Reviewed Research Paper

Current Status of Genetic Dwarf Fruit Trees for the Northwest

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Genetic dwarf, or sometimes called "miniature," fruit trees have a promising potential for northwest gardens, landscapes, and perhaps high density commercial orchards. These trees are bred to be small in stature regardless of their rootstock as opposed to trees dwarfed by size-controlling rootstocks. There seems to be no clear definition of "genetic dwarf," but for this discussion it will refer to trees which are normally less than 10 feet tall at maturity and are substantially smaller than their non-dwarf counterparts when grown on the same stock.

Most of the breeding work on genetic dwarfs in the United States has been done by four California fruit breeders: Floyd Zaiger, Fred Anderson, Norman Bradford, and David Armstrong. Various nurseries such as Stark Bro's, Stribling's, L. E. Cooke, and Dave Wilson Nursery have purchased patent rights of selected varieties produced by these breeders. In addition to the above, Dr. K. O. Lapins and David Layne of the Canada Agriculture Research Station in Summerland, B. C. have been engaged in breeding genetic dwarfs, particularly cherries and more recently, apples.

Before we get overly enthusiastic about genetic dwarf fruit trees, consider that this fairly new class of trees is just in the early stages of development, unlike our standard varieties which may have been developed and tested for many years. In the breeding of genetic dwarfs, crossing and selection were necessary, both for a drastically reduced tree size as well as fruit quality. As a result, some of the varieties currently available are likely to be inferior in quality to the best of our standard varieties. For this reason, there is presently little or no commercial production of genetic dwarf fruit trees even though the yields per acre with close planting could be very high. This may change as new varieties are developed. Nonetheless, dwarfing rootstocks will continue to be an important means of producing fruit trees of small stature.

Most genetic dwarf fruit trees seem especially adapted to container culture. In the coastal areas of the Northwest, you can maintain them on a patio or in the landscape during the summer and then move them to more protected quarters (unheated garage, root cellar or other protected area) during the winter. In this way, you can avoid problems such as leaf curl (peach and nectarine) and winter injury. Research here and in England has demonstrated that if one protects a peach or nectarine tree from rainfall during the susceptible period in late winter and early spring, the leaf curl fungus does not become established in the developing leaves and the disease can be avoided without spraying. We have also observed that genetic dwarf peaches and nectarines are more sensitive to winter injury than standard varieties. Other genetic dwarf fruit trees are not susceptible to either leaf curl or winter injury in our environment and are well suited to planting in the landscape or orchard.

Are there any special tricks to growing genetic dwarf fruit trees? Not really. In the landscape they are planted

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and grown the same as any other fruit tree or shrub. Do not fertilize at planting, except perhaps with a slow-release type or perhaps an organic form. Genetic dwarf fruit trees are inclined to be extremely compact in growth habit so you may have to do some thinning of branches as they grow to let light into the developing fruit. Thinning also improves air circulation for better disease control. This is particularly true for peaches and nectarines. From our experience so far, a central leader training system (like a Christmas tree) is probably best for genetic dwarfs. Trellising may have possibilities for some types, such as apples.

Which of the genetic dwarfs are most promising for Northwest gardens, orchards or container planting at this time? If you live in a coastal area or west of the Cascades, apples will be the easiest of the genetic dwarfs to grow outside and nectarines the most difficult. All may require some spraying for pests and diseases, but at least you should be able to reach them easier. The following table gives information on most of the varieties presently available. Those varieties listing Stark Bro's, Burpee or Jackson and Perkins as a source are available through mail order as shown at the end of the article. Those citing Wilson, L. E. Cooke and Armstrong as the source are available through many retail nurseries. Your local nursery may be able to obtain them for you. Most genetic dwarf trees are patented and as such may not be freely propagated.

This information is presented with admittedly incomplete research data. We have established test plantings of many of the varieties listed below, both in the field and in containers. We welcome information on your experience.

Table 1. Listing of genetic dwarf fruit trees under test at the Northwest Washington Research Unit, Mt. Vernon, WA.

Cultivar (Variety)	Source[1]	Hit (ft)	Season	Remarks
		APPLE		
Apple Babe (Pat. Pending)	2	8-10′	Sept.	Red fruit, good quality.
Garden Delicious (Plant Pat. 3808)	2, 7	6-8′	Oct.	Yellow w/red stripes, med. size.
Starkspur® Compact Mac™ (Wijcik cv. Plant Pat. 4382)	5	6-8′	Sept.	McIntosh type apple on dwarf tree.
Starkspur® Compact Red Delicious™ (Cascade cv. Plant Pat. 4801)	5	8-10′	Oct.	Not adapted to coastal climate.

