Understanding White Druplet in Caneberries

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Introduction: Growers of caneberries report that berry druplets, the juice filled sacs that compose blackberry and raspberry fruit, will sometimes turn white for no apparent reason. The following article is a discussion of the probable causes of this problem, called white druplet, and what growers can do to minimize it.

White druplet is a tan to white discoloration of one to many druplets on the fruit (Figures 1 and 2 below). Most often, white druplets will appear when there has been an abrupt increase in temperature accompanied by a drop in humidity, and this will be especially pronounced when there is wind. Commonly, in the Monterey Bay area, this would mean fairly steady temperatures of 70^{o}F suddenly going to above 90^{o}F with an absence of fog.

While white druplets may seem to be directly caused by weather, they are actually caused by ultra-violet (UV) radiation. Weather conditions modulate this by the effect they have on penetration of UV radiation into the fruit. Cool, humid air scatters and absorbs UV radiation, while hot dry air has the opposite effect and allows more direct UV rays to reach the fruit. The movement of humidity away from the canopy by wind only heightens the effect of hot dry air. Additionally, as humidity is moved away from the plant canopy more UV rays penetrate the canopy and damage the fruit that may not even have been exposed to the sun. Fruit inside of the canopy have not been acclimatized to UV radiation, and are subsequently more susceptible to it when in finally reaches them.

Some growers of caneberries in the Willamette Valley of Oregon, where rapid changes from a normally mild climate to temperatures up to and above 100 degrees Fahrenheit occur through the summer, use overhead irrigation to minimize fruit loss to white druplet. This is not merely misting the fruit; large amounts of water are applied and thoroughly wet the canopy. This is done to maintain cool temperatures and high canopy humidity for as long as possible. Sprinkling is not done too late in the evening to allow fruit to dry before nightfall.

While some varieties, such as Apache blackberry, Kiowa blackberry and Caroline red raspberry, tend to get white druplets more frequently than others, almost all caneberry varieties are susceptible to at least to some degree.

Conclusion: The above has been a summary of the causes and approaches growers can take to minimize white druplet in raspberries and blackberries. Growers are encouraged to contact Mark Bolda with UC Cooperative Extension regarding the management of this and other problems in strawberries and caneberries.

Figure 1: White druplet on Apache blackberry

Figure 2: White druplet on Heritage red raspberry