Pruning and Training

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Pruning and Training
The Source-Sink Relationship
Pruning and training

Balancing Act

Vegetative

Fruiting

Roots
Pruning and Truing

- Goals for training and pruning include:
  - Producing a supporting framework for the tree
  - Allowing annual flower formation
  - Developing a tree which allows maximum fruit growth and quality development
  - Ease of management
Pruning equipment

Keep Sharp!
Light Penetration

Light penetration into the canopy of a large tree

Effective light penetration into an unrestricted canopy is ~1 m
## Light Penetration

<table>
<thead>
<tr>
<th>Character Development</th>
<th>Satisfactory &lt;br&gt;Development</th>
<th>Unsatisfactory &lt;br&gt;Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit size</td>
<td>&gt;50%</td>
<td>&lt;50%</td>
</tr>
<tr>
<td>Red color</td>
<td>&gt;70%</td>
<td>&lt;40%</td>
</tr>
<tr>
<td>Spur development</td>
<td>&gt;30%</td>
<td>&lt;25%</td>
</tr>
</tbody>
</table>
Know where the flower buds are located

<table>
<thead>
<tr>
<th>Fruit</th>
<th>Flowers borne on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peach</td>
<td>Lateral buds, 1 yr shoots</td>
</tr>
<tr>
<td>Apricot</td>
<td>Lateral buds, 1 yr. Shoots + 2 yr. spurs</td>
</tr>
<tr>
<td>Cherry(swt)</td>
<td>Lateral buds, 2 yr. spurs</td>
</tr>
<tr>
<td>Cherry sour</td>
<td>Lateral buds, 2 yr. spurs</td>
</tr>
<tr>
<td>Apple</td>
<td>Terminal buds, 2yr.spurs</td>
</tr>
<tr>
<td>Pear</td>
<td>Terminal buds, 2yr.spurs</td>
</tr>
</tbody>
</table>
Where fruit is formed

- **Apples, pears, cherries:** spurs (three year old wood)
- **Peaches, nectarines, plums:** one year old wood
- **Figs, grapes:** current year wood
Peach

Last year's growth now bearing fruit

This year's growth now forming next year's buds
Pears and Apples
Spurs

Two year & older wood

One year old wood
Vertical View
Showing Desired Distribution of Scaffolds

...needs to be developed during years 1-3 of training
Light Penetration
Tree parts

A. — Suckers
B. — Stubs or broken branches
C. — Downward-growing branches
D. — Rubbing branches
E. — Shaded interior branches
F. — Competing leaders
G. — Narrow crotches
H. — Whorls
I. — Heading back or growth diversion
Types of Pruning Cuts

• heading back
• thinning out
Pruning
Heading back cuts

- Removal of a part of a shoot or branch
  - It removes terminal buds
  - Apical dominance is weakened or lost
    - Physiological effects
- Net result: increase in total shoot growth
Pruning
Heading back cuts
Pruning: Thinning cuts

• Removal of an entire shoot or branch at its junction with the trunk
• Ratio of terminal to lateral buds is not disturbed
  – Less physiological changes
• Net result: It does not increase shoot growth as much as heading cuts
Pruning
Thinning cuts
How to make the cut

Incorrect Orientation  Correct Orientation

Cut above ‘collar’
MODIFIED CENTRAL LEADER System

...at planting
Establishing the Central Leader
Opening up the tree
Branch Spreading

- promotes strong crotch angles
- promotes early bearing
- reduces scaffold vigor

Figure 13. Spreading Branches to Obtain Desired Branch
Use spreaders or tie down branches
Reducing the Breadth of a Neglected Tree
Bad Cuts

A. Topping
B. Tipping
C. Bark ripping
D. Flush cutting
Before pruning

After pruning
Excessive upright growth occurs when the central leader is cut.
Central leader tree: apples and pears
Apple Training: Vertical Axe
Trellises

Here’s the Tatura system (there are others):

Train limbs to wires. Fill all wires with fruiting wood. Bears a lot of fruit. Not the easiest system for beginners.
Training Systems
Training Pears

Traditional System

Modern System

Bird’s-eye view

North
Pruning and Training Peaches

Before pruning: 15"
After pruning: 30"
At planting

Scaffold branches
Prune back to trunk
First summer (June)

Before pruning
After pruning
At one year
Peach Training
Pruning and Training Peaches

First dormant pruning

Second dormant
Pruning and Training Peaches

Second dormant season after pruning

Third dormant season before pruning
Pruning and Training Peaches

Third dormant season after pruning

Bearing tree