

Management and Maintenance of the Mature Orchard: Sustainability

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Your Objective

- To keep the orchard sustainably productive for years
 - To have a good orchard eco-system
 - To have productive trees
 - To have trees that produce high quality fruit
 - To have fruit for which consumers will pay

Ten Steps to Remember

#10. Keep a "Full Orchard"

- To be sustainable, you need a full orchard
 - Replace trees as they die
 - If more than 10-15% of trees in a block are dead or non-productive, you have lost your economic margin
 - If more than 10-15% of the trees in a block are dead, this is an indication of a problem
 - Blocks should be replaced periodically
 - Young trees generally produce larger, higher quality fruit
 - Need newer cultivars to meet consumer demand

#9. Keep Soil Healthy

- **Manage soil pH**
 - Soil pH declines in a managed orchard
 - Typically in the NWA and EOK region, need to annually lime the orchard (1-2 tons/acre; fall applied).
- **Manage soil nutrition**
 - Conduct periodic soil nutrient samples; ~ every 2-3 years
 - Fertilize annually based upon foliar and soil analysis
- **Manage soil drainage and aeration**
 - Be careful of compaction

#8. Prune Annually

- Trees need annual pruning
 - Removed damaged, diseased wood
 - Remove wood in the way of your management
 - Remove wood to thin the crop and stimulate vegetative growth

#7. Renewal Prune

- Older wood produces smaller, poorer quality fruit
- Younger wood, produces fewer fruit, but larger and of higher quality
- Trees tend to become "crowded" with limbs as they age
- Trees tend to become "top-heavy" with most of the crop at the top of the tree
 - Crop becomes more difficult to manage
- Return the tree to a good tree form - a conical shape (smaller and thinner at the top)

#6. Remember the Light

- Trees tend to become too dense as they age; light within the canopy becomes limited
 - Without light, fewer fruit, smaller fruit with poorer color and quality
- Prune to allow light to penetrate to the inner canopy and the bottom scaffolds of the canopy

#5. Protect from Frosts

- Healthy trees will bloom later and be more frost tolerant
- Avoid early fall defoliation that will lead to early spring bloom
- Dormant oil (2 applications before silvertip) may delay budbreak and bloom by 2-4 days
- Have a frost protection plan ready to activate

#4. Manage Crop Load

- Balance crop load with the growth
 - Do not become "greedy" and over-crop the tree
 - Optimize crop load
 - Insures large fruit
 - Stimulates stronger vegetative growth
 - Generates return bloom and annual productivity

#3. Irrigate the trees

- Minimize water stress
 - With global warming, average daily temperature are increasing; trees will be using more water
 - Periodic droughts (coupled with warmer weather) may become more common

#2. Maintain Strong IPM

- Must minimize the impact of insect pests on the trees
- Prevent diseases through cultivar selection and management
- Manage ground cover to minimize impact of weeds and the effect on pests
- Minimize use of insecticides with IPM scouting, trapping, mating disruption, and well-timed, targeted sprays

#1. Reduce Stress

- Eliminate nutrient stress (soil pH, insufficient or excess nutrients)
- Eliminate light stress (pruning and training)
- Eliminate frost stress
- Eliminate water stress
- Eliminate pest stress

Conclusion

- To manage the mature orchard to keep it sustainably productive

The manager must be *engaged and involved*, the trees still need skilled, knowledgeable management

Maintain good skills and knowledge; keep "up" with current information and thinking

- Keep the orchard full
- Keep trees "young"
- Reduce Stresses