Fruit Varieties Journal 47(1):2-4 1993

'Meeker' Red Raspberry

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'Meeker' has replaced its parent, 'Willamette,' as the most widely planted red raspberry cultivar in the Pacific Northwest which is the major producing region for the crop in North America. Currently, 'Meeker' occupies more than 60% of the plantings in the region which includes western parts of Oregon and Washington and southwestern British Columbia. The importance of the cultivar is increasing since it is being used for most new plantings. It has also become an important cultivar in southern Chile where there has been a dramatic increase in red raspberry production in recent years.

'Meeker' originated in the Washington State University red raspberry breeding program from the 1950 cross of 'Willamette' x 'Cuthbert' made by the late C. D. Schwartze. It was selected in 1953 and tested as WSU 408 prior to its release in 1967(15). The name was chosen in honor of Ezra Meeker, a pioneer of the Puyallup Valley where the cultivar was selected and first tested.

As a selection, 'Meeker' was described by C. D. Schwartze as having long clusters of fruit, tall canes, long well-spaced laterals, and thus the fruit is easily seen. The habit was likened to one of its parents, 'Cuthbert.' The fruit was very late ripening, large, conic, smooth and regular, coherent, with drupelets of medium size, uniform and medium firm. The fruit picked and handled well. The flavor was described as good, but inferior to that of the then important cultivar 'Washington.' The fruit was highly rated as a frozen product with good flavor, color and shape retention. Compared to fruit of the cultivars grown at the time of 'Meekers' release, such as 'Willamette,' 'Washington' and 'Sumner,' 'Meeker' fruit had a larger number of smaller sized drupelets. Also, its fruit was higher in soluble solids and lower in acidity (17). This gave a high soluble solids to acidity ratio and perception of 'Meeker' fruit as sweet. Preserves made from 'Meeker' fruit had good color and flavor. For processing, the color of the fruit was brighter and did not darken to the same extent as that of 'Willamette.'

Because of its very long laterals, there was concern at the time of release of the suitability of 'Meeker' for harvesting (15). However, this has not been a problem since the laterals are strong and well attached to the cane and the fruit releases readily from the receptacle. In fact, 'Meeker' has proven as well adapted to machine harvesting as 'Willamette,' which is used extensively throughout the Pacific Northwest for fruit destined for processing uses. One reason that 'Meeker' has replaced 'Willamette' is because of higher yields along with larger fruit size. In addition, 'Meeker' fruit is more versatile because its lighter and brighter color and firmer texture is better suited to fresh market use. At the same time, the fruit is will suited to all processing uses.

'Meeker' has some field tolerance to *Phytophthora*-incited root rot and this is still another reason why it became an important cultivar in the Pacific Northwest. However, on some sites 'Meeker' appears to be susceptible

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and this is of concern. Tolerance to root rot is becoming ever more important with the increasing spread and severity of root rot throughout the Pacific Northwest. It is resistant to both cane *Botrytis* (*Botrytis cinerea* Pers. ex. Fr.) and cane spot (*Elsinoe veneta* Burkh.), but susceptible to spur blight [*Didymella applanata* (Niessl) Sacc.] (5, 9, 12). It is resistant to yellow rust [*Phragmidium rubi-idaei* (D.C.) Karst.] (1, 2) and powdery mildew [*Sphaerotheca macularis* (Fr.)] (Daubeny, unpublished). It is susceptible to the common isolate of the pollen-transmitted raspberry bushy dwarf virus, with infected plants showing reduced yields. (7). However, it does not appear to become as readily infected as some other cultivars. It is susceptible to *Amphorophora agathonica* Hottes, the aphid vector of the raspberry mosaic virus complex. However, the cultivar may have some tolerance to the virus complex, since symptoms are seldom seen.

