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Olive Notes
Tulare County

A Large Olive Crop May Benefit From Chemical Thinning

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In 2012, we are in the 'ON' phase of the alternate bearing cycle; consequently, we are expecting (and hoping for) a heavy crop load. A heavy crop load, however, does not come without consequences. A high fruit load will result in reduced vegetative growth during 2012 and exacerbate the degree of alternate bearing in the following 'OFF' year. Production of a large crop of small fruit may impact profit. Management of fruit size may be achieved by pruning and/or chemical thinning.

Why Thin Your Olives?

Larger fruit. Overloaded trees bear small, unprofitable fruit. If a crop is thinned during the fruit's early growing period, the remaining fruit will grow larger. The larger fruit command a higher price that more than offsets any reduction in total yield. By thinning the crop, you will bring otherwise substandard-sized olives up to canning sizes. Additionally, recent studies suggest that larger fruit are more compatible with mechanical harvest techniques—a consideration for growers intending to try mechanical harvest in the future.

More consistent yearly crops. Maintaining a modest crop size from year to year may mitigate the extremes within the alternate bearing cycle for olive.

Early maturity. A moderate crop matures earlier than a heavy crop. An early crop is more likely to get a good reception from the handler, has less competition for harvest labor, is less likely to fall victim to cold weather in the early fall, and ensures a good bloom for the next year.

Lower harvest costs. Olive picking costs are figured on a per-ton basis, so the per-acre harvest costs for a moderate crop are less than for a large crop.

Pruning vs. Chemical Thinning

Pruning removes potential fruit and foliage but does not change the leaf-to-fruit ratio. Shoot growth is stimulated, which will help minimize alternate bearing. Chemical thinning is achieved with use of the plant growth regulator, naphthaleneacetic acid (NAA). NAA is absorbed into the leaves and fruit and is then translocated to the fruit stems. An abscission layer forms during the first two weeks after NAA application, causing some fruit to drop. Only fruit are removed, and the leaf-to-fruit ratio is changed. Therefore, chemical thinning is potentially more effective in mitigating the effects of alternate bearing than pruning. Pruning plus chemical thinning is recommended for crop control in 'Manzanillo'; however, chemical thinning is not recommended for 'Sevillano'.

NAA for Olive Thinning

NAA Formulation for Olive Thinning. NAA is manufactured in the form of an ammonium salt for commercial use on olive orchards, with 200 g of active ingredient per gallon. This formulation is marketed as

Liqui-Stik Concentrate (EPA reg #34704-382) by Platte Chemical Company. The material does not contain wetting agents.

Amount and Timing. The concentration of NAA applied depends on the method used to determine spray timing (full bloom method or fruit size method) and whether a spray oil is used.

Full bloom date method. If you time your spray according to the full bloom date, apply NAA as a dilute spray (300 to 500 gallons per acre) 12 to 18 days after full bloom. If applied at 10 days, use a concentration of 100 ppm. Thereafter, increase the concentration by 10 ppm for each day that treatment is delayed. For example, if you spray 15 days after full bloom, use a concentration of 150 ppm. CAUTION: Abnormally cool weather will delay fruit growth. In such a circumstance, use the fruit size method for spray timing.

Fruit size method. If you use the fruit size method, sprays are applied when fruit on the north and south sides of the trees average between 1/8 and 3/16 of an inch. This can be determined by folding a standard 2 x 3 1/2 inch business card in half across the narrow dimension. When 11 to 16 fruit can be placed side by side across the card, it is time to thin. With normal weather, this will usually be between 12 and 18 days after full bloom. It is useful to note the day of full bloom (when approximately 80% of the flowers are open, 10% are unopened and 10% are at petal fall) to allow you to predict spray timing. If you use the fruit size method and spray without a spray oil, apply a concentration of 150 ppm NAA with a wetting agent or spreader-sticker.

Risks and precautions of chemical thinning. The thinning response is dependent on the temperatures shortly following application. Response can vary from no thinning, if temperatures are unusually cool following application, to nearly complete crop removal, if temperatures are excessively warm. EPA registration for NAA covers the period from full bloom to 2 ½ weeks after bloom. Later NAA applications are both illegal and useless. Too early an application will overthin; too late an application will yield unsatisfactory results. An application during bloom may destroy the crop. Hot weather during and following bloom, especially when accompanied by drying winds, can reduce fruit set and make thinning unnecessary. Research has demonstrated that the first two or three days after treatment are the most critical in determining the thinning response. Pay attention to weather forecasts prior to treatment and if forecasted temperatures are significantly warmer or lower than average, (see Figure 1) treatments should be delayed until more normal temperatures return. As the length of time from full bloom increases, the thinning response decreases. NAA should not be used on water stressed trees.

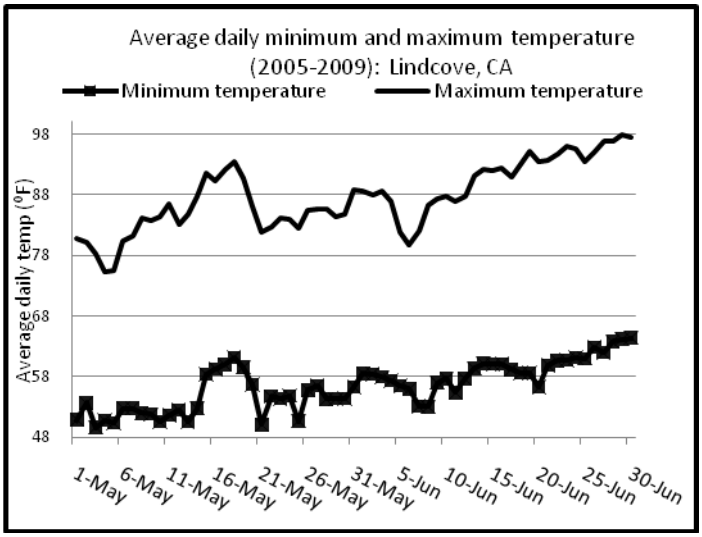

Fig 1. Average minimum and maximum temperatures recorded in Lindcove, CA from 2005-2009. Data was collected from California Irrigation Management Information System (CIMIS): www.cimis.water.ca.gov.

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May 2012

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