Shell Perforation and Poor Sealing of

WALNUTS

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WALNUTS

Holes in walnut shells and lack of a tight seal of the two halves of the shell are two abnormalities which sometimes occur in walnuts. Both of these are extremely serious faults because they result in cull-grade nuts and prevent sale as in-shell nuts.

Shell Perforation

Symptoms

Shell perforation is characterized by small holes or thin spots in the shell of the nut. The holes usually are most abundant near the tip end, but may also appear along the sutures and sometimes at the basal end of the nut (Figure 1).

Cause

All of the factors which cause perforation are not known. In California, perforation is attributed primarily to work of the common aphid (*Chromaphis juglandicola*). However, studies on the relationship of aphids to perforation carried on in Oregon are inconclusive. Fertilizer experiments so far have failed to show a relationship between soil fertility and perforated shells.

Studies indicate that any condition preventing the normal development of the shell can result in perforation. Sunburn at certain stages in the development of the nut can result in shell perforation. Walnuts infected with bacterial blight may develop thin spots or perforations in the shell.

Below normal summer temperatures may result in perforation. In 1954—a year when summer temperatures were lower than normal —shell perforation was very prevalent. The following year, when summer temperatures were above normal, very little perforation occurred.

Certain seedling trees produce perforated nuts each year regardless of seasonal conditions. In these cases, it is possible that these seedlings require an excessively warm and long growing season to mature the shells properly.

Control

Shell perforation caused by subnormal summer temperatures cannot be controlled. Perforation due to sunburn can be lessened to some extent by keeping the trees in a vigorous condition to encourage dense foliation.

Where perforated nuts occur annually on certain seedlings, the trees should be topworked to a standard variety that normally has a low percentage of perforated nuts.

Poor Seal

Symptoms

Poor seal, as the name implies, is a lack of a tight seal of the two halves of the shell along the suture (Figure 2).

There are generally more poorly sealed nuts in the jumbo grade than in other grades of nuts.

Figure 1. A Persian walnut with a perforated shell.

Figure 2. A poorly sealed Persian walnut.

Cause

Poor seal usually develops after the nuts leave the tree. This may be caused by leaving nuts on the ground for long periods before harvest or too rapid, uneven, or over drying.

Limited experiments indicate that drought increases the incidence of poor seals.

Control

Nuts should be harvested as soon as possible and dried at an even temperature. The temperature during drying should not exceed 110° F. A mechanical dryer is preferable to sun drying. Mechanical dryers operate independently of weather conditions, and the drying temperature is more constant.

There is some indication that irrigation in years having late summer droughts will decrease the incidence of poor seal.

See your
County Extension Agent
for information
on other diseases and
insect pests of nuts.

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