Effect of Hull Condition on Drying Time and Kernel Quality

To supplement the test of effects of ethephon and harvest delay on percent moisture, a test was developed to determine moisture content of nuts with intact and dehisced husks. Little difference in drying time existed at optimum harvest date between nuts having completely intact husks when compared with those partially split. Kernel quality was substantially less from dehisced hull kernels, 16.4% light meat in contrast to 34.9% light kernels from nuts with intact hulls. Mold and insect damage were also substantially higher when husks were dehisced.

Walnut Dehydration Trials - 1976
James F. Thompson

The walnut dehydration trials completed this year were designed to determine what proportion of heat from the fuel is actually used for drying and how the rest of the heat is lost. A knowledge of the heat flow characteristics in a walnut dehydrator will provide a basis for understanding how to conserve energy in this operation.

Results to date have shown that only about 1/4 of the heat from the fuel is used for removing moisture from the walnuts. Almost 1/2 of the heat is expelled in hot air that leaves the bin during drying. Other investigations have shown that a well adjusted burner loses 20% of the potential heat supplied to it. Heat lost through the walls of the bin was calculated to be only about 5% of the total heat input.

These results point out that the energy conservation investigations should be directed toward understanding burner efficiency and determining how some of the heat exhausted from the drying bins can be reused. Preliminary work this fall indicated that recirculating some of the exhaust air back through the burner may be a good method of saving energy. Investigations will be continued next year into this and other possible means of energy conservation.

Walnut Hull Disposal
G. S. Sibbett and J. H. LaRue

During harvest of 1974 an experiment was developed to find alternative methods of walnut hull disposal rather than piling and ponding. In this replicated test, hulls were spread in three crops (nectarines, walnuts, and persimmons) and compared with piled hulls for house fly populations. House flies were eliminated by spreading hulls. Soil samples of treated vs. untreated soils were monitored to determine if any adverse affect of continued hull spreading on soil chemistry and tree growth occurs. No adverse affects of annual spreading of hulls has been observed in trees or determined from soil analysis.