

BLACK RASPBERRIES: NEW INTEREST IN AN OLD CROP

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Background

Canada, and became a commonly cultivated crop during the early 1800's. By the 1860's, there were at least 11 cultivars of black raspberries grown in the East, including an everbearing selection that was named and introduced around 1832, though this source of the everbearing trait was subsequently lost. By the 1880's, several thousand acres of black raspberries were being cultivated in New York State alone.

Since that time, production acreage in the East has decreased. Currently the state with the most production is Oregon, where according to the 2012 USDA-NASS Noncitrus Fruits and Nuts Summary, 900 acres were grown, producing 2.4 million pounds of berries almost entirely for the processing industry. Interestingly, the most widely-grown cultivar for this industry has been 'Munger', a cultivar introduced from Ohio in 1890. USDA statistics on black raspberry production for states other than Oregon are not available.

In the East, interest in the fresh-market black raspberry crop varies with locality, with the perception being that rural consumers, perhaps because they are accustomed to black raspberries, prefer black raspberries over red raspberries, while urban and suburban consumers generally prefer red raspberries. This preference for red raspberries was noted during the 1800's and was ascribed to greater familiarity of the population with the European red raspberry of their homelands. However, whether the majority of current consumers truly prefer red raspberries over black raspberries, or are simply more familiar with red raspberries due to their wider availability is unclear. What is clear is that individual consumers often have a strong preference for one type of raspberry over the other.

Currently, the majority of black raspberries in the East are grown in small plots, typically one-half acre or less, on diversified farms. However, several farms that specialize in growing berries grow much greater amounts of black raspberries, the largest in the eastern U.S. being Stokes Berry Farm in Ohio with 40 acres of black raspberries.

The relatively low overall acreage of black raspberries in the East is likely due to a number of reasons, one important one being the crop's short harvest season and concentrated ripening. This means that in order to get the crop harvested in pick-your-own operations, customers must be made aware of when the crop is available. The short harvest season and concentrated ripening period is, however, an advantage for machine-harvest. A second challenge is that black raspberry productivity is relatively low, typically averaging less than 2500 pounds per acre. Third, the black raspberry fruit is small, so labor requirements per pound of harvested berries is relatively high. This combination of factors means that fresh-market production is limited to mainly pick-your-own operations with a large customer base, farms where there is otherwise sufficient labor to harvest the berries, and locations where a high price can be obtained to cover costs. Finally, although black raspberries are fairly easy to grow, maximizing production and fruit quality can be challenging.

Increased Interest

Consumers. Recently, there has been an upsurge in consumer interest in the crop. The health benefits of black raspberries and their value in both preventing and fighting certain types of cancer have been discovered and received considerable attention over the last decade. This publicity has also had the side benefit of increasing consumer awareness of the crop's existence. Interestingly, the fact that consumers are sometimes unaware of the difference between black raspberries and blackberries means that growers may need to do some customer education.

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Growers. Within grower ranks, there is always interest in growing crops with a strong market. However, the arrival of spotted wing drosophila is also increasing grower interest in berry crops with an early fruiting season; in this regard, the early and short harvest season of black raspberries may be an advantage, as harvest has been essentially over in the mid-Atlantic region and northward by the time that spotted wing drosophila populations become troublesome.

Breeding Efforts. Renewed interest in breeding with black raspberries is occurring in several venues. It had been long-assumed that because there is little variation in traits among current cultivars of black raspberries, little improvement would be obtained from additional efforts. However, recent studies using molecular techniques are finding more genetic diversity in wild germplasm than was expected, and there is potential to incorporate traits from a western close relative, whitebark raspberry, *Rubus leucodermis*. Besides attributes such as improved yields or flavor, other traits such as resistance to botrytis, improved firmness, and resistance to raspberry bush dwarf virus have potential to be incorporated into new varieties of both red and black raspberries from wild black raspberry germplasm. Furthermore, concentrations of bio-active compounds have been found to vary widely in wild germplasm, and thus improvements may be made in this area. Perhaps one of the traits that has the most potential to change the landscape of black raspberry production is the re-introduction of the long-lost trait of primocane-fruiting ability through the work of Peter Tallman. Use of varieties with this trait could increase the potential length of the harvest season and total yields.

Production Basics

There are several points of interest for producers establishing or expanding their plantings of black raspberries.

Site considerations. The black raspberry plant is tolerant of a wide range of soil types and pH, but is slightly more cold-tender than red raspberry and is not adapted to hot growing conditions. Thus, black raspberry production tends to be the most successful in areas with moderate temperatures. As with other small fruits, a well-drained site is needed. Black raspberries are somewhat susceptible to phytophthora root rot, though not to the extent that red raspberries are, but are very susceptible to verticillium wilt and thus should not follow tomatoes, potatoes, and other solanaceous crops. Wild raspberry and blackberry plants in the vicinity should be removed to the extent possible before establishing the planting, and distance from wild plants should otherwise be maximized.

Irrigation. Trickle irrigation is a necessity for ensuring that berries will reach full size.

Varieties. Only a few varieties – ‘Bristol’, ‘Jewel’, and ‘Mac Black’ - are currently widely-available for fresh-market production. Of these, ‘Mac Black’ extends the production slightly longer, adding about a week to harvest. Testing of various varieties from nursery suppliers has shown the above 3 varieties are generally correctly labeled; however, many other varieties, especially older ones, may not be what they were thought to be. The primocane-fruiting trait is now in existence in ‘Niwot’, which is expected to be available in the near future.

Trellising and training. A major difference between black raspberries and red raspberries is that black raspberries will arch over and tip root where they touch the ground. This is true for both standard floricanes-fruiting plants, and also ones with the primocane-fruiting trait. Thus, vegetative canes of floricanes-fruiting types must be tipped (i.e., the top 2-3 inches of growth removed) during their first summer to avoid this problem and also encourage lateral formation. Plants with the primocane-fruiting trait should be trellised, but best methods of management to maximize yields have yet to be investigated.

Insects. Aphids and thrips can be vectors of viruses to which black raspberries are very susceptible and thus should be controlled. Plantings should not be established where other fruit crops were grown due to the likely presence of dagger nematodes which are the vector of tomato ringspot virus. In northern areas, spotted wing drosophila populations are generally too low to be of concern until the end of the summer black raspberry harvest season. However, in areas with mild winters, spotted wing drosophila presence should be monitored to determine when sprays are needed.

Diseases. The widespread presence of wild black raspberries and blackberries in many wooded edges, roadsides, and fencerows means that growers need to be vigilant to protect their cultivated plants from systemic diseases such as or-

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ange rust and viruses, to which black raspberries are extremely susceptible. Though 500 feet is often mentioned as the distance for removal of wild plants, there is no precise distance that ensures safety, so plantings should be monitored for appearance of orange rust symptoms – specifically, weak spindly olive-green growth in the spring, followed by the appearance of orange pustules on the leaf undersides of infected plants. Protective fungicides should be applied, and infected plants should be dug out, taking measures to minimize spores being disseminated. Growth of surrounding plants should be monitored. Since orange rust is systemic, any plant parts that are left behind will still be infected and may resume growth.

Plants should also be monitored for symptoms of viruses, and as mentioned above under site considerations and insects, steps should be taken to minimize exposure of plants to vectors. As always, plants should be purchased from a reputable source.

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