

How to differentiate among grape shrivels that occur during ripening

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The objective of this study is to differentiate among grape shrivels that occur during ripening. Thus far, we have identified four types of shrivel; each type is caused by a different factor. The first type of shrivel is associated with sunburn, which is caused by overexposure of the grape cluster to both excess solar radiation and temperatures, especially after leaf removal during the late-season. Exposed berries lose the bloom, develop less color, and appear very shiny. In extreme cases, the berries shrivel up and develop raisin-like characteristics due to water loss through the skin. The second type is associated with dehydration, which is simply the loss of water through the berry skin causing weight loss, but concentrates the sugars. Dehydration normally initiates at the end of the ripening period when phloem influx slows down naturally. Dehydrated berries develop dimples on the surface making it appear like a golf ball. The third type of shrivel is associated with bunch-stem necrosis (BSN) or waterberry, which involves development of darkened lesions either on the rachis or on the peduncle after veraison. These lesions expand and girdle the affected area blocking the supply of water, nutrients, and sugar to the berries. Berries on the affected portions of the cluster dry up and shrivel. Finally, Berry Shrivels, a physiological disorder becomes visible sometime between veraison and harvest. Berries in clusters affected by Berry Shrivels are flabby resembling a deflated soccer ball. Moreover, berries develop less color, the juice is watery and very sour with less sugar, and very often the berries develop an off-flavor. Among all these four shrivel types, Berry Shrivels imposes the most serious threat to fruit quality as the clusters with Berry Shrivels are not suitable for wine making.