

# 'Nemared' Peach Rootstock

David W. Ramming and Owen Tanner<sup>1</sup>

Agricultural Research Service, United States Department of Agriculture,  
P.O. Box 8143, Fresno, CA 93747

**Additional index words.** *Prunus persica*, fruit breeding, root-knot nematode, *Meloidogyne* spp.

'Nemared' is a new peach rootstock [*Prunus persica* (L.) Batsch] that combines vigorous growth in the nursery to permit early budding, root-knot nematode resistance, and red leaves to facilitate identification (Fig. 1).

## Origin

'Nemared' was originated and selected by John H. Weinberger (U.S. Dept. of Agriculture, Fresno, Calif.) from F<sub>3</sub> seedlings of 'Nemaguard' × a red-leaf seedling. The red-leaf character came from the cultivar Bound Brook, which was discovered among 'Tennessee Natural' seedlings by M.A. Blake (Rutgers Univ., New Brunswick, N.J.). 'Nemared' was selected from seedlings screened for nematode resistance and the red-leaf character. Two F<sub>2</sub> trees were selected and F<sub>3</sub> seedlings grown. Selection among the F<sub>3</sub> seedlings was based on progeny tests for root-knot nematode resistance, red-leaf character, seed germination, seedling vigor, and uniformity in the nursery row. Additional tests of compatibility, tree growth, and production have been made at Fresno and in cooperation with the Univ. of California at the Kearney Horticultural Field Station, Parlier.

## Description

Trees of 'Nemared' blossom with 'Nemaguard' and require about the same chilling for flower and leaf buds. The flowers have large, light-pink petals. Leaves are homozygous for red color and reniform glands. The fruit ripens in the 3rd week of August at Fresno and averages 5 cm in diameter. The flesh is greenish-white, melting, and clings to the pit. Seed size averages 41 to 43 per kg. The percent of seed germination has been high (above 75%) and is equal to 'Nemaguard'. No incompatibility has been observed with peach, nectarine, plum, apricot, or almond cultivars. In a 5-year-old rootstock trial at Kearney Horticultural Field Station, 'Regina' peach budded onto 'Nemared' has been slightly more vigorous and as productive as when budded on 'Lovell' or 'Nemaguard'. In several field tests and one greenhouse test, 'Nemared' has shown more

tolerance to *Meloidogyne incognita* (Kofoid & White) Chitwood and *M. javanica* (Treub) Chitwood than 'Nemaguard'. Seedlings of



Fig. 1. 'Nemared' peach rootstock.

HortScience 18(3):376–377. 1983.

# 'Woodroof' Pecan

J.W. Daniell<sup>1</sup>, B.B. Brantley<sup>2</sup>, and E.K. Heaton<sup>3</sup>

University of Georgia, Georgia Agricultural Experiment Station,  
Experiment, GA 30212

**Additional index words.** nut breeding, *Carya illinoensis*, *Fusicladium effusum*

'Woodroof' pecan [*Carya illinoensis* (Wang) K. Koch] has been released to provide a disease-resistant, very good quality cultivar for home orchards in the southeastern United States where scab [*Fusicladium effusum* (Wint.)] is a major disease. Within the past 20 years, scab has greatly reduced pecan yields in home plantings in the southeast where the small number of trees does not justify expensive disease-control equipment (3, 5).

'Nemared' have been uniform in the nursery row. They do not have as many side branches as 'Nemaguard', a condition which facilitates budding.

## Availability

Limited amounts of budwood will be furnished to nurserymen and growers for starting trees for seed production. 'Nemared' has been indexed by Foundation Plant Materials Service, Univ. of California, Davis, and found free of *Prunus* ring spot virus. No other viruses have been detected during long-term indexing.

It has been determined that 46% of the Georgia growers do not spray for disease or insect control in part or all of their orchards (1). Studies are in progress on the commercial potential of 'Woodroof' under irrigation.

Table 1. Reactions of 8 pecan cultivars to scab (*Fusicladium effusum*) and leaf scorch.

Cultivar	Scab rating <sup>2</sup>		Leaf scorch index <sup>3</sup>
	Leaf	Nut	
Woodroof	1.0	1.0	5
Mahan	3.0	2.5	60
Elliott	1.0	1.0	5
Farley	1.5	1.4	4
Choctaw	1.2	1.5	10
Desirable	4.1	4.5	20
Cheyenne	1.1	1.1	20
Rome	2.0	1.1	390

<sup>2</sup>Scab rating: 1 = no symptoms, 5 = very susceptible.

