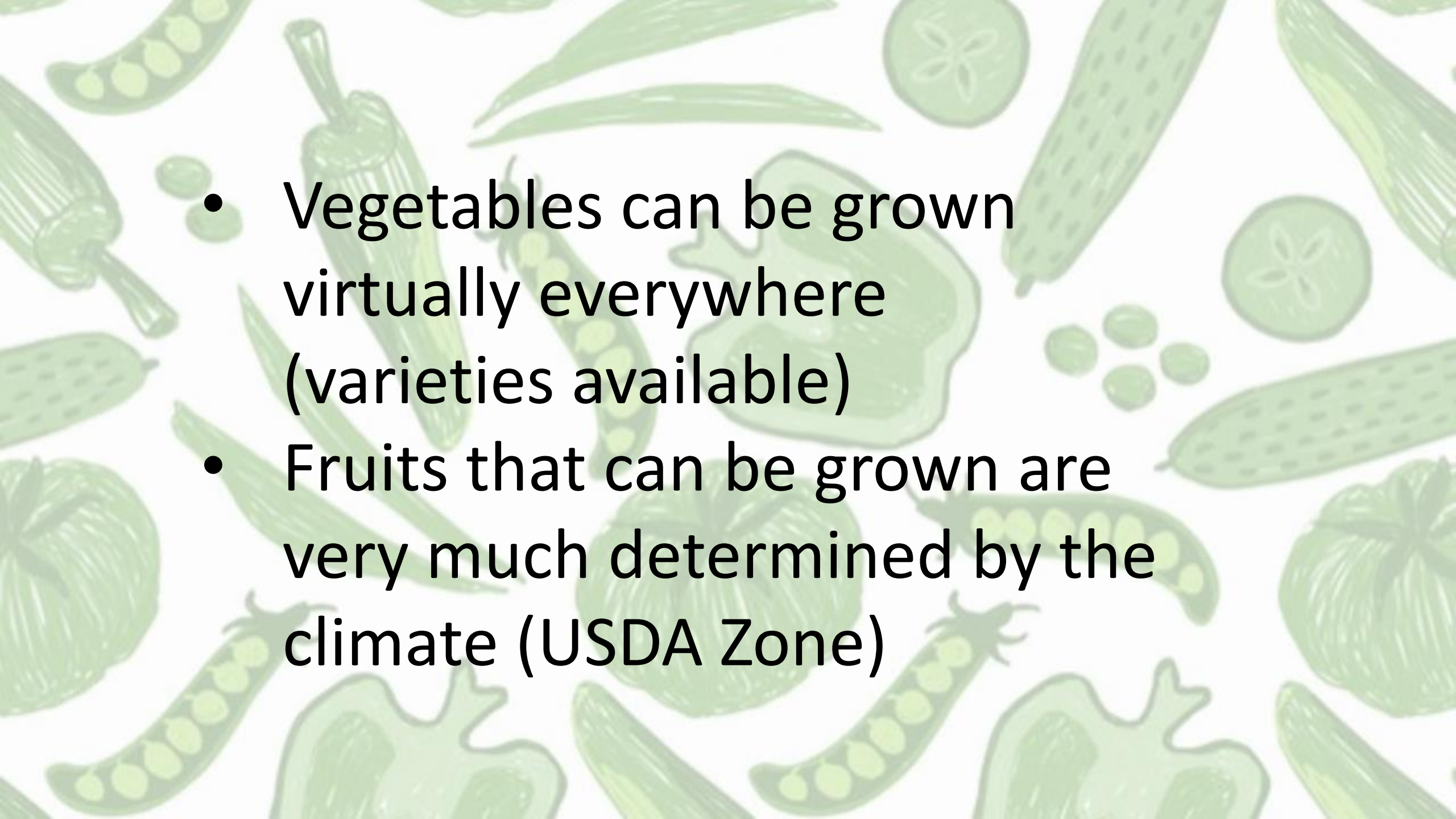
Pomegranate



Apples



Pears

- 
- Vegetables can be grown virtually everywhere (varieties available)
 - Fruits that can be grown are very much determined by the climate (USDA Zone)

Fruit USDA Hardiness Zones

Fruit	Hardiness Zone	Fruit	Hardiness Zone
Apple	5-8	Papaya	9-10
Avocado	8-11	Pawpaw	5-9
Blackberry	5-10	Peach	4-8
Blueberry	3-9	Pear	4-8
Cherry	5-7	Persimmon	8-10
Citrus	9-11	Plum	3-8
Fig	8-10	Pomegranate	7-10
Grape	4-10	Raspberry	4-8
Kiwifruit	7-9	Strawberry	3-10

Chill Hours

Chill hour – usually calculated as number of hours that the temperature is between 45°F and 32°F.

