USE OF ETHEPHON (2-CHLOROETHYLPHOSPHONIC ACID) AND GAF 7767141 IN HASTENING NUT REMOVAL AND HULL DEHISCENCE IN WALNUTS

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Ethephon and GAF were applied to hasten nut removal of Ashley at Winters and Visalia. At Winters ethephon and GAF at 500 ppm and 750 ppm applied about 2-3 weeks earlier than the normal harvest were effective in hastening nut removal and loosening of hull; facilitating uniform and early harvest with highest kernel quality and reducing exposure to mold, insects and diseases. While greater removal occurred with GAF at 250 ppm than control, the differences were not significant. No differences in defoliation among treatments were noted. At Visalia treatments applied 10 days before normal harvest resulted in removal that was similar among treatments, with complete hull removal except for controls. At 750 ppm GAF decreased kernel quality. No other differences in quality were detected among treatments. In both plots ethephon and GAF at 500 ppm were equally effective in removal, hull separation and quality enhancement over the controls.

AMBIENT AIR DRYING OF WALNUTS

Jim Thompson and Tom Rumsey

A series of drying tests were conducted using single layers of Ashley variety walnuts. Tests were run using eleven different combinations of air temperature and relative humidity. The results were quantified with a regression equation that predicts moisture content versus time for any drying air temperature and relative humidity combination. An equation for the equilibrium moisture content versus relative humidity was also developed from the same tests. A complete report of the tests are given in an MS thesis entitled "Single layer drying and equilibrium moisture content equations for Ashley walnuts" by Sam Anigbankpu.

The Michigan State fixed bed grain drying computer program was modified to simulate deep bed ambient air drying of walnuts. A key input to the program was the thin layer and equilibrium equations developed above. The model was tested against four ambient air drying trials, each of which lasted about one week. The tests were conducted with Hartley, Nugget, and Ashley variety nuts in five foot deep beds. The model was able to predict the average bed moisture content versus time within 3% for all varieties except the Nuggets.