

# Filbertworm Control

experimental insecticides show promise  
in tests on northern California walnuts

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In the second year of tests, Guthion and Sevin—not yet released for use on walnuts—again showed encouraging control of the filbertworm on Payne and Franquette walnuts.

Prior to 1957 lead arsenate was the only insecticide that had shown much effectiveness against the filbertworm and the control obtained was less than desired, amounting to around 50%.

Experiments with Guthion and Sevin were undertaken in 1957. When applied on August 20 to Payne and Franquette walnuts in an orchard near Gridley both insecticides showed promise in controlling filbertworm. Because of the results the insecticides were investigated further in 1958.

All treatments and untreated checks were run in duplicate. Guthion, 25% wettable powder, at 6.5 pounds per acre and Sevin, 50% wettable powder at 8.0 pounds per acre were applied in approximately 200 gallons of water by an air carrier sprayer. Applications of both insecticides were made on August 20 when the husks of sound Payne nuts were just beginning to show signs of cracking.

At harvest, 100 nuts were picked from 10 trees for each variety plot. After curing, a crack test was made to determine the degree of infestation. Most of the

wormy nuts had been attacked by the filbertworm. In the check plot, 22% of the Payne nuts and 9.6% of the Franquettes were infested. In the Guthion plots, 7.6% of the Payne and 2.4% of Franquettes were infested. The infestations in the Sevin treated plots were 10.2% for the Payne and 4.5% for the Franquettes. It is possible that both insecticides might have produced better results had they been used at a higher concentration per acre.

The filbertworm attacks walnuts nearly everywhere the crop is produced in northern California. Fortunately, it has proved to be a serious pest only in certain localities. However, in years of localized outbreaks there is a general rise in the infestation throughout most walnut producing sections.

The 1958 season concluded the fifth year of trapping filbertworm moths in bait pans in an orchard near Gridley. There was a large flight in 1958 and a destructive infestation occurred in the walnuts at harvest. The seriousness of the attack approached or may have surpassed the outbreak in 1954.

The 1958 season was the fifth consecutive year that the filbertworm has been a moderate to a severe pest in the potential areas of heavy attack. Prior to 1954

investigations indicated that the pest population reached peaks of outbreak proportions and then, in subsequent years, declined to almost noneconomic levels. The recent behavior may be caused by a developing strain of the filbertworm that has a greater preference for walnuts. The possibility of the development of such a strain certainly warrants investigation.

The filbertworm is unable to penetrate the sound green husks of walnut and therefore it can not enter the nuts until the husks begin to crack as maturity is reached. An outbreak of the filbertworm may not be very troublesome in itself, but can be annoying when added to the infestation caused by the codling moth or the navel orangeworm. Treatments directed against the codling moth exert no control against the filbertworm.

Because the information on chemical control is so limited, growers must rely upon cultural measures to check damage by the pest. Every effort should be made to harvest the crop at the earliest possible date because the filbertworm can not enter sound nuts until the husks begin to crack. Further, because the filbertworm is unable to complete its development on dried walnut meats, the crop should be thoroughly dried as soon as harvested.

Although neither Guthion nor Sevin has been released for use on walnuts, it is anticipated that permission for use on walnuts will be granted by the proper authorities.

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## NITRIFICATION

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and ammonium concentration becomes evident from a comparison of the maximum rates of nitrification at 45°F and at 75°F. The inhibiting effect of high ammonium concentration in the soil on nitrification rate was more pronounced at the lower temperature. In general, the time lag before the maximum rate of nitrification was attained, was longer at the lower temperature, and was extended with increasing concentration of ammonium nitrogen. Maximum rates of nitrification where aqua ammonia was applied varied from 4-41 pounds per acre per day depending on the temperature and concentration. Generally, the maximum rate at 45°F was between 20% and 40% of the rate at 75°F.

In California, the mean January temperature in the major agricultural areas

does not go much below 45°F. Results of these experiments demonstrate that nitrification is still appreciable at temperatures below 45°F, which indicates that winter temperatures in California are not sufficiently low to prevent oxidation of substantial quantities of ammonium nitrogen to the nitrate form. The concentration effect of band applications of ammonium fertilizers—combined with low temperature—will play a role in retarding nitrification and thus preserve a greater proportion of the fall applied nitrogen for use by the following spring crop.

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## PEARS

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tions. In refilling, provisions should be made to break the fall of the fruit from the carrying belt into the bottom of the box.

5. When possible, fruit from cold storage should be permitted to attain room temperature before sizing operations take place.

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