EPIDEMIOLOGY OF WALNUT BLIGHT
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OBJECTIVES

To describe disease development and spread in the field, determine relationship of blight infection to nutlet drop and crop damage, establish periods of host susceptibility, and to monitor population fluctuations and correlate with environmental factors and disease incidence.

PROCEDURES

Weekly observations were made of catkins, leaves, and nuts in an Ashley orchard in Butte County and of nuts in a Tulare County Marchetti orchard. Blight infections and the fate of each nut were tabulated. Records of temperature and moisture were kept.

Other projects, conducted only in Butte County, included inoculations of nuts throughout the growing season, monitoring of bud and catkin bacterial populations, preliminary studies on activity of an inhibitor present in hull tissue, systemic movement of the pathogen, and the role of twig lesions as possible inoculum sources.

RESULTS AND CONCLUSIONS

Susceptibility of nuts to blight infection appears to begin when flowers are first formed and ceases early August. The time period from infection to symptom expression lengthens as the season progresses, suggesting that "new" blight in summer results instead from late spring infections. Buds harbor blight bacteria all year long but the percentage of infested buds and population levels are much depressed in summer. Catkins do not become infested until fall or winter. Internal populations are greater than external, and buds have higher numbers of bacteria than do catkins.

More than 70% of nuts that dropped before June 1 had blight infections (68% corroborated by culture) and all that fell after June 1 had visible blight symptoms. Any sized lesion on the hull at harvest, with rare exceptions, means complete economic loss of the nut meat.