

Trunk cross-sectional area was largest in the December-pruned treatment and lowest in the November-pruned treatment at the beginning of the experiment. This relationship continued for the 4 years (figure 2). In fact, the increase in trunk cross-sectional area for the 4 years was 218, 222, and 215 cm². for the October-, November-, and December-pruned trees respectively indicating trunk growth was virtually the same for all three treatments. Since there were no differences in either yield or trunk cross-sectional area, there was also no difference in yield efficiency (figure 3).

Leaf samples taken each summer were analyzed for nitrogen, potassium, and zinc (table 1). Samples were also analyzed for phosphorus, calcium, magnesium, boron, manganese and copper, but little if any difference was found and the results are not shown.

Seasonal differences for nitrogen occurred among years, with 1987 showing the highest reading for all three timings of treatment. The 1986 crop yield was quite low. The grower continued on a normal nitrogen fertilizer program which increased the storage reserves and this, coupled with applications in 1987, most likely provided the higher readings.

All the samples were taken in August for all years except 1989. This late sampling date is probably the reason for the lower-than-expected percentage nitrogen. Even though 1989 was sampled in July, the large crops of 1987 and 1988 appeared to have depleted nitrogen reserves. For the first 3 years, the leaf nitrogen level was very similar among pruning treatments. The higher nitrogen level in 1989 in the December-pruned treatment had not appeared in previous years and may be just sampling error since no other parameter showed any reason for this difference.

The leaf samples also showed differences in the percentage potassium among

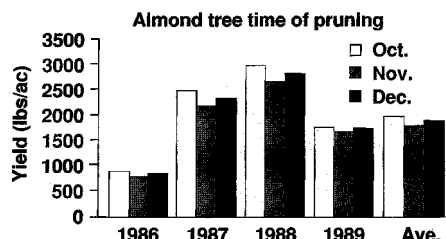


Figure 1. Comparison of yield when almond trees were pruned each year during either October, November or December for 4 years. No significant difference occurred among treatments for any year.

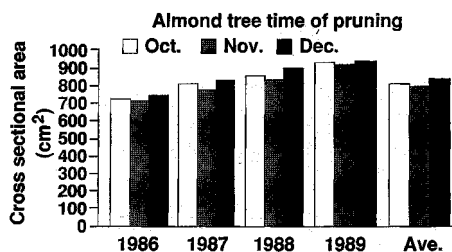


Figure 2. Trunk cross-sectional area of trees measured in the fall each year comparing the growth of the trees in response to the three pruning treatments. No significant differences occurred among treatments for any year.

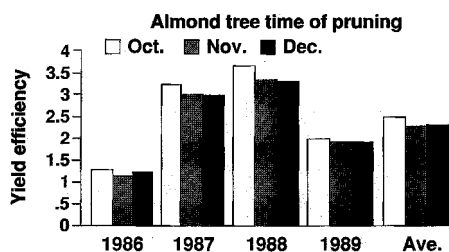


Figure 3. Yield efficiency computed by dividing yield by the trunk cross-sectional area. Because there was no significant difference in either yield or trunk cross-sectional area, there was no significant difference in yield efficiency among treatments.

years, but had no consistent difference between treatments. The lower levels in 1988 indicated a nutritional drain by the large 1987 and 1988 crops. No potassium fertilizer was applied during or preceding this experiment. The 1986 through 1988 samples were taken in August, and a lower potassium level could be expected as compared to the normal July sampling in 1989.

Zinc levels increased during the trial even though no additional zinc was applied except for one zinc-based fungicide spray. Levels indicated adequate amounts of zinc present with no consistent differences among pruning treatments.

During the trial, no differences in disease incidence were observed among pruning treatments. Aerial *Phytophthora* has been a problem in the orchard in the past, but the disease was not found during the 4 years in any of the treatments.

Conclusion

Pruning mature almond trees in October or November before leaf fall had no effect on yield, growth, or nutritional levels when compared to dormant pruning. Nutrient movement from the leaves into the spurs and limbs before normal leaf abscission in the fall has been shown to occur in other studies. The large cuts made on almond trees remove nutrients in leaves when pruned in October or these same nutrients stored in small twigs and spurs when pruned in December. Therefore, removing larger limbs after harvest should have no adverse effect on the almond tree yield or nutrient level the following year.

Pruning in the fall can provide work at a time when few other activities occur in the almond orchard. By scheduling fall pruning, the grower can better utilize a permanent labor force to complete this work before adverse weather occurs. Fall pruning would also take place before dormant sprays are applied, eliminating conflicts between pruning and reentry time intervals. Brush disposal is also generally easier during the fall than during the traditional pruning time in winter.

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