

FRUIT QUALITY MANAGEMENT 2021-2023

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Fruit quality is becoming very important in cranberry production. The major driver towards adopting fruit quality standards in cranberry production has been the introduction of new hybrid varieties. The new hybrid varieties are high yielding leading to an overabundance of fruit available on the market. Consequently, handlers are being more strict about the quality of fruit they are willing to accept. Currently, the fruit quality parameters being evaluated by handlers include fruit color, firmness, and size. Fruit quality standards are dependent on handlers and are not standardized throughout the industry. Also, depending on the handler, growers sometimes get paid an incentive for specific fruit quality parameters such as color and firmness. Growers can be assessed for fruit not meeting size requirements. Growers are advised to check with their handler every year to see which quality incentives are available. Currently, the options available for fruit quality management are very limited. As more research is conducted, more fruit quality management options will become available to growers.

Fruit color

Fruit color is an important quality parameter in cranberry production. The timing of cranberry fruit harvest is often based on red color development. The majority of fruit produced is processed for cranberry sauce, fruit juice, and sweetened dried cranberries. Uniform fruit color is very important for processed fruit. Currently, growers can use canopy manipulation and weed management to improve fruit color. Another option for growers is to plant varieties that develop color easily.

Canopy management

Pruning and sanding are cultural practices that have been shown to improve fruit color in cranberry with minimal yield reduction. Pruning and sanding increase light penetration into the canopy. Light is essential for the formation of anthocyanins, which give cranberry their deep red color. Another option for improving fruit color in cranberry bogs that are overgrown is mowing. Mowing is a last resort as it will result in yield loss during the year in which it is done.

Weed management

Certain weed species such as dewberry, sawbrier, poison ivy, or dodder can sprawl across the cranberry canopy, thereby reducing light penetration that is essential for the anthocyanin formation. Weed management is also very crucial when pruning. Weeds such as moss can grow into the open space created by pruning, or weed seeds on the soil surface can germinate and establish thereby negating the benefits of pruning.

Choice of variety

When renovating, growers should plant varieties that develop color easily, keeping in consideration other parameters such as fruit size, firmness, rot, and yield potential. Varieties such as Demoranville, Crimson Queen, and Ben Lear have been shown to color up easily under Massachusetts growing conditions.

Fruit firmness

Fruit firmness is another important quality parameter in cranberry production. Firmer fruit are easier to slice during the process of making sweetened dried cranberries (SDCs). Depending on handlers, cranberry growers are paid an incentive for fruit with high firmness, thereby increasing their returns. Factors that influence fruit firmness in cranberry can be divided into pre and postharvest factors.

Preharvest factors

Excessive nitrogen fertilizer can result in reduced fruit firmness.

Postharvest factors

Several postharvest factors can result in lower fruit firmness. Leaving fruit to float for extended periods after harvest results in a loss of fruit firmness. Slower reeling has shown a negative impact on fruit firmness compared to faster. When pumping the fruit off the bog, higher pump speeds have been shown to be associated with a loss in fruit firmness. When cleaning fruit with higher pressure nozzles, overripe fruit could show significant loss of firmness at higher pressures. The height of the truck used to deliver the fruit to the receiving station also affects fruit firmness, fruit at the bottom of a higher truck will be under increased pressure due to the sum of total weight from the berries above them.

Fruit size

Currently, there are no options for increasing fruit size in cranberry except renovating. If renovating, growers should plant new hybrid varieties that have been shown to have larger fruit size compared to the native varieties.