Effect of Predisposition on Susceptibility of Trees to Deep Bark Canker

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Observations of Hartley walnut orchards indicate that certain predisposing factors may affect susceptibility of trees to deep bark canker. Healthy, vigorous walnut trees appear to be less susceptible to deep bark canker than weak individuals. Additional predisposing factors can usually be identified in orchards where deep bark canker occurs. These factors include soil compaction, inadequate irrigation, blackline, crown rot, crown gall, or generally poor soil for support of walnut tree growth. Soil profiles were studied in two orchards that had areas of high and low incidence of canker-infected trees within each orchard. High incidence of canker was associated with soil conditions that impeded water movement. Root systems of cankered trees were generally shallow and less well developed than those of healthy trees. Severely cankered trees in one orchard appeared to be recovering following improved irrigation practices initiated by the grower. Thus, attempts to arrest deep bark canker by soil treatment to improve water penetration have been started in two orchards. Deep bark canker has never been demonstrated to affect yield. However, in one experiment involving ten trees, nuts collected from diseased limbs were larger than those from healthy limbs.

Deep Canker of Hartley

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Mapping and evaluation for deep canker in Hartley walnuts is being resumed. Recent observations indicate that severity of canker may be associated with soil conditions and care. Observations are being made of orchards under identical care in which several soil conditions exist. Preliminary observations indicate that Hartleys planted on deep, well-drained river bottom soils seldom have deep canker infections unless predisposed by conditions such as blackline. One 20 acre block of Hartleys in Gustine mapped in 1970 showed approximately 25% infection. In 1975, following improved cultural conditions and a new pipeline system, almost no active cankers can be found. In 1975, this orchard produced over 2-1/2 tons per acre.