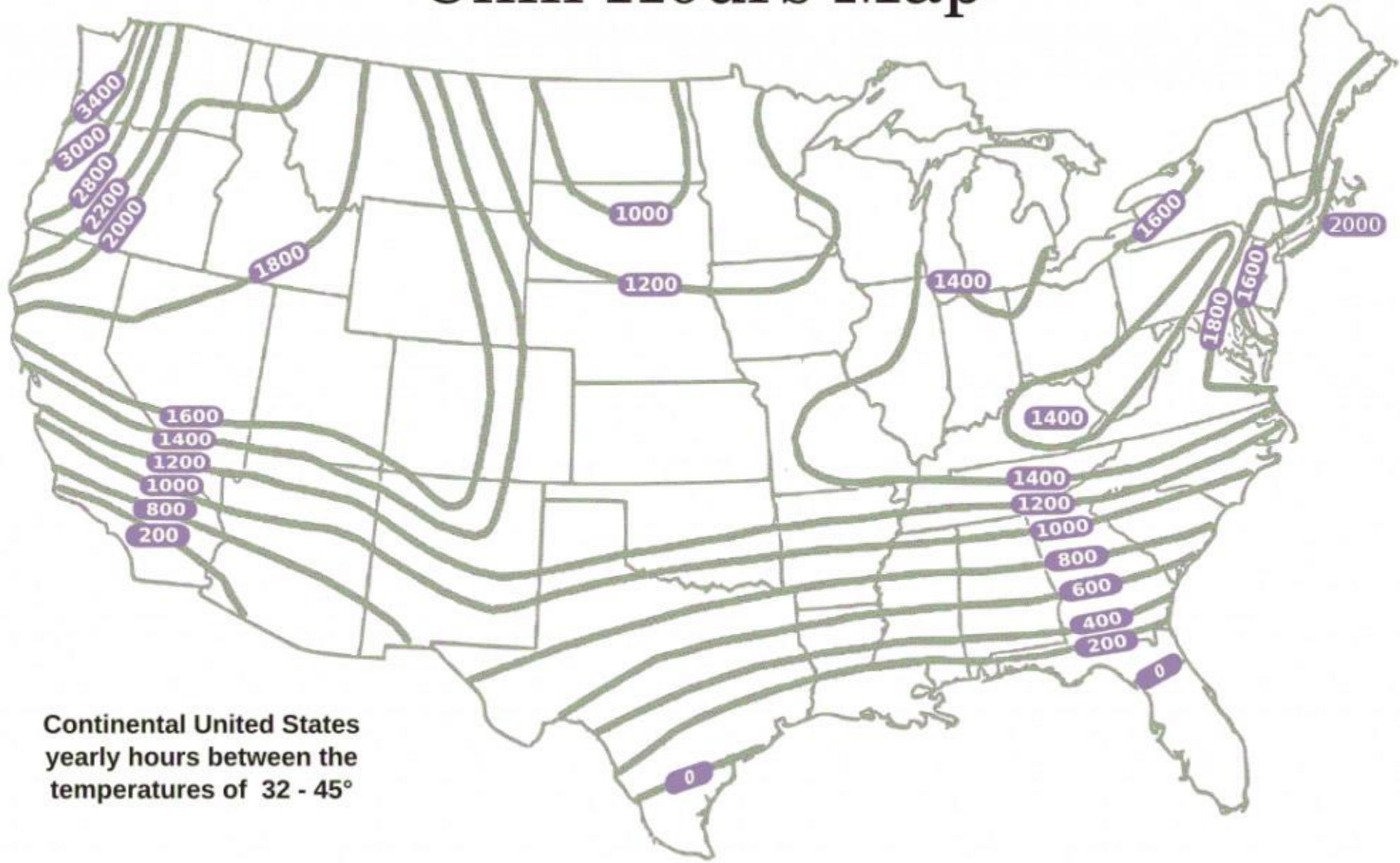
Actual accumulation of chill hours is more complex than this easy-to-calculate model. Research indicates fruit tree chilling 1) does not occur below about 30-34°F, 2) also occurs above 45°F up to about 55°F, 3) is accumulated most effectively in the 35-50°F range, 4) is accumulated most effectively early in the dormant period, and 5) in early dormancy can be reversed by temperatures above 60°F.

Chill Hours – Very Variety Dependent

Fruit	Chill Req.	Fruit	Chill Req.
Apple*	300-1000	Papaya	none
Avocado	none	Pawpaw	250-850
Blackberry	200-800	Peach*	150-1200
Blueberry	150-600	Pear	400-1500
Cherry*	200-1200	Persimmon	100-500
Citrus	none	Plum*	150-1100
Fig	100-500	Pomegranate	100-300
Grape	100-1000	Raspberry*	200-1000
Kiwifruit*	100-800	Strawberry	200-300

* Much breeding went into developing low-chill varieties.