The fruit is less susceptible than that of 'Willamette' to both pre- and post-harvest fruit rots, the former caused mostly by *B. cinerea* and the latter by both *B. cinerea* and *Rhizophus* species (4). Reduced susceptibility to postharvest fruit rot is a contributing factor to the extended shelf life shown by 'Meeker' fruit (11). 'Meeker' fruit also has lighter and brighter color and greater irmness compared to 'Willamette.' In British Columbia in 1990, 'Meeker' appeared less susceptible to sun damage than 'Willamette,' 'Chilliwack,' 'Comox,' 'Chilcotin,' 'Skeena' and also less susceptible than cultivars and selections from breeding programs in Britain.

Although considered large when released, 'Meeker' fruit is now considered medium or small in size compared to that of the recently released Pacific Northwest cultivars 'Comox,' 'Centennial' and 'Tulameen' (5, 6, 14). It is still considered to be high yielding though both 'Comox' and 'Tulameen' outyield it in British Columbia (6).

'Meeker' is not as cold hardy as some other Pacific Northwest cultivars (10). It was severely damaged at Abbotsford, British Columbia, by unusually low (-14°C) late fall temperatures (5). In laboratory freezing tests, 'Meeker' cold acclimated more slowly in the fall than 'Chilliwack,' 'Comox' and 'Skeena.' However, in the spring 'Meeker' was slower to lose freeze tolerance than other cultivars (10). 'Meeker' may escape cold damage when 'Willamette' is injured in years with cold weather after a warm fall. Under these conditions, 'Willamette' will break bud on primocanes and produce fall fruit, whereas 'Meeker' does not produce fall fruit. 'Meeker' is slower to break bud than many other cultivars and appears to have a relatively high chilling requirement (11). In warm climates, such as southwestern Australia and Israel, the cultivar is susceptible to blind bud which is associated with sub-optimum chilling especially when stress is present (13, 16). Because of the afore-mentioned limitations, 'Meeker' is not suited to regions with particularly low winter temperatures or to regions with warm winters. However, 'Meeker' fruit showed higher drupelet set, compared to three other Pacific Northwest cultivars, 'Chilcotin,' 'Haida' and 'Willamette,' under relatively cool growing conditions in Scotland (3).

Like its parent, 'Willamette,' 'Meeker' has remained genetically stable compared to some other cultivars (8). Of particular importance is the fact that mutations affecting fertility, expressed as crumbly fruit, have not been observed.

Also like 'Willamette,' 'Meeker' plants will establish and grow more rapidly than those of some other cultivars.(8). Under optimum cultural conditions, the cultivar produces a substantial crop the year after planting.

'Meeker' has been used and continues to be used extensively in many breeding programs. It is a parent of two recent cultivar releases, 'Centennial' ('Meeker' x 'Skeena'), from Washington, and of 'Meco' ('Meeker' x 'Rose de Cote d'Or'), from France.

In 1992, 'Meeker' was awarded an outstanding Fruit Cultivar award by the American Society of Horticultural Sciences. 'Meeker' is now the standard for productivity and fruit quality by which newer cultivars for the Pacific Northwest are judged. Any potential replacement for 'Meeker' will have to be more productive and have larger, firmer fruit with otherwise similar qualities. It will need higher levels of resistance to root rots and will benefit from resistance to several other diseases and pests and be adapted to a wider range of environmental conditions.

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Fruit Varieties Journal is owned and published by the American Pomological Society, with publication and business offices located at: 102 Tyson Building, University Park, PA 16802. Frequency of issue: quarterly. Publication number: 0091-3642. Annual subscription price: $20.00. Editor: David C. Ferree, Dept. Horticulture, OARDC, Wooster, Ohio 44691. Business Manager: R. M. Crassweller, 102 Tyson Building, University Park, PA 16802.

The average number of copies of each issue printed during the preceding 12 months was 1,150; total paid circulation, 910; free distribution, 23; total distribution, 933; office use and left over, 217. The actual number of copies of a single issue published nearest to filing date was 1,150; total paid circulation, 960; office use and left over, 167.

I certify that the statements made by me above are correct and complete. R. M. Crassweller, Business Manager. September 16, 1992.