

# GROWING KNOWLEDGE

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## Better-bred berries for the retail market

By Chad E. Finn, Ted Mackey and Mary Peterson, USDA-ARS Berry Breeding, & Bernadine C. Strik and Pat Jones, Oregon State University

**W**HILE THERE are many exciting new choices for berry cultivars for the Northwest commercial industry, very few of them are available in the retail nursery market. It's an odd thing where the top-selling cultivars in the region haven't seen the light of day in the retail nursery market.

For many other nursery crops, new is exciting, while in the berry business the same-old, often tired and inferior cultivars are offered up year after year.

Hopefully, we can encourage plant buyers to look around and ask their suppliers to see if they can bring some new excitement to this corner of the nursery trade. Some dynamite new varieties are out there from Northwest programs, especially the USDA-ARS Berry Breeding program, which is run collaboratively with the Oregon State

University's Berry Crops program in the Department of Horticulture.

### Expanding the blackberry palette

The commercial blackberry industry was in critical need of thornless, cold-hardy cultivars with the flavor and fruit quality of 'Marion' (aka "marionberry"). These traits are just as valued by homeowners.

'Black Diamond', for the past 10 years, and the new 'Columbia Star' have been the top-selling blackberries for the commercial industry. Both are thornless, trailing cultivars that are firm, high yielding and beautiful. 'Black Diamond' has very good fruit quality and, remarkably, 'Columbia Star' has scored equal to or better than 'Marion' for fruit quality traits including flavor.

While 'Marion' has name recognition, it is thorny and softer, lumpier, lower

yielding, more susceptible to summer heat damage, and more winter tender than these new ones. So, why grow it?

The new thornless 'Columbia Giant' is just being released. While the excellent flavor is a bit tart, the obscenely large berries are sure to intrigue buyers and retail customers. With some sugar, the flavor is stunning.

In an effort to spread out the season, and perhaps to escape the dreaded spotted winged drosophila (a larvae that is more of a problem after midsummer), the thorny 'Obsidian' and 'Metolius' are the earliest ripening blackberries on the market. They have outstanding fruit quality and ripen 10–14 days before 'Marion', making them as early as some strawberries and most summer raspberries. They have become fresh market standards where earliness is desired. 

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'Perpetua' is an ornamental blueberry that flowers and fruits twice a season. It flowers in the spring, has a crop in June, flowers again in July and fruits until frost. The photo here was taken September 12 and shows its plentiful second crop. PHOTO BY CHAD FINN

A new blackberry will be coming this spring, once the selection ORUS 3448-2 is named; it is not only thornless but also very early and has outstanding sweet flavor.

Among late season blackberries, the thornless 'Triple Crown' is excellent for berry size, outstanding flavor and good yield. 'Chester Thornless' has very high yields of good quality fruit that are much preferred over the older 'Smoothstem' and 'Thornfree'.

The University of Arkansas has developed a brand new type of primocane-fruited blackberry. Much like fall-fruited (primocane or everbearing) red raspberries, these blackberries fruit on this year's growth.

Based on this new type of blackberry, new and improved cultivars are coming out each year. The first releases, 'Prime-Jim' and 'Prime-Jan', are being replaced by the commercial rock star 'Prime-Ark® 45' and, geared for the home market, 'Prime-Ark® Freedom' (very large fruit) and 'Prime-Ark® Traveler' (firm fruit).

These will be fun for enthusiasts, because the blackberries begin to ripen in early September, but in most years there will only be a very small crop that ripens, unless they are protected (commercial growers use plastic hoop tunnels to keep the rain off the crop).

### Raspberries to rave about

Washington State University has been developing some very exciting summer-bearing (floricane-fruited) raspberries that are tolerant of, or resistant to, root rot.

'Cascade Bounty' is one of the few raspberry cultivars that can live and produce well in heavy root rot prone soils. 'Cascade Delight' has fantastic fruit quality, very large fruit, and will tolerate root rot. The new 'Cascade Harvest' has some root rot tolerance, great fruit, and excellent yield.

'Canby' is the widely sold, old USDA-ARS standby from Oregon. Released in 1953, 'Canby' was great for its time, but 63 years later it just doesn't have the qualities the new cultivars have.

