4) Hull colonization by Penicillium with Penicillium-inoculated nuts was as follows: colonization of the stem end was 20% to 21% to 12%. The blossom end was 7% to 17% to 12%. The hull sections were 1% to 3% to 8%.

5) No single hull position was correlated with an increase of Penicillium in the kernel. Colonized vascular tissue was most important in determining whether the kernels were colonized. The probability of kernel colonization increased when the vascular tissue and hull positions were infected.

EFFECTS OF IRRIGATION PRACTICES AND DIFFERENT LEVELS OF SOIL MOISTURE ON ROOT NECROSIS AND DECLINE OF WALNUT TREES IN CALIFORNIA

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In order to determine some of the effects of irrigation practices and waterlogged soil conditions on root necrosis and decline of orchard walnut trees it is necessary to precisely measure and record moisture and oxygen availability in soil. Preliminary experiments have been initiated to determine the suitability of some commercially available tensiometers, pressure transducers, and data collection devices for recording soil matric potentials in walnut orchards. Unfortunately, none of the readily available equipment is sufficiently sensitive to small changes in soil matric potential (0 to -5 millibars), and attempts are now being made to contrive and combine instrumentation to make the necessary measurements. Attempts are also being made to interface measurements of soil moisture with meaningful measurements of oxygen concentration, diffusion rate, and/or redox potential in soil.