

Raspberries on the Front Range

The Front Range climate can be challenging for gardening and fruit production. However, with the right plants and innovative methods of growing, the home gardener or commercial grower can be successful. One great option for Front Range residents are raspberries; and who doesn't like raspberries!

Raspberry Categories: There are many different types of raspberries. Their growth form, season and method of culture vary according to variety. Let's start by breaking raspberries down into some major categories.

Color: Raspberries come in a variety of colors, including red, purple, yellow or gold and black. Purple raspberries are crosses between red and black raspberries.

Growth form:

Red and yellow raspberries typically produce erect canes that need little support in our climate. Some varieties grow a little bit longer canes that might benefit from trellising or topping. These raspberries propagate most commonly by sending out 'suckers', which is a new shoot breaking ground some distance away from the mother plant at a node off the root. These raspberries can spread and cause problems in a formal landscape.

Black raspberries typically have more trailing or droopy canes that benefit from trellising. These varieties naturally propagate by 'tip rooting', which means that where a trailing cane touches the ground it can root and start a new plant. Self-propagation is much easier to control in tip rooting varieties. These types of raspberries have a very different pruning regime.

Purple raspberries are somewhere in between. They are frequently managed like red raspberries, although they grow longer canes, and are often 'topped' or cut back to 32" to promote lateral branching. Purple raspberries generally do not sucker.

Summer bearing (floricane fruiting) raspberries are the more traditional type that fruit on second year canes (floricanes). This means that the plant grows canes one year. The canes must survive the winter. In their second season, the floricane canes grow side branches called laterals, and fruit typically about July on those laterals. Hardy summer bearing varieties include Killarny, Boyne & Nova. We are experimenting with others but don't have firm data as yet.

Fall bearing or ever bearing (primocane fruiting) raspberries are capable of bearing two crops a season. They can produce a July crop on second year canes just as the summer bearers do, although the summer crop can be inferior to floricane fruiting varieties' summer crops. They are also capable of bearing a fall crop on first year canes called primocanes. The plant will push new canes in the spring. These canes will flower on the top third of the primocane and bear fruit anywhere from late August to mid-September through hard frost. If those canes survive the

winter, becoming (second year) floricanes, they will produce laterals on the bottom two thirds and bear a July crop in their second year. The plant produces a whole new crop of primocanes each year, giving rise to its second crop in fall.

Front Range Raspberry Culture: So... with all the varieties, where should one start on the Front Range??? Many growers and researchers have put considerable time into this crop and have can give us some tips to make life easier for us. One of the major challenges for Raspberries on the Front Range is surviving the winter. Cold injury or desiccation can kill the buds and canes over the winter. Some years and some settings are better than others. If canes don't survive into their second season, they can never produce a summer crop.

Primocane fruiting varieties grow new canes from the crown each year and consistently produce a fall crop, thus completely avoiding the winter injury issue. Managing fall/ever bearing varieties for only the fall crop also reduces labor greatly. Pruning can be done with hedge trimmers, a brush cutter, bush hog etc. Simply prune off all the canes December through March. Mass pruning is much simpler than the selective pruning required to cut out the spent two year canes of the summer bearing varieties.

Good primocane fruiting cultivars for the Front Range include:

- Autumn Bliss (produces half of its crop in the first couple of weeks of production, maximizing yield before freeze-up)
- Autumn Britten
- Caroline (billed as having the highest anti-oxidant levels of all raspberries)
- Jaclyn (a little more cold tender & slightly less yield but dynamic flavor)
- Polana (slightly tarter but higher yielding)
- Anne (yellow, but the berries seem to be soft)
- Fall gold (yellow-gold, firmer berries & better flavor than Anne at our site).

These all seem to bear early bearers. New early fall bearing varieties are being developed all the time. The yellows don't produce as much as the reds in our experience.

- Heritage is the old standby and is a great berry. It just starts producing 2-3 weeks later than the other varieties, potentially limiting its production season on the Front Range, especially in years with an early freeze.

High tunnels (and probably low tunnels) can extend the productive period of fall/ever bearing raspberries by as much as a month, potentially tripling production in some years. We have harvested raspberries into late October in our high tunnels, and could go later with the use of floating row covers or supplemental heat during freezing nights.

There are other ways to work around winter injury if you want a summer crop, at least on the small scale. Canes may be laid down and mulched for the winter. Row covers may be used. An anti-desiccant such as Wilt Pruf can be sprayed on canes to be overwintered. This treatment should help with desiccation, but would not help with cold injury. Wind breaks in the vicinity can also help with

desiccation. Another strategy is to just take your chances and prune out any canes of either summer or fall bearers that die during the winter. We had an entire loss of our over-wintering red raspberry canes (13 varieties) one year in our research orchard which is in an exposed area along the Cherry Creek Valley near Franktown. However, I've never lost all canes in my home raspberry patch, which is more sheltered with houses, privacy fences and trees. I usually wait to prune my second year canes until I see what winter killed. Once done with that task, I can then thin the floricanes to not more than 10 strong canes per linear foot of row.

Black raspberries have been a pleasant surprise in our research orchard near Franktown. Granted, we have been growing only since 2011, but we have never had a total loss on black raspberries, even the year we lost all our overwintering red raspberry canes. There are at least two primocane fruiting varieties on the market in 2015. We have very little experience with these. Most black raspberry cultivars are floricanes fruiting varieties. Black raspberries are best managed on a trellis as most of them are trailing types. Typically, you'll want to 'tip' or cut back the primocane to 28" during the summer, making sure you are removing at least 4" of cane to stimulate proper lateral branching. More fruit is produced on lateral branches.