<sup>3</sup>Leaf scorch index = number of scorched or missing leaflets per 100 leaves at harvest.

Received for publication February 12, 1983. The cost of publishing this paper was defrayed in part by the payment of page charges. Under postal regulations, this paper therefore must be hereby marked *advertisement* solely to indicate this fact.

<sup>1</sup>Research Horticulturist and Agricultural Research Technician, respectively. Fruit Genetics and Breeding Research Unit, USDA Horticultural Crops Research Laboratory, Fresno, CA 93747.

Received for publication January 27, 1983. The cost of publishing this paper was defrayed in part by the payment of page charges. Under postal regulations, this paper therefore must be hereby marked *advertisement* solely to indicate this fact. The cost of publishing this paper was defrayed in part by the payment of page charges. Under postal regulations, this paper therefore must be hereby marked *advertisement* solely to indicate this fact.

<sup>1</sup>Associate Professor, Dept. of Horticulture.

<sup>2</sup>Professor and Head, Dept. of Horticulture.

<sup>3</sup>Professor, Dept. of Food Science.

Table 2. Quality parameters of 'Woodroof', 'Stuart', and 'Desirable' nuts.

Quality Parameter	Cultivar		
	Woodroof	Stuart	Desirable
No. nuts per kg	107	140	110
Volume (cm <sup>3</sup> /nut)	14.4	8.3	12.6
Kernel content (%)	45.1	48.5	53.0
Filling (%)	79.4	90.0	85.4
Oil content (%)	70.7	73.0	72.0
Flavor	Very good	Very good	Excellent

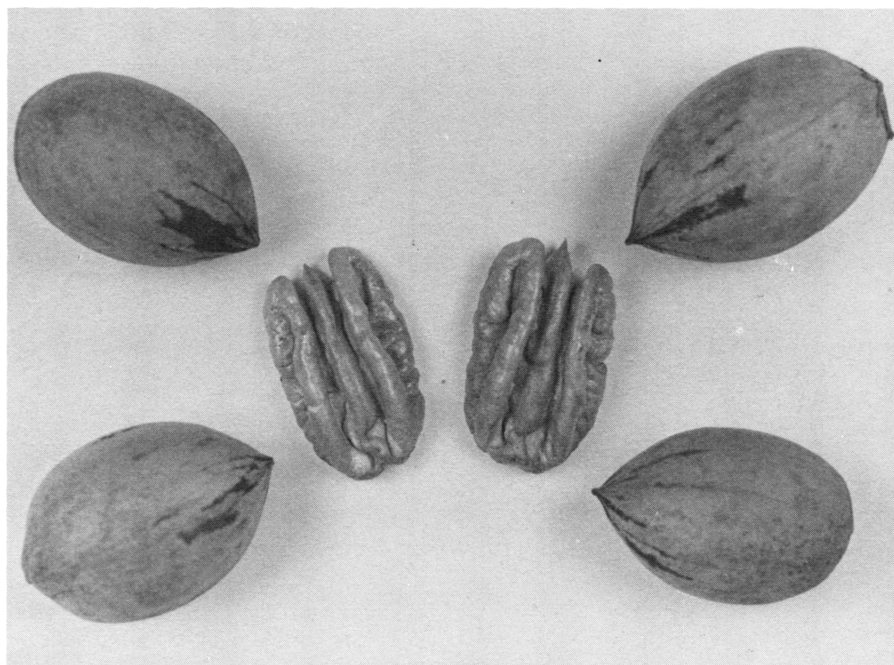


Fig. 1. 'Woodroof' pecan.

