

# New York's Food and Life Sciences Bulletin

New York State Agricultural Experiment Station, Geneva, a Division of the New York State College of Agriculture and Life Sciences, a Statutory College of the State University, at Cornell University, Ithaca

## RUBY™ (CULTIVAR 'WATSON') RED RASPBERRY

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Cultivar "Watson" is a newly released fall-bearing red raspberry, and is being trademarked RUBY™. This new cultivar is distinguished as being significantly larger-fruited than other fall-bearing cultivars. 'Watson' is expected to have significant commercial impact in regions where it is best adapted. In the Northeast, 'Watson' is only recommended for trial plantings due to potential root rot and fruit rot problems.

### ORIGIN AND NAMING

This new cultivar arose from a cross made in 1980, between the parents 'Heritage' and 'Titan' (Fig. 1). the cross was made with the objective of producing a large-fruited fall-bearing raspberry. The progeny from this cross were screened, and in 1982 a very large-fruited fall-bearing seedling was selected, and was given the designation NY 114. This new selection was multiplied and put into second test plantings and later was put into a replicated field trial. NY 114 was also distributed to cooperative testers in 26 states. NY 114 was released as a new cultivar on November 1, 1988. It was given the cultivar name 'Watson,' in honor of John P. Watson, a retired fruit breeder who for 37 years has bred new cultivars of plums and has participated in the small-fruits breeding programs at Geneva. 'Watson' will be distributed nationally and internationally through an exclusive license, under the commercial trademark RUBY.



Figure 2. Primocane fruit of 'Watson.' Note that the fruit are large enough to hang pendant.

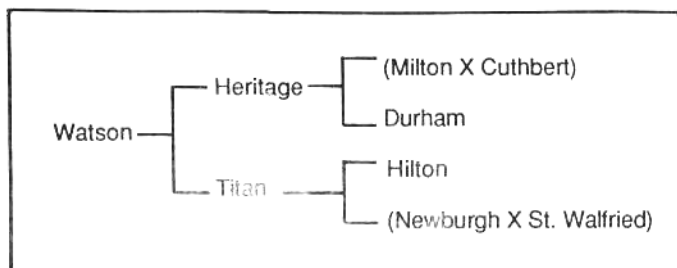


Figure 1. Pedigree for 'Watson' red raspberry.

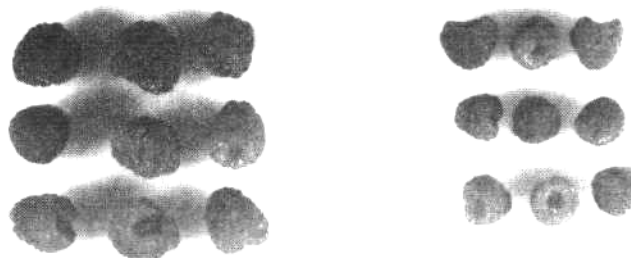


Figure 3. Fruit size of 'Watson' (left), contrasted to fruit size of 'Heritage' (right). 'Heritage' is presently the industry standard for fall-bearing raspberries.

## DESCRIPTION

'Watson' is very vigorous and suckers prolifically on fertile, well-drained soils. The summer crop (from year-old canes) is small and unimpressive, but the fall crop (from primocanes) is abundant and uniquely large-fruited. Fruit are conic in shape with uniform druplet size and bright red color, and hang pendant (Fig. 2). Under different growing conditions, the flavor has been rated equal to, slightly higher, or slightly lower than 'Heritage' by various taste panels. Under favorable conditions, the fruit are relatively dry in handling, and do not "bleed," making them superior for shipping. Yields appear to be as good as 'Heritage,' but will vary with soil type and region.

'Watson' primocanes do not branch laterally like 'Heritage' primocanes. Primocanes are not as erect as with 'Heritage.' Spines are distributed quite uniformly and rather sparsely along primocanes and on petioles. Spines have stout bases, sharp tips, and are reflexed downward (basally) slightly. Petioles are attached to the stem at a distinctly narrower (more upright) angle, compared to the 'Heritage,' and especially the 'Titan' parent.

## CULTIVAR STRENGTHS

'Watson' is expected to displace 'Heritage' in certain regions due to its larger fruit size. Fruit size is very important in raspberries because of the high costs associated with hand-harvest for fresh fruit marketing. Fruit of 'Watson' are typically 50% larger than 'Heritage,' and mean fruit size can be as large as 4.2 grams (see Fig. 3, Tables 1 and 2). Yields and flavor are comparable to 'Heritage,' but 'Watson's' standing relative to 'Heritage' for these traits will fluctuate with location and year.

For example, in 1988, at Geneva, 'Watson' yielded 47% more than 'Heritage' (Table 1). In 1987, in Watsonville, CA, 'Watson' yielded 17% less than 'Heritage' (Table 2). Taste panels similarly indicate that on any given occasion, either 'Heritage' or 'Watson' may rate higher, but that both cultivars generally have similarly desirable flavor.