The widely available 'Meeker' is still the industry standard due to its great quality fruit, good yields and machine harvestability. It was released in 1967, however,



and its susceptibility to viruses that cause crumbly fruit and to root rot make it less than a perfect choice.

Among the new raspberry cultivars worth checking out, 'Chemainus' is a newer release from Agriculture and Agri-Food Canada. It has excellent yield, fruit quality and good hardiness. While susceptible to root rot, the new 'Cascade Gold' is outstanding, and it's the only summer-fruited, yellow raspberry.

Many homeowners love the fall-fruited (primocane-fruited) types of raspberry because they are the simplest to maintain. Cut them to the ground in the winter, give them a bit of support when they grow, and you'll have a good crop the following late summer. Berry geeks will have a fall crop and then trim the plants back to get a spring crop further down the old canes. The lazy among us, who ignore pruning altogether, will quite happily have a fall and spring crop.

But because fall-fruited raspberries begin ripening in August, early September rains or frost can cause the late-ripening fruit to be a mess.

Good choices for fall fruit include the old standbys 'Heritage' and the yellow-fruited 'Anne'. Year in and year out, 'Heritage' is a reliable producer of good quality fruit. 'Anne' yields large yellow fruit with excellent quality.

'Fallgold' is best avoided, however.

Aside from fruit flavor, it is horrible with small, very soft fruit that tend to fall apart.

The new release 'Vintage' from the USDA-ARS in Oregon is picking up steam in the commercial trade for its good yields of large, red fruit with outstanding flavor. It ripens before 'Heritage', so August production is good with much better fruit quality. 'Vintage' suckers less and is shorter and stockier than 'Heritage', so it takes up less space in the garden, but it's slower to fill in a row if the plants are widely spaced.

'Himbo-Top', 'Polka', 'Joan J' and the early 'Autumn Bliss', all from Europe, have worked well for many. The new releases from New York ('Crimson Giant', 'Crimson Knight' and 'Double Gold'), which are widely available in catalogues, do not fare well in the Northwest. They are very late to ripen, unproductive, and fruit quality is not outstanding.

### Strawberries worth seeking out

'Tillamook' has been the number-one or second-most planted, June-bearing strawberry in Oregon for most of the years since its release in 2002. 'Tillamook', from the USDA-ARS breeding program, is very high yielding, has excellent quality if allowed to fully ripen (when you think it is ready to pick, wait a couple days and then pick it), is as long-lived as strawberries go, and has large, very visible fruit. The combination of

high yield and large, efficiently picked, high-quality berries has made it the darling of the Northwest strawberry industry.

Forty years after its release, 'Benton' continues to produce burly, long-lived plants that produce good yields of late-ripening, soft, good-flavored fruit, making it an excellent choice for homeowners.

'Hood', our 50-year-old elder statesman, is still the standard by which all others are measured for flavor. It has been a horrible parent in the breeding program, however; its offspring usually have all the negative traits associated with 'Hood' — smallish, soft, low yielding, very disease susceptible — and only occasionally are as nice to eat. One cannot begrudge those who sell this cultivar based on flavor, but homeowners need to treat it as a short-lived plant. Some commercial growers manage it for one fruiting season and then replant it — maybe that's how homeowners should treat it too!

Better choices for home planting include these three new, exciting strawberries: 'Charm' has high yields of outstandingly sweet berries that rival 'Hood' on tough, long-lived plants; 'Sweet Sunrise' produces high yields of very early ripening fruit with fantastic flavor when sprinkled with a bit of sugar; and while 'Puget Crimson' suffers from variable yield, its flavor will blow your socks off in the very late season. All three are taking off in the marketplace and would be excellent choices for the nursery trade.

Day-neutral (remontant, everbearing, repeat-flowering) strawberries are a great choice for those who are growing in patio containers or only want a few berries at a time over a long season. These types tend to have a big spring crop, and then flower and fruit over the summer when the temperatures stay below about 90 F and then really kick in again in fall when the temperatures cool.

'Seascape' has been the standard for this market for a long time. While yields are moderate, its fruit size and quality are excellent.

As alternatives, we cannot recommend 'Tristar', which despite excellent flavor has tiny fruit and is short-lived; ➤



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## Better-bred berries for the retail market

'Tillamook', from the USDA-ARS breeding program, has been the number-one or second-most planted, June-bearing strawberry in Oregon for most of the years since its release in 2002. This photo was taken at Townsend Farms in Washington County, Oregon. PHOTO BY CHAD FINN

nor 'Tribute', which is small and short-lived, although berries have good flavor; nor 'Quinalt' or 'Fort Laramie', which are short-lived, soft, small, poorly flavored and low yielding.

