



# Orchard Notes

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## Light Management in Stone Fruit Orchards: The Role of Summer Pruning

*Kevin R. Day*

*Tulare County Tree Fruit Farm Advisor  
University of California Cooperative Extension*

Proper light management is one of the most important aspects of successful farming. A tree and its leaves essentially function as a large solar collector. The leaves can be viewed as small factories that convert sunlight into sugars. Various processes within the tree then determine how and where these sugars are used. Most of the cultural practices we perform on trees are either to 1) keep these factories running efficiently, e.g. irrigation, fertilization, pest and disease control, or 2) alter how and where these sugars are used, e.g. pruning, thinning, summer pruning, and girdling.

Summer pruning is one of the most powerful tools we have for managing the tree light environment. Preharvest and postharvest summer pruning will help maintain light penetration through the tree. The simplest method of summer pruning involves the removal of upright watersprouts. This single practice is often enough to drastically alter tree light status. On very vigorous trees it may sometimes be necessary to do this more than once during the season – both pre- and postharvest. And in some instances, a more detailed summer pruning of the tree may be necessary – usually performed only after harvest. A rough rule of thumb is to prune sufficiently so that light is filtering through the tree and striking the orchard floor in a random, broken pattern.

Preharvest summer pruning is best performed 2 to 4 weeks prior to anticipated harvest. The additional light on fruit and the leaves adjacent to it will help improve

fruit color, fruit size and fruit soluble solids concentration. The emphasis here should be on removing upright watersprouts that interfere with light transmission into the middle and lower parts of the tree. Typically these are shoots that are more than 18 inches long that have already begun to show signs of secondary branching. Also, heavy, vigorous shoots growing on the exterior of the tree can be removed. There should be no cutting of shoots that bear fruits since this can reduce fruit quality attributes.

Postharvest summer pruning can be helpful if trees are overly vigorous and/or too shaded. This pruning will help reduce shoot shading and death, and may increase bud fruitfulness. In some instances fruit bearing hangers will need to be cut back, shortened, or eliminated entirely. Again, the severity of this type of pruning is dependent on tree vigor and light environment. After midsummer most fruiting shoots have quit growing, and care should be taken not to prune too severely (especially with respect to heading cuts) since this may actually cause shoots to initiate new growth. This type of growth can actually lead to reduced flowering the following year since buds that would otherwise have become flowers are stimulated back into the vegetative mode. Again, the goal after summer pruning is to have filtered light throughout the tree with a bit falling on the ground. This will help ensure the best overall tree light status.

## August-September Checklist

### ■ Fruit Doubling and Deep/Open Sutures

Both of these fruit abnormalities are made worse by environmental stress during the period of flower bud development. Research by Scott Johnson at the Kearney Ag Center has demonstrated that water stress during mid-August through early September also plays a large role in formation of these damaged fruit. Well-timed irrigations during this period can drastically reduce the incidence of doubles in the following year. An effective strategy is to apply a deep irrigation in mid-August, and possibly a second irrigation 10 to 20 days later as soil moisture and weather conditions warrant.

### ■ Postharvest Fertilization

Late summer is an effective time to fertilize in orchards that require nitrogen. In the fall the tree begins transporting many nutrients from the leaves into its internal storage pool. Nitrogen applied in late summer can therefore be added to this pool to help support early season fruit, shoot, and root growth. Remember, however, that overfertilization beyond basic tree needs can cause reduced fruit size, color, and fruit soluble solids concentrations. An effective strategy is to apply the majority of the nitrogen fertilizer in the fall,

and supplement in the following spring as tree needs dictate.

Other nutrients, most notably cations such as potassium, can be effectively applied in the late summer or fall. Winter rains will help move these products into the root zone where they can become available for uptake in the subsequent spring. Additionally, fall is an ideal time to correct soil pH problems with lime or sulfur.

### ■ Ground Prep for Replanting

Remove as many old roots as possible prior to soil fumigation. These roots can harbor pests and nematodes and are difficult for fumigants to penetrate. Deep ripping and chiseling are essential in helping to bring roots to the surface. The hand labor then required to remove these roots from a field is money well spent.

### ■ Fall Irrigation

Tree water use drops precipitously after mid-September. Additionally, phytophthora root can be aggravated by excessive fall irrigation. Unless the fall is unusually hot most orchards can benefit from significantly reduced irrigation after mid-September.

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Kevin R. Day  
Farm Advisor  
(559) 685-3309, Ext. 211

*University of California Cooperative Extension  
and the  
Kearney Agricultural Center*

*present*

## **VARIETY DISPLAY AND RESEARCH UPDATE SEMINAR**

**Tuesday, August 14, 2001**

**at the**

**Kearney Agricultural Center  
9240 S. Riverbend Avenue  
Parlier, CA**

***Multi-Purpose Room***

- 8:00 – 9:00 a.m.      Variety display by stone fruit nurseries, breeders  
and the USDA
- 9:00 – 10:00 a.m.    Orchard replant problems and fumigation  
*Dr. Mike McKenry, UC Kearney Ag Center*

For more information call Kevin R. Day, (559) 685-3309, Ext. 211.