

Trimming The Fat

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Growers may need to skirt and prune low-hanging branches to make their groves more suited for mechanical harvesters.

The cost to prepare a citrus grove for mechanical harvesting varies by the age and size of the trees and location of the grove.

Traditional trees have low-hanging branches along the lower canopy which hang very close to the soil surface and are not well suited for mechanical harvesting machines. These trees were grown in citrus nurseries and headed (branched) at about 16 inches to form branching that would become the scaffold limbs of the mature tree. Low-hanging branches can interfere with trunk shaking machines and catch frames that collect the fruit when shaken from the tree.

There are four steps to retrofit trees in traditional groves: skirting, hand pruning, brush removal, and micro-sprayer irrigation realignment. Skirting is required to gain access to attach trunk shakers to improve mechanical harvesting operations. When a catch frame is used to receive the fruit as it is shaken off the tree, clearance is also required regardless of whether a trunk shaker or the canopy shaker machine

is used. Skirting should be 36 inches at the dripline and taper to about 24 to 30 inches near the trunk line.

Following mechanical skirting, hand pruning with a chain saw may be required to remove large branches and scaffold limbs near the trunk. There should be a minimum of 20 to 24 inches from the ground to the first scaffold limb on the tree trunk. A straight trunk with 16 to 18 inches above the bud

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union is required if trunk shakers are used. When canopy shakers are used, 18 inches of straight trunk is required when catch frames are used.

Brush removal can often be done by chopping with a Hydro-ax or flail-type mowers. If a considerable amount of branches and/or large limbs have been removed, a front-end loader may be required.

If micro-sprayer irrigation emitters are near the tree trunk, they must be moved to halfway between trees to avoid damage by equipment that will be positioned around the tree trunk. This can often be done by pulling the poly irrigation tubing half the distance between trees and repositioning the emitters upright.

Benefits Outweigh Costs


The cost to retrofit a grove varies by the age and size of the trees and location of the grove. Today's costs for skirting can be from \$18 to \$20 per acre for trees planted on beds

in the flatwoods and \$16 to \$18 for non-bedded planted groves in central Florida. Hand pruning costs depend on the amount of limbs and scaffolds that need to be removed after skirting. Hand pruning can cost between \$40 and \$60 per acre. Brush removal costs on average are between \$12 to \$18 per acre if a front-end loader is required and \$10 if only mowed. Moving irrigation emitters between trees has a labor cost of \$50 to \$60 per acre.


In addition to direct costs, there is the loss of income from fruit removed when skirting low-hanging branches. A Florida State Horticultural Society study of Valencia oranges found average yields were not significantly affected by skirting and that fruit from the bottom of trees not skirted showed significantly increased rind blemishes. Fruit was smaller in size, but had juice quality equivalent to other fruit. The fruit lost is a one-time event in the year of skirting, and the tree compensates to maintain a yield equivalent

to that before skirting. The savings gained the first year in mechanical harvesting may be greater than the one-time cost of retrofitting the grove.

Skirting trees for mechanical harvesting also gains horticultural advantages in several areas:


- Herbicide application is more uniform, and there is less injury to low canopy tree foliage or to equipment.
- Herbicide booms don't contact low hanging foliage, and this reduces the chance for spread of canker.
- Micro-sprayer irrigation pattern is not affected by low hanging branches, and water distribution is uniform.
- Irrigation micro sprayers are more visible for checking proper operation and maintenance.
- Brown rot and greasy spot is reduced as air drainage is improved.
- The severity and frequency for mechanical skirting is lower. 

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