Chill Hours Map



Continental United States
yearly hours between the
temperatures of 32 - 45°

Cross-Pollination

Fruit	Cross-Pol. Req.	Fruit	Cross-Pol. Req.
Apple	Yes, mostly	Papaya	No
Avocado	Yes, frequently	Pawpaw	Yes
Blackberry	No	Peach	No
Blueberry	No, but improves	Pear	Yes & No
Cherry	No-Sour; Yes-Sweet	Persimmon	No, Japanese
Citrus	No	Plum	Yes
Fig	No	Pomegranate	No
Grape	No	Raspberry	No
Kiwifruit	Yes, most are M or F	Strawberry	No

Plant Spacing

Fruit	Spacing	Fruit	Spacing
Apple	S 15-18'; D 4-8'	Papaya	10-20'
Avocado	25-35'	Pawpaw	10'
Blackberry	Erect 3'; Trailing 10'	Peach	S 15-20'; D 10-12'
Blueberry	3-5'	Pear	15-20'
Cherry	Sweet S 35-40'; D 5-10' Sour S 20-25'; D 8-10'	Persimmon	10-20'
Citrus	S 12-25'; D 6-10'	Plum	S 20-25'; D 10-15'
Fig	10-20'	Pomegranate	10-15'
Grape	6-10'; Mus. 16'	Raspberry	3-5'
Kiwifruit	8-15'	Strawberry	18-24"

Growing Conditions

- Full sun – 8-10 hours/day
- Well-drained soil, high in organic matter
- pH most 6.0-7.0, Exceptions
Blueberry pH 4.5-5.5, Strawberry 5.5-6.2, Raspberry 7.5
- Water especially important during fruit maturation – may require irrigation



Fruit In Containers



Peach



Strawberry



Blackberry



Citrus



Apple & Pear



Avocado



Fig



Blueberry

Fruit In Containers

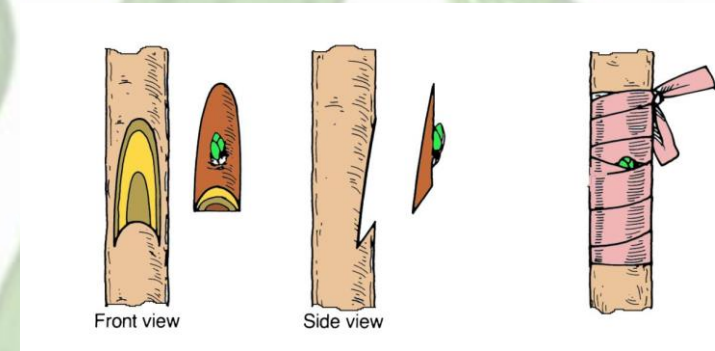
Points to Remember:

- Except for berries, think large containers
- Choose dwarf varieties if available
- Need more attention regarding water and fertilization (especially N)
- Smaller harvest
- Likely need repotting and root pruning regularly
- Can grow varieties that wouldn't normally survive

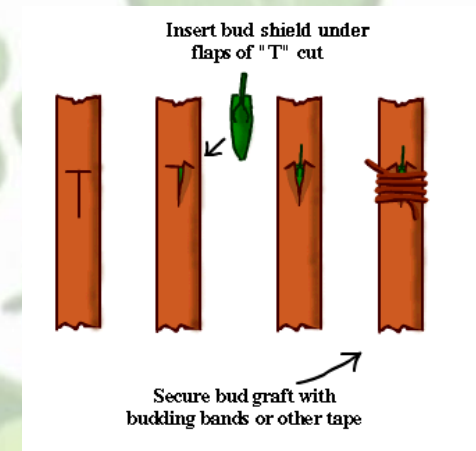
Grafting

Most fruit trees are grafted

- Increased plant vigor
- True varietal performance
- Disease resistance
- Earlier fruiting (2-3 yrs. vs 5-15 yrs.)
- Dwarfing
- Apple, Avocado, Cherry, Citrus, Grape, Pawpaw, Peach, Pear, Persimmon, Plum, Pomegranate



Chip Budding



T Bud Grafting

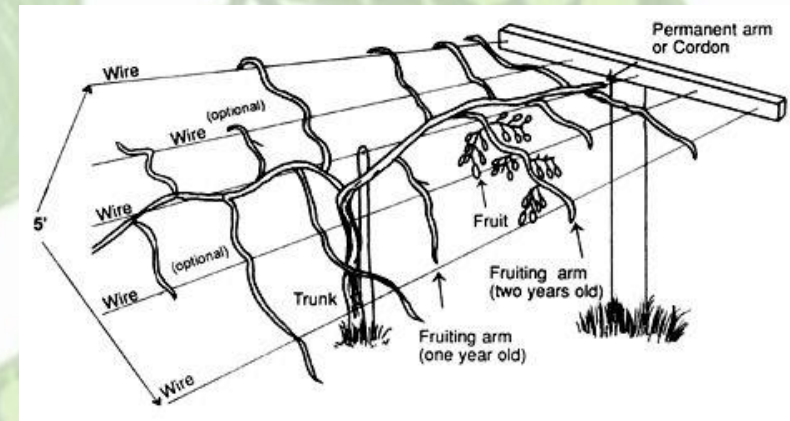
Propagated Asexually

Virtually all commercially available fruit plants are asexually propagated.