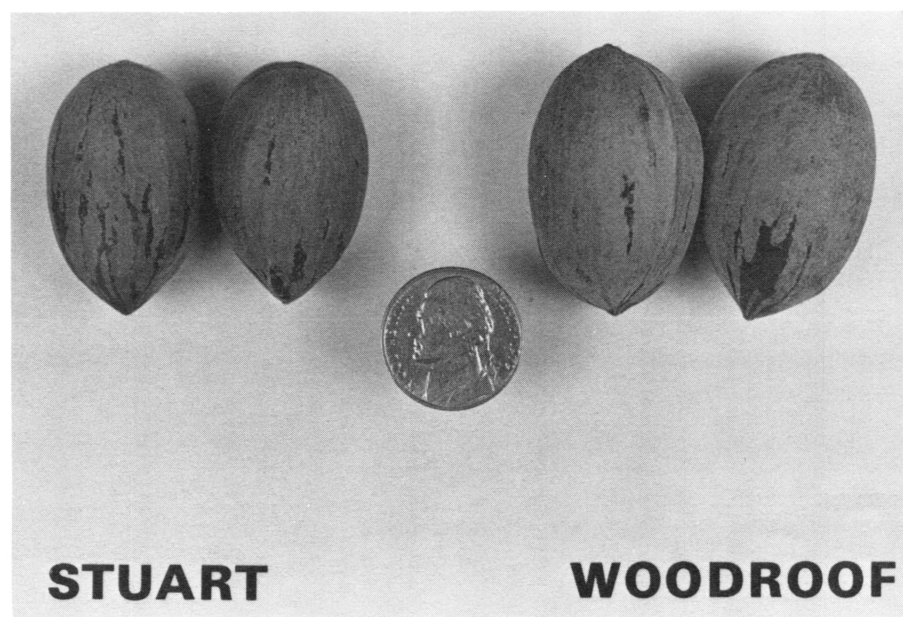


Fig. 2. 'Stuart' and 'Woodroof' pecans.

## Origin

'Woodroof' was derived from progeny of a 'Schley' x 'Moneymaker' cross made by U.S. Dept. of Agriculture workers at Thomasville, Ga. in the 1920s. One hybrid, designated A-93, was selected from several hundred trees grown to fruiting at the Georgia Agricultural Experiment Station, Experiment (2) by J.G. Woodroof. 'Woodroof' was selected from F<sub>2</sub> progeny of A-93 in 1955.

## Description

Trees are vigorous with shape similar to 'Schley' (now designated 'Eastern Schley') and have strong crotches. Foliage is dark green and the tree foliates rapidly in the spring similar to 'Desirable'. 'Woodroof' is protogynous (stigma receptivity precedes pollen shedding) with a high amount of pollen produced. In addition to resistance to scab, which was evaluated in several locations in the Piedmont area of Georgia, 'Woodroof' possesses a high degree of resistance to leaf scorch (Table 1), a premature defoliation in the fall (4).

The original F<sub>2</sub> tree has produced good yields of large nuts with no pesticide sprays. Annual yields of this tree did not differ greatly from comparable trees of 'Rome', 'Elliott', and 'Farley', other cultivars with some disease resistance. Grafted trees produced 6.8 kg/tree in the 6th leaf where grafts were placed on 3-year-old seedlings. The nut has a prominent suture, is slightly flattened (Fig. 1), and has a length/width ratio of around 1.6. The shell is medium thick, but no difficulty is encountered in shelling. Quality evaluations are shown in Table 2, and the relative size is shown in Fig. 2. Shelling percentages were not high during dry years; however, acceptable kernel quality was obtained in these years. Nut maturity is about the same as that of 'Choctaw'. The shell is lighter in color than 'Stuart' or 'Desirable'.

## Availability

Graftwood has been distributed to growers and to nurserymen for increase. A limited amount of grafting or budding wood is available from the Department of Horticulture, Georgia Agricultural Experiment Station, Experiment, GA 30212.

## Literature Cited

1. Allison, J.R. and D.D. Ofiara. 1982. Influence of pest control measured on pecan yield. Proc. S.E. Pecan Grow. Assn. 75:189-194.
2. Crane, H.L., C.A. Reed, and M.N. Wood. 1937. Nut breeding, p. 827-889. In: Breeding better plants and animals II. U.S. Dept. Agr. Yearb. of Agriculture, Washington, D.C.
3. Gentry, C.R., J.D. Dutcher, R.H. Littrell, and R.E. Worley. 1982. Low-pressure trunk injection of dicotophos and solubilized benomyl for pest control on mature pecan trees. J. Econ. Entomol. 75:611-615.
4. Worley, R.E. and R.H. Littrell. 1973. Effect of fungicides on nut quality and control of pecan scab 'premature defoliation'. J. Amer. Soc. Hort. Sci. 98:102-105.
5. Worley, R.E., R.H. Littrell, and J.D. Dutcher. 1981. A comparison of zinc injection and zinc implantation for rapid correction of zinc deficiency. Proc. 74th Annu. Conv. S.E. Pecan Grow. Assn. p. 69-71.