Under favorable conditions, 'Watson' produces fruit that is especially attractive and coherent. Such fruit does not "bleed" upon handling, making them better suited for shipping and long-distance marketing.

The earliness of 'Watson' relative to 'Heritage' will fluctuate depending upon the site and the year. In Geneva, 'Watson' begins to ripen its first fruit several days after 'Heritage,' but peaks in production well before 'Heritage' (which is highly desirable, since autumn harvest is typically curtailed by frost). For example, in 1988, by mid-season, 79% of 'Watson's' crop was

harvested while only 58% of the crop was harvested for 'Heritage.'<sup>1</sup> On lighter soils in the Northeast, this cultivar's earliness can be even more pronounced. In the raspberry-producing regions near Watsonville, CA, 'Watson' peaks in production several weeks later than 'Heritage' -- which extends the growing season there-which is again desirable. In that region, 'Watson' is reported to be resistant to yellow rust and powdery mildew-two diseases which can cause economic loss to that region's 'Heritage' plantings.

Of the cooperative testers surveyed, 65% recommended 'Watson' as a new fall-bearing cultivar (Table 3).

## CULTIVAR WEAKNESSES

While it appears that 'Watson' will have significant commercial impact in regions such as California and abroad, it is not without its weaknesses. This is especially true in the Northeast-where it originated. 'Watson' is particularly susceptible to *Phytophthora* root rot, *Botrytis* fruit rot, and crown gall. The fruit are produced in tighter clusters near the tips of the primocanes, leading to floppy canes which are not self-supporting. Under some conditions fruit may be non-coherent and crumbly, fruit may not separate easily from the torus, and fruit may be hidden by larger leaves near the tips of the primocanes.

## CULTURE

The weaknesses of this new cultivar call for better management practices. Good management is desirable for 'Heritage,' but is indispensable for 'Watson.' 'Watson' should not be grown on soils where crown gall is known to be a problem, or where wet conditions will lead to *Phytophthora* root rot. To help control root rot, the soil-fungicide "Ridomil" should be applied, as recommended for other raspberries. Primocanes should be supported by trellis, and should be thinned early in the season to prevent crowding and associated fruit rot. Fungicide spray practices should be followed strictly, as recommended for other raspberries.

## AVAILABILITY

Cornell University has applied for a patent on 'Watson.' 'Watson' will be distributed nationally and internationally under the trademark RUBY. Exclusive propagation rights have been licensed to Nourse Farms, Inc., Box 485, RFD, South Deerfield, MA 01373. Parties wishing to propagate and sell plants should inquire at Nourse Farms, regarding possible sub-licensing. Virus-free plants are now commercially available through Nourse Farms, the NYS Fruit Testing Cooperative Association, Inc., Box 462, Geneva, NY 14456 and other sub-licensed nurseries.

**Table 1. Replicated field trial data from Geneva, NY, 1988 - contrasting 'Watson' and 'Heritage.'**

CULTIVAR	YIELD lbs. per acre	SIZE (grams per berry)			
		early season	mid season	late season	mean
<b>Watson</b>	2,254	2.5	2.2	1.7	2.1
Heritage	1,536	1.6	1.6	1.4	1.5

**Table 2. Field data from Watsonville, CA (courtesy of Plant Sciences, Inc.).**

CULTIVAR	1986 YIELD lbs/acre	1987 YIELD lbs/acre	1986 SIZE gms/berry	1987 SIZE gms/berry
Watson	5,400	9,000	4.2	3.2
Heritage	7,200	10,800	2.7	2.3

**Table 3. Field performance of 'Watson' at different locations, based on 17 collaborative testers' evaluations. '1' = poorest score, '3' = average, '5' = best possible score, '?' = uncertain.**

Location	Yield	Flavor	Fruit Size	Keeping Quality	Hardiness	Resistance	Overall Rating	Recommend
Brant, NY	?	3	5	?	?	9	Inferior	No
Red Hook, NY	4	3	4	3	4	2	7	7
Washington, PA	2	2	5	3	5	3	Average	Yes
Fairport, NY	2	3	5	3	9	2	Inferior	No
Mattituck, NY	?	3	3	3	9	9	Average	7
Phelps, NY	4	4	4	4	4	4	Average	Yes
New Milford, NY	7	3	4	7	4	3	Superior	Yes
Cutchogue, NY	3	3	4	7	2	7	Superior	Yes
Collins, NY	3	2	4	3	3	3	Average	Yes
Williamson, NY	4	3	4	3	4	2	9	No
Somerset, OH	4	4	5	3	5	4	Superior	Yes
W. Boxford, MA	4	3	4	3.5	9	5	Superior	Yes
Watsonville, CA	4	2	5	4	9	4	Superior	Yes
Brookeville, MD	4	2	4	3	3	4	Inferior	No
Ogdensburg, NY	4	4	4	5	5	4	Superior	Yes
Wheeling, WV	5	3	5	3	4	7	Superior	Yes
Long Lake, MN	5	4	5	7	5	7	Outstanding	Yes
Average Score -	3.7	3.0	4.4	3.3	4.0	3.3		