- Plants will be true-to-type.
- Besides grafting
- Rooted cuttings – grape, fig, blueberry, raspberry, blackberry, kiwifruit
- Tip layering – raspberry, strawberry, blackberry
- Tissue culture – raspberry, papaya, strawberry
- SEED - papaya

Trellising

Usually required for blackberry, grape, kiwifruit, raspberry



Pruning

Fruit trees should be pruned for several reasons:

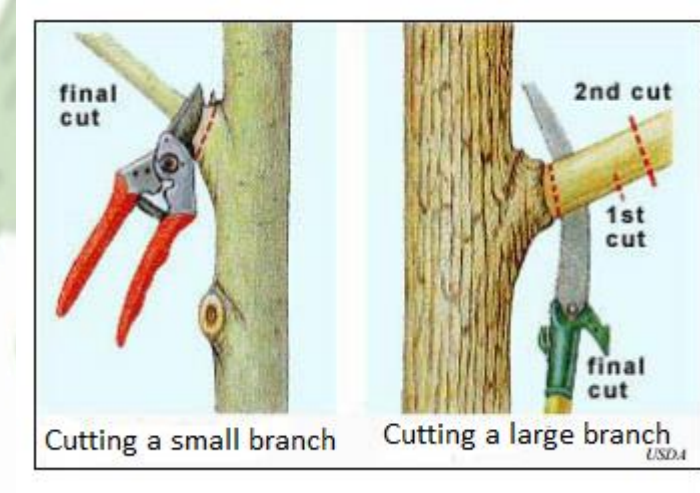
- To develop desired tree shape;
- To maintain tree at a desired size;
- To allow sunlight and spray materials to enter the center of the tree;
- To improve tree strength and encourage new shoots;
- To improve air circulation within the tree and reduce the potential for disease;
- To remove dead, broken, crossing branches, water sprouts and rootstock suckers.

General Principles of Pruning Fruit Trees

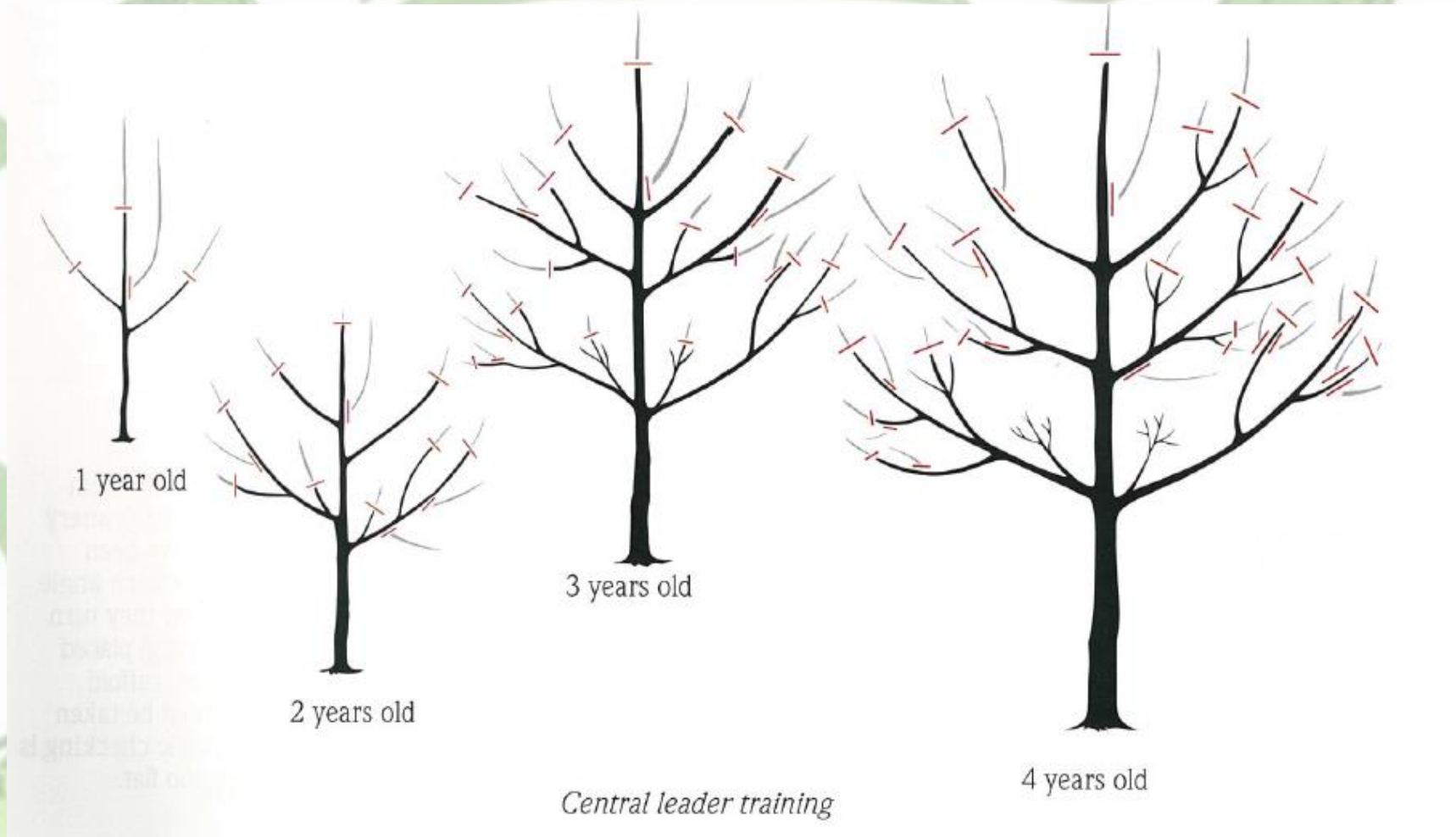
- Do your pruning in late winter when trees are dormant (February or March);
- Prune young trees (up to 10 years of age) lightly;
- Excessive pruning encourages excessive shoot growth, delays fruiting, and reduces quality of fruit on young trees;
- Tipping, or pinching off, the terminal one-half inch of new shoot growth in mid-June will encourage lateral branching. Trees from 1- to 4-years-old are best suited to this practice;
- Older trees (25 years and older) will produce higher-quality fruit following a vigorous pruning;
- Use clean, sharp, properly sized pruning tools;

