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The Australian Pistachio 'Sirora'

D. H. Maggs[1]

There are now over 300 ha pistachios cultivated in Australia, about half of them 'Sirora' and about half 'Kerman,' the main Californian cultivar. The 'Kerman' nut is larger but 'Sirora' crops more heavily, sometimes twice as much. In 1981 I published a brief description of 'Sirora' to establish the cultivar name (1); the present invited note is written to introduce it to the American industry.

In the orchard 'Sirora' looks much like 'Kerman'; it may be distinguished by its slightly smaller and more curled leaves which give the tree a more 'mossy' appearance. Also the tree tends to be more spreading. It is fairly late-flowering, usually synchronising with Group 4 males (2) and ripens about 8 days before 'Kerman.' The fruits have much of the rosy-red colouring of 'Red Aleppo.'

Air-dry dehulled nuts typically weigh about 110g per 100 nuts ('Kerman' about 120-140g) and measure 18mm long, 12mm back to front, 11mm side to side. The suture where the two half-shells meet is only a little thickened whereas it is markedly flared in 'Kerman.' Mature kernels are green internally, a character preferred in the Old World and considered to be associated with superior flavour. Photographs of 'Sirora' are given in Maggs (2), Figs. 2 and 8, as well as on the cover of this current number of the FVJ.

The variety was developed under the crop improvement programme of the CSIRO Division of Horticulture from a selection of 'Red Aleppo.' The original seed was brought into Australia by Dr. D. Symon of the Waite Institute from the US Department of Agriculture's field Station at Chico, California. Although the varietal name 'Red Aleppo' must surely indicate an origin from Aleppo in Syria (an area known for its pistachios since Biblical times), Whitehouse (3) states that "... the origin of the 'Red Aleppo' variety is not too clear. In 1906 it was presented ... by the Rev. R. A. Fuller under the name 'Large Red Aleppo' for trial at Chico. Presumably it is a seedling from the Turkish 'Red Aleppo' variety, the hulls of which are characteristically red." (Fuller worked for some years in Turkey.)

Bearing in mind that all pistachios are cross-pollinated there must have been at least three outcrossings in the lineage from the tree at Aleppo to 'Sirora' resulting in an increase in phenotypic variation; firstly to produce the seed taken to Turkey, secondly to produce the seed taken to Chico and thirdly to produce the seed taken to Merbein from which 'Sirora' was selected. At each transfer it may reasonably be presumed that there was selection in favour of superior nuts and good orchard qualities. If the progeny raised after each transfer contained about 20 females, 'Sirora' would be the resultant of 1/20 of 1/20 of 1/20 of the total population, i.e. 1 in 8,000 females, the males being unknown locals.

This progression between the establishment of the Turkish collections in the late nineteenth century and the fruiting of the Merbein seedlings in the 1970's occupied a period lasting about 100 years. In the face of today's problems, something quicker is needed now and fortunately current develop-

[1]Formerly Commonwealth Scientific and Industrial Research Organisation, Division of Horticulture, Merbein, Victoria, Australia.

ments in propagation and genetic adjustment indicate the way to go. A prerequisite for this approach is that sources of heritable variation are readily available. This implies well maintained, up-to-date variety collections. It is pleasing to note that despite stringent, parsimonious government economies, good collections are still held and utilized by the Division of Horticulture at Merbein.

References

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Walnut Cultivars: Evidence for Differential Susceptibility to Insect Pests

MARK D. SHELTON[1] AND J. LAMAR ANDERSON[2]

Abstract

Early maturity walnut cultivars appear to be more susceptible to insect pest damage than later maturity cultivars. This is due to the phenological synchrony with pests, and tendency to suffer sunburn and walnut blight damage, which predisposes early walnuts to attack by several insect species. Cultivars with soft, thick hulls are more susceptible to damage by the walnut husk fly, *Rhagoletis completa* Cresson.

Introduction

Persian walnut *(Juglans regia)* is cultivated worldwide with U.S. production almost exclusively in California. Prior to about 1955, most U.S. walnut producers selected chance seedlings or bud sports, or imported cultivars. The University of California walnut breeding program began in 1948, and led to many new walnut cultivars (12). These walnut scion cultivars differ in susceptibility to walnut blight, *Xanthomonas campestris pv juglandis* (9, 15) and deep bark canker, *Erwinia rubrifaciens* (4). Walnut rootstock species and hybrids are differentially susceptible to *Phytophthora* spp. root and crown rot (6), *Armillaria mella* root and crown rot (15), crown gall, *Agrobacterium tumefaciens* (15), Blackline disease caused by cherry leafroll virus (15), and parasitic nematodes (5, 15). Thus it is not surprising that walnut cultivars show differential response to insect attack.

Genetic engineering technology is now being applied to produce transgenic walnut plants which resist caterpillar pests (3) by producing an insecticidal toxin of *Bacillus thuringiensis*, a bacterium whose toxin-coding genes will be transferred to walnut embryos. This approach might provide a de-

[1]Crop Science Department, California Polytechnic State University, San Luis Obispo, CA 93407.
[2]Plant Science Department, Utah State University, Logan, UT 84322.
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