While falling out of favor to higher yielding, poorer-flavored cultivars in California, 'Albion' has been another standard for this market for a number of years, and is far and away the most sold, day-neutral/everbearer in the Northwest. While 'Albion' can taste like bland cardboard if picked under-ripe, as is often the case with fresh berries heading for the wholesale market, when they are allowed to fully ripen they have a delicate, nice flavor. 'Albion' does not have the same "wow factor" as 'Hood', but it suits those who like sweet berries with no acid flavor.

The day-neutral 'Mara des Bois' seems to have captured every food writer's passion. Most people are either a lover or hater of its flavor similar to 'Concord' grape (methyl anthranilate is the ester that causes this). While there are some Portland metro area growers who grow terrific 'Mara des Bois', we find it hard to grow and short-lived in our research plots.

### Blueberries to boast about

Blueberries may be the exception to the rule on diversity of new cultivars in the retail nursery trade. More than a dozen cultivars are often available, including a number of good ones, so there is no reason to grow poorly adapted ones.

The Northwest climate is best adapted for northern highbush blueberries; however, the last few years have seen the development of a large number of "southern highbush" blueberries bred in North Carolina, Georgia, Florida and California for climates with mild winters that don't get many "chill hours." These include 'O'Neal', 'Camellia', 'Carteret', 'New Hanover', 'Star', 'Emerald', 'Jewel' and several varieties named after birds, such as 'Meadowlark', 'Chickadee', 'Flicker', 'Bobolink', 'Raven' and 'Kestrel'.

Southern highbush blueberries may do well in California but they have no business being grown in the Pacific Northwest.



They often bloom in the middle of winter, are winter tender, low yielding and have poor quality fruit.

Instead, the northern highbush should be grown. They are high yielding, well adapted and have excellent fruit quality. Some good ones include, in rough order of ripening: 'Duke', 'Spartan' (lower yield but wonderful flavor), 'Draper', 'Bluecrop', 'Legacy' (very widely adapted, forgiving and excellent flavor, but not cold hardy on the east side of the Cascades), 'Liberty', 'Chandler' (giant berries but a bit soft) and 'Darrow'.

Fall Creek Farm and Nursery in Lowell, Oregon, and Oregon Blueberry Nursery in Stayton, Oregon, have blueberry breeding programs. Both are offering new cultivars to the market but they have not been tested yet in our program.

No one knows how "rabbiteye" blueberries got their funny-sounding name, but one theory is that, as the berries turn pink before they go blue, they are reminiscent of the eye color of a white rabbit. They were developed from a different species of blueberry that ripens really late. The best of these are 'Ochlockonee', 'Powderblue' and the novelty, pink-fruited 'Pink Lemonade'.

Several blueberry cultivars have been released specifically for the ornamental market. These are often smaller plants, including 'Peach Sorbet', 'Jelly Bean', 'Blueberry Glaze', 'Sunshine Blue' and 'Northcountry'.

The USDA-ARS program just released

a stunning ornamental that repeat flowers and fruits. 'Perpetua' flowers in the spring, has a crop in June, flowers again in July and fruits until frost. The plant is compact with extremely dark and glossy leaves that contrast with the fruit and flowers. The fruit are small and mild, terrific for grazing in the garden or for wildlife.

For that magical "wild blueberry" flavor, plant the just-released 'Baby Blues', which has high yields of very small, bright blue fruit with intense and aromatic blueberry flavor (awesome for muffins and pancakes!) on an upright bush.

### In conclusion

With the exception of blueberries, the berry section of most retail markets is a mix of ancient or poorly adapted cultivars.

The USDA-ARS breeding program, run in collaboration with Oregon State University, is over 100 years old and one of the oldest in the world. For years we have collaborated with Washington State University, Agriculture and Agri-Foods Canada and private Northwest berry programs, striving to cultivate ever more impressive berry cultivars. Collectively, we want to see these shared with not only the commercial berry industry but also the retail market.

We encourage growers to order these new cultivars and ask questions on sourcing plants or performance of cultivars. ☺