

Stylar End Checking of the Hachiya Persimmon

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Transverse skin cracks or ridges at the apical or stylar end of Hachiya persimmons comprise a frequently observed fruit blemish. These cracks often appear as light to dark or black irregular, broken lines on mature fruits. Healing or callusing of these skin breaks on less mature fruits results in their appearance as slightly raised ridges.

This injury resembles in many respects the trouble known as "blacknose" of dates, which according to Nixon¹, "numerous small transverse checks or breaks in the skin in the apical portion" develop. Blacknose skin ruptures are of physiological origin occurring coincident with moist or humid weather when the dates attain a certain stage of maturity. Dates on the palms in a garden will check if there is free moisture on the surface of fruit still green but beginning to fade prior to acquiring the pink tints of the early khalal stage. The stylar end checking of Hachiya persimmons is likewise a physiological injury which occurs on partially green fruits approaching maturity on the trees in the orchard prior to harvest. The skin breaks develop during or immediately following humid, foggy or rainy periods during which free moisture collects upon the fruit surface. The two fruits undergo similar physiological changes in the same manner during maturation. The initial change of color from green to pink, the loss of astringency due to tannin modifications, the increase in sugar content and all other changes coincident with maturation start at the apical or stylar end and progress to the basal stem end or calyx end of these fruits.

Preliminary experiments to ascertain the relationship of water to this skin cracking of Hachiya persimmons were performed in the Division of Horticulture orchard of the University of California at Los Angeles. Four fruits, free of visible skin breaks and showing a loss of green color from the stylar half of the fruit, were selected and tagged. The apical half of these fruits was immersed in water for three days. These persimmons showed typical stylar end skin checks while comparable fruits on the same tree which had not been treated were free of skin breaks at the end of the three day period. The next day, during a light drizzle of rain, tags were attached to twelve fruits on the same tree which showed no checking. Six of the twelve fruits were in the open, exposed to the rain, while the others were well protected by a cover of leaves. The following day, the six exposed fruits had typical skin checks at the stylar end while the protected fruits had none.

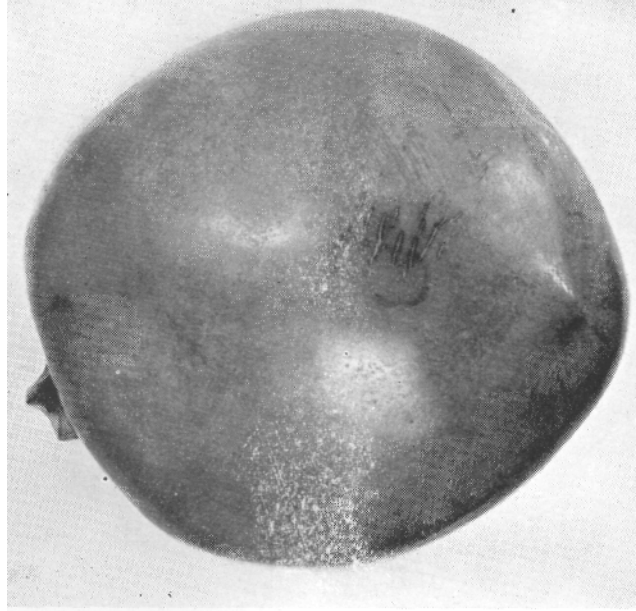


Fig. 1—Hachiya persimmon showing stylar and skin checks. This fruit was atomized with water containing a small amount of aniline blue dye.

From these results it seemed apparent that the checking of persimmons develops on fruits on the tree prior to harvest. Nixon¹ however was able to induce blacknose checking of dates in the laboratory provided they were picked at the proper stage of maturity. Typical checking resulted when such fruits were immersed in water for 24 hours or more. The writer was not able to induce checking of persimmons detached from the tree. Twelve well colored, mature persimmons free of skin breaks or injuries were placed stylar end down in glass custard cups filled with tap water. The entire apical half of each fruit was submerged in water. None of the persimmons showed stylar end checks even after 72 hours exposure.

To further establish the direct relationship between the presence of free moisture on the surface of the fruit and the checking or cracking, Hachiya persimmons on trees at Riverside and Los Angeles were atomized with distilled water to which a small amount of water soluble aniline blue dye had been added. The atomized fruits as well as some unsprayed ones were enclosed in paper bags containing wet paper toweling. None of the bagged fruits on the Riverside tree developed skin checks due to the dry atmosphere and consequent rapid evaporation of the atomized water from the surfaces of the sprayed fruits. All of the atomized fruits on the tree at Los Angeles developed typical skin checks within 24 hours. No skin breaks developed on the bagged but unsprayed check fruits. As shown in figure 1, skin breaks occurred only at the apical or stylar end of the fruit and furthermore only where the atomized drops of dye solution collected and gradually dried to leave a visible stain on the surface of the fruit.

The reason this type of injury to Hachiya persimmons is more common in the more humid coastal areas than it is in the dry interior sections is obvious. It is likewise apparent that the prevalence of this trouble may vary within a region from place to place or from season to season depending upon the local or the seasonal weather conditions

prevailing during the early stages of the maturity of the fruit.

1. Nixon, Roy W. Observations on the occurrence of blacknose. Rept. Ninth Annual Date Growers Institute 3-4. March 1932.