General Principles of Pruning Fruit Trees

- Make your thinning cuts back to the branch collar—do not leave stubs;
- Thinning-out cuts (entire limb or shoot removal) are associated with increased flower bud production on apples;
- Heading-back cuts (shortening the ends of branches) encourage shoot growth and strength;
- Remove and dispose of prunings away from the orchard area. Dead wood will harbor disease organisms that can spread into the tree.



Pruning & Training Types



Apples Avocado Cherries Citrus Pawpaw Pears Plums

Pruning & Training Types

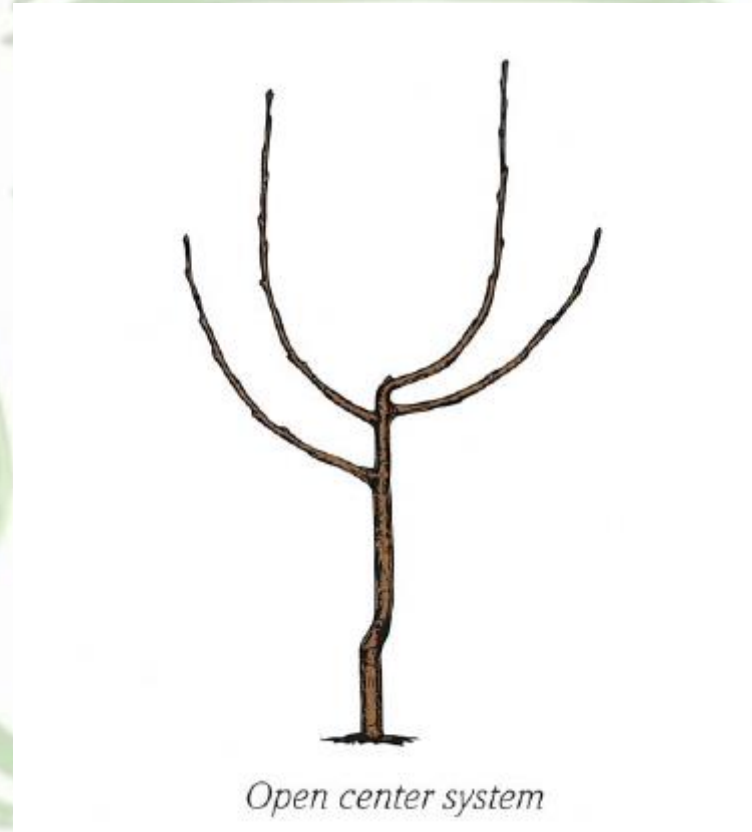
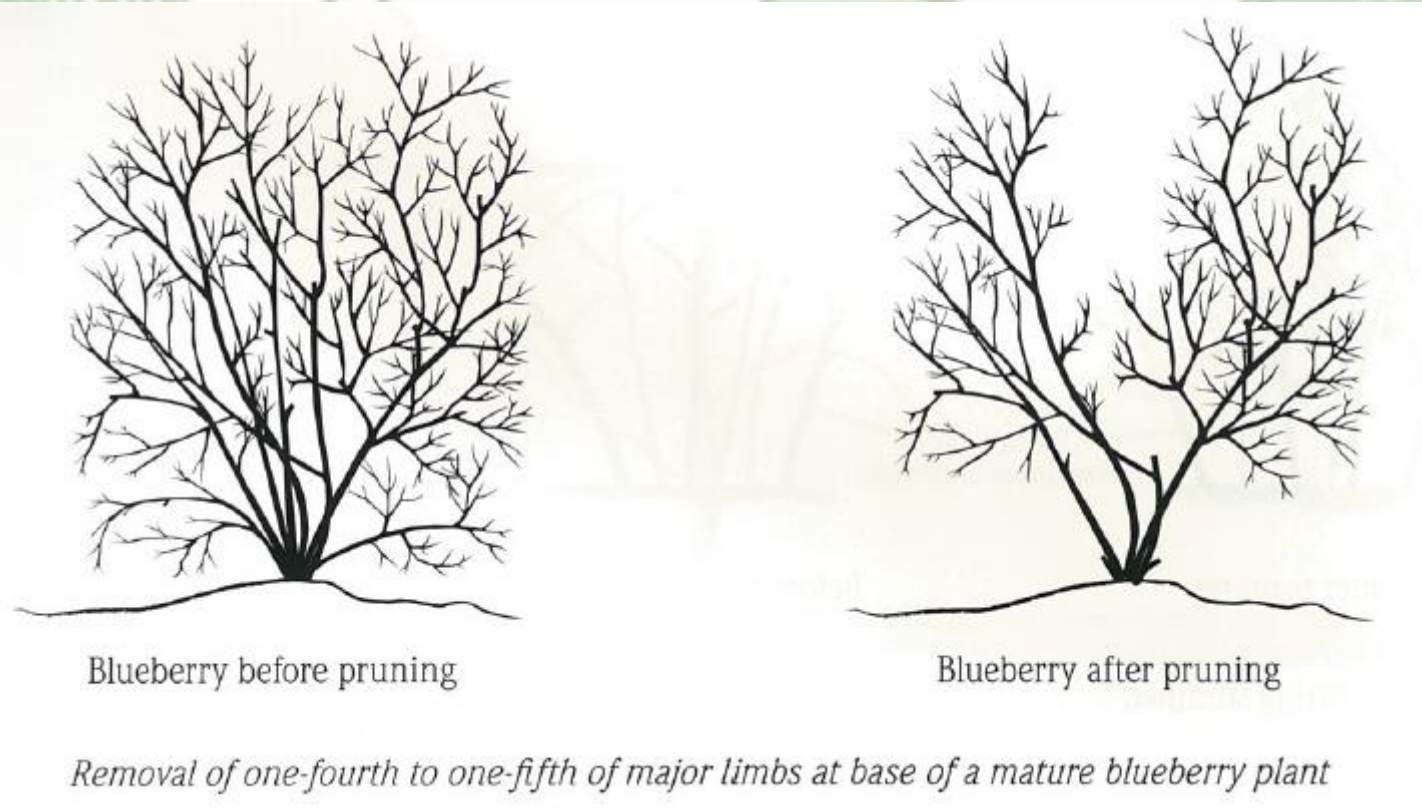