We conducted a seven variety trial of black raspberries at our research orchard in 2014. Some varieties had not survived to be tested. Huron had not proven hardy at our site outside, but did survive and bear in the high tunnel. Allen did not survive, but our guess is that we received bad stock from the nursery as two years in a row our plantings never seemed to establish in the spring. Of the seven varieties that did survive, here are some notable observations.

Jewel was the largest berry, but had the blandest flavor. It was quite bland until fully ripe. Once fully ripe it was fairly sweet and had a good flavor, but lacked the depth of flavor and complexity of other varieties. It also had significant (but not total) die-back in the winter of 2013-2014. Its yields were average to high in 2013 but low in 2014 due to the dieback. The other six varieties did not show the same dieback that winter. It fruits in tip clusters. Jewel produced 0.9 lbs. per plant. Production peaked the week of July 29th, with some follow-on the week of August 5th.

Pequot was not as developed as the other varieties, and we had only two smaller plants in the trial. Its flavor was marginal with a somewhat bitter aftertaste in our trials. The yield was very low, but again, plants were small in the trial year. It fruits in tip clusters. We will be watching for better results as our plants mature. Pequot produced only about 0.2 lbs. per plant, but we expect better as it matures. Production peaked the weeks of July 21-29th.

The **wild-collected Minnesota** varieties were the earliest to begin bearing, had small berries, but great complex flavor with a balance of sweetness and tartness. Only a few had a hint of bitterness. It demonstrated a dispersed fruiting pattern. These varieties produced about 1.3 lbs. per plant. This variety produced well between July 14-July 29, peaking the week of July 21st.

Cumberland produced small to medium berries, had average yields, but great balanced flavor. It fruited in a dispersed pattern. Cumberland produced 0.8 lbs. per plant. Cumberland produced between July 14-July 29.

Logan showed more tip clustering than Cumberland. Its berries were small to medium. While taste is subjective, more samplers selected Logan as their favorite than any other. It was fairly sweet, but had a distinct, robust and complex flavor with not much bitterness. It produced 0.8 lbs. per plant, predominantly between July 21-29.

Munger & Bristol may be the same variety according to some sources that have done genetic testing, but were grown in different regions of the country. They grow nearly identical berries. They are both medium to large, look similar, and grow predominantly in tip clusters. Their flavor is very similar, and they have a similar season. They were the sweetest of any of the berries, with Bristol being slightly sweeter. They have a great flavor that was generally appreciated by samplers. What was surprising is that Bristol out-produced all other varieties in our trial. Bristol averaged 2.6 lbs. per plant, while Munger produced 1.3 lbs. per plant. Munger produced between July 14-July 29, while Bristol kept on giving from July 14 all the way through August 11th, with two highly productive weeks centering on July 14-21.

Mac Black is the latest variety; which is a great attribute to extend the growing season. . It grew medium to large berries predominantly in tip clusters. Mac Black had some sweetness, but was more tart than sweet. Its flavor was good to average, but again, an average tasting fresh berry is better than no berry at all. Mac Black's produced between July 29th & August 18th, with its peak the weeks of August 5th & 11th.

Spotted Wing Drosophila: Another challenge that has arisen in the last couple of years is the Spotted Wing Drosophila (SWD). The SWD is a new variety of fruit fly that has come to the Front Range. Its larvae penetrate the skin of developing fruit. Fruit that is infected gradually degrades in quality and becomes unpalatable. For the first few days, it is relatively edible. SWD does not seem to affect fruit until mid-summer. So summer bearing varieties or florican crops on ever bearing varieties are more likely to avoid SWD problems due to their earlier ripening season. Good field hygiene is also important. We have found that picking often does not allow SWD larvae to mature and drastically reduces the level of infestation. We also drag a large pot with a trash bag liner down the row as we pick. Any compromised fruit goes into the black trash bag, which is later tied off and baked in the sun for a couple of days to kill off the larvae, then thrown in the trash.

Soil & Nutrition: Raspberries do best in a well-drained loamy soil with a pH of 6-7. If the pH creeps higher, they can become chlorotic, or deficient in iron, which appears as lightening or yellowing leaves often with green veins remaining. Iron supplements such as Ironate, chelated iron, or iron sulfate help with this problem. Foliar applications of iron containing fertilizers work very quickly. Being that we are in a dry climate, wet soils are rarely a problem. Phytophthora root rot can be a problem on heavy soils that are slow to drain. If wet areas cannot be avoided, planting in raised rows helps. To avoid soil borne diseases, it is best to avoid planting into soil that has grown tomatoes, potatoes, peppers, eggplant, strawberries, or annual vine crops within the last four years. Raspberries take a lot of nitrogen. They are growing new canes every year. This is similar to your lawn that is always growing new blades of grass. Raspberries, just like your lawn, greatly benefit from 2-3 high doses of nitrogen from late winter or early spring through early June. We use a lawn fertilizer (without weed killer!!).

With a good choice of varieties, appropriate cultural methods, and just a little care, you could be enjoying your own raspberry delights as early as this fall or next summer. There is a great world of Colorado-adapted bramble fruit out there that can make your life that much brighter!



Pruning primocane brambles during the winter with a brush cutter



Fall bearing red raspberry in full production



Black raspberry tip-cluster ripening

July 29, 2014

Cumberland



Jewel

Mac Black



Bristol

Munger



Logan



Requet

Minnesota Wild



Huron

Black Raspberries from our 2014 trial



Berries from the Hidden Mesa Research Orchard (includes red & yellow raspberries, strawberries & blackberries).



Black Raspberries on the trellis at the Hidden Mesa Research Orchard



Season's black raspberry harvest, frozen, ready to be made into jam!



Red Raspberries at their prime



CSU Extension Master Gardeners picking raspberries.