[1]Sources:

1. Armstrong Nurseries, Inc., P.O. Box 4060, Ontario, CA 91761, (714) 984-1211.
2. Dave Wilson Nursery, Hughson, CA 95326 (wholesale only), (209) 883-0372.
3. Jackson and Perkins, Medford, OR 97501, (503) 776-2400.
4. L. E. Cooke Co., 26333 RD 140, Visalia, CA 93277 (wholesale only).
5. Stark Bro's Nurseries, Box 4902 D, Louisiana, MO 63353, (314) 754-5511 Ext. 1000.
6. Stribling's Nurseries, Inc., 6529 E. Mariposa Way, Merced CA 95340 (wholesale only), (209) 722-4106.
7. W. Atlee Burpee Company, 300 Park Ave., Warminster, PA 18974, (215) 674-4900.

Table 1. Continued.

Cultivar (Variety)	Source[1]	Ht (ft)	Season	Remarks
		NECTARINE		
Red Sunset (Pat. Pending)	4	4-6′	July/ Aug.	Not yet evaluated here. Freestone, good quality, med. size.
Nectar Babe (Pat. Pending)	2	5-6′	Aug.	Ripe w/Redhaven, good quality.
Stark® HoneyGlo™ (Anderhove cv. Plant Pat. 4789)	5	6-8′	Aug.	Not yet evaluated here. Excellent eating quality, rather soft.
Nectarina (Plant Pat. 2929)	1	4-6′	Aug.	First genetic dwarf nectarine.
Sunbonnet (Plant Pat. 3325)	4	4-6′	Aug./ Sept.	Not yet evaluated here. Good color, med. size, fair quality.
Stark® Sweet Melody™ (Anderbright cv. Plant Pat. 3329)	2, 6	6-8′	Aug./ Sept.	Excellent quality, may be late, freestone.
Garden Delight	2	4-6′	Sept.	May be too late for Puget Sound area, double pink bloom.
Garden Beauty	2	4-6′	Sept.	Same as Garden Delight.
Golden Prolific (Plant Pat. 2193)	4, 7	4-6′	Sept. Redhaven + 1 mo.	Too late for Puget Sound area. Freestone, fair quality, home garden use only.
Gold Flame	6	5-6′	Sept.	Not evaluated here.
Firecracker	6	5-6′	Sept.	Not evaluated here.
		CHERRY		
North Star	widely available including 7	6-9′	July	Similar to Montmorency, sour cherry but on a smaller tree.
Compact Stella	5, also some local nurseries	8-10′	July	Fully hardy. Black sweet cherry similar to Bing. Self fruitful.
Starkrimson® (Zaicrimson cv. Plant Pat. 4519)	5	10-14′	July	Large dark cherry similar to Bing.
Garden Bing (Plant Pat. 3810)	2, 7	10-12′	July	Large black cherry similar to Bing.
Compact Lambert	5	6-9′	July	Similar to Lambert.

Table 1. Continued.

Cultivar (Variety)	Source[1]	Ht (ft)	Season	Remarks
		PEACH		
Stark® Sensation™ (Andergen cv. Plant Pat. 5124)	5	4-6′	July	Before Redhaven, freestone, promising.
Bonanza (Plant Pat. 2213)	1	4-5′	July	First genetic dwarf peach.
Bonanza II (Plant Pat. 4403)	1	4-5′	Aug.	Attractive, mealy, fair quality.
Southern Sweet (Plant Pat. 3620)	4	4-6′	July/ Aug.	Not yet evaluated here. Early, small, rather soft.
Honey Babe (Pat. Pending)	2	5-6′	Aug.	Matures with Redhaven, promising.
Empress (Plant Pat. 2533)	4	4-6′	Aug.	Not yet evaluated here. Clingstone, med. size, good flavor & firmness.
Southern Flame (Plant Pat. 3620)	4	4-6′	Aug.	Not yet evaluated here. Freestone, firm, good quality here.
Golden Glory (Plant Pat. 2418)	4, 7	4-6′	Sept.	Too late for Puget Sound area, large, freestone.
Garden Sun (Pat. Pending)	7	4-6′	Sept.	Too late for Puget Sound area.
Eldorado (Pat. Pending)	3	3-5′	?	Not yet evaluated here.
Garden Gold	2	4-6′	Aug.	Not yet evaluated here.
Silverado (Pat. Pending)	3	4-6′	?	Not yet evaluated here.
Southern Rose (Plant Pat. 3476)	4	4-6′	Sept.	Not yet evaluated here. Large, firm, late.
Yosemite	6	5-6′	Sept.	Not yet evaluated here.
Golden Gem	6	4-5′	Late (Rio Oso Gem)	May be too late.
		APRICOT		
Garden Annie (Pat. Pending)	1, 7	6-8′	July	Ornamental, self-fruitful, small yellow fruit of fair quality.
Stark® GoldenGem™ (Plant Pat. 4553)	5	4-6′	July	Small, yellow fruit, good quality.