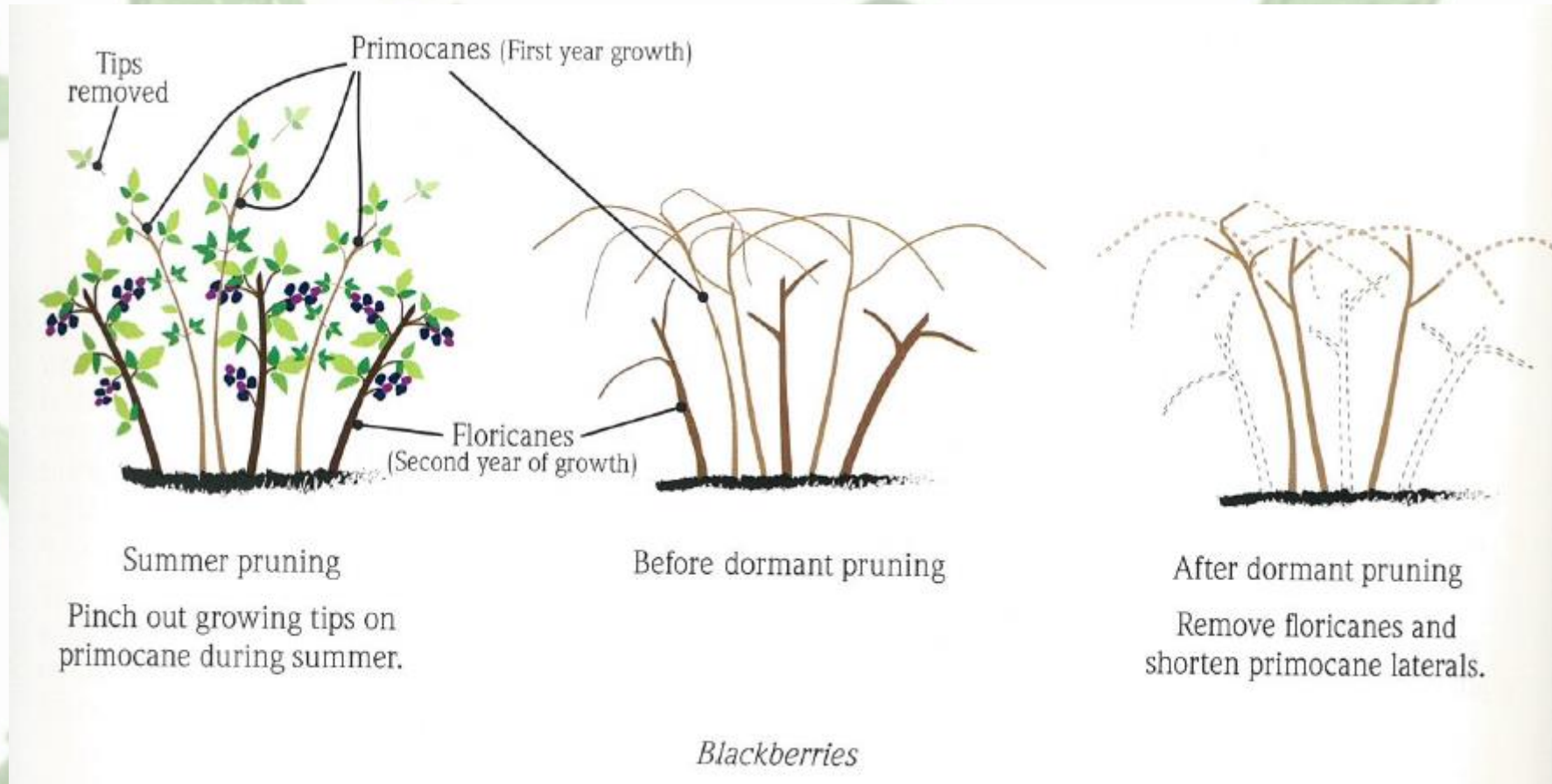
Fig Peach Plum

Pruning & Training Types



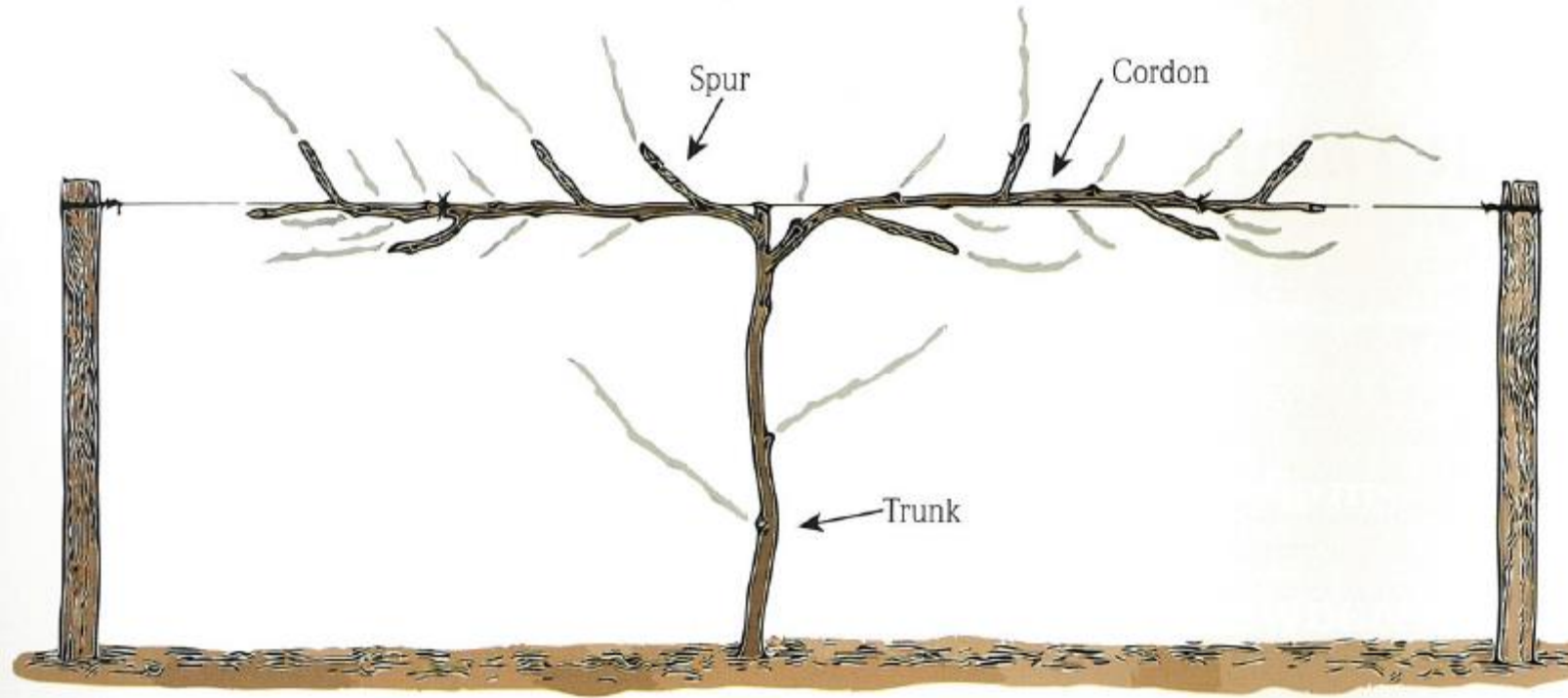
Blueberry

Pruning & Training Types



Blackberry Raspberry

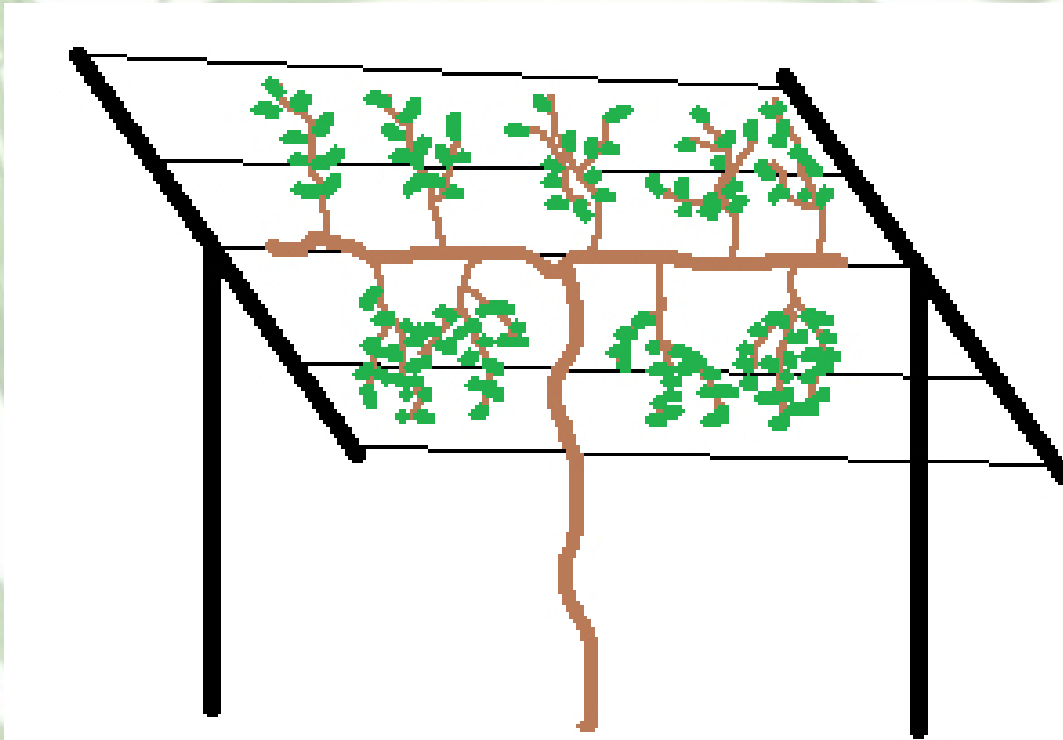
Pruning & Training Types



Annual pruning of muscadines is a must if the vineyard is to be kept at its optimum production level.

Muscadine

Pruning & Training Types



Kiwi vine growing on a T-bar trellis

Kiwifruit

Papaya need no pruning.

Managing Diseases and Insects in the Home Orchard

Start Clean – Stay Clean

- With most, multiyear crop (ca. 25 years) LOCATION
- Use certified disease-free plants
- Choose resistant varieties/rootstocks
- Prepare the soil BEFORE planting
- Maintain with proper pruning, fertilization, irrigation
- Keep weeds controlled
- Remove plant debris
- Identify problems before taking action

Managing Diseases and Insects in the Home Orchard

Start Clean – Stay Clean

- Systemic infections cannot be cured, in most cases
- Remove diseased plant material immediately
- Use mulch and replenish as needed
- Avoid Overhead Watering
- Disinfect tools between plants
- Prophylactic treatments during high disease pressure

Enjoy Your Harvest





A garden requires patient labor and attention. Plants do not grow merely to satisfy ambitions or to fulfill good intentions. They thrive because someone expended effort on them.

— Liberty Hyde Bailey (American horticulturist and botanist who was cofounder of the American Society for Horticultural Science)

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