

'Flordadawn' trees are vigorous, and, in the absence of spring frosts, yields have been observed to be high for an early season peach. Leaves are moderate in size with globose petiolar glands. Leaves and fruit are highly resistant to bacterial spot, about equal to that of 'Flordaking'. 'Flordadawn' is self-fertile, with showy flowers and yellow pollen.

#### Availability

Inquiries regarding budwood availability may be directed to the Florida Foundation Seed Producers, Inc., P.O. Box 309, Greenwood, FL 32443. Limited quantities of non-indexed budwood may be obtained from AREC-Monticello, Rt. 4 Box 4092, Monticello, FL 32344.

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## Rutabaga Germplasm TuMV-R Possessing Resistance to Turnip Mosaic Virus

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Turnip mosaic virus (TuMV) is the most important and widespread virus infecting cruciferous crops. In certain years, this virus can be a serious problem for late-season commercial rutabaga [*Brassica napus* ssp. *rapifera* (Metzg.) Sinsk] production in Ontario and Quebec, Canada. For example, in 1985, an outbreak of TuMV on rutabagas in southern Ontario resulted in severe production losses (Shattuck and Stobbs, 1987). Plants infected with TuMV suffer premature leaf-drop and reduced root yields. The rutabaga industry in Canada (Shattuck and Proudfoot, 1990) is based on the cultivar Laurentian, which is very susceptible to TuMV (Shattuck and Stobbs, 1987). Furthermore, all other North American-grown rutabaga cultivars are susceptible to TuMV infection. TuMV-R is being released because it has value as germplasm for the development of TuMV-resistant rutabaga cultivars.

#### Origin

TuMV-R originated from selections made in the segregating generations from the cross 'Laurentian' and a TuMV-resistant selection of 'Macomber' in 1969. For 10 generations, a conventional phenotypic recurrent selec-

tion program was used in Quebec to select TuMV-resistant segregants possessing acceptable foliage and root morphology. During the early generations, the populations were field-inoculated with TuMV before selection; later screening relied on natural field infection. TuMV-R is the product of bulking the intercrossed and selfed seed of plants that were field-selected in Ontario, Canada, from 1986 through 1989, under heavy natural TuMV-infection pressure, for absence of

visual TuMV symptoms during root development and acceptable plant characteristics.

#### Description

Plants of TuMV-R have robust growth with dark-green foliage and an upright rosette of leaves. Foliage growth of TuMV-R is more abundant than 'Laurentian', and maturity time is similar to this cultivar. When grown under optimal conditions, roots at maturity vary from 10 to 20 cm in diameter and are spherical to flat-round in shape, with a violet top, white bottom, and pale-yellow internal flesh (Fig. 1). Roots of TuMV-R store as well as 'Laurentian' and can be waxed for the fresh market. We have conducted several formal sensory evaluations on TuMV-R that indicated that the flavor of raw or cooked roots is fully acceptable to consumers. Our results have further shown that the raw root flesh of TuMV-R possesses a distinctly different flavor from that of 'Laurentian'; the flavor being less pronounced. Plants of TuMV-R are fully self-fertile.

Plants of TuMV-R, when infected with the S<sub>1</sub> or S<sub>3</sub> strains of TuMV (Stobbs and Shattuck, 1989) by aphids in the field or through manual inoculation in the greenhouse, typically lacked visual disease symptoms during root development. Enzyme-linked immunosorbent assays (ELISA) (Stobbs and Shattuck, 1989) revealed the presence of trace amounts of virus in symptomless plants. However, TuMV symptoms usually become

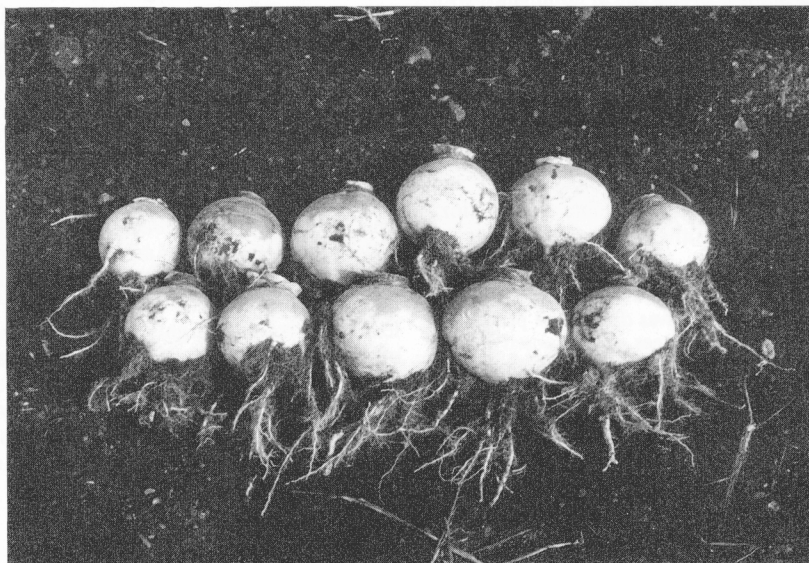


Fig. 1. Harvested roots of TuMV-R.

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discernible following the vernalization of roots and the regrowth of foliage. The time and severity of TuMV symptoms varied among plants, but all plants were capable of producing an abundant number of siliques. Seeds of infected maternal plants are free of the virus, which is not transmitted through the seed. ELISA tests have indicated that the TuMV-R germplasm is still segregating for TuMV resistance during root development, but contains a high percentage of resistant plants. It should be noted that the resistance response of TuMV-R to TuMV infection reported herein is different from that observed

for the fodder rutabaga cultivars Sensation and Calder. Both of these possess very high resistance to the S<sub>1</sub> and S<sub>2</sub> strains of TuMV (Shattuck and Stobbs, 1987), and, after exposure to TuMV during vegetative growth, remain symptomless during silique development.

#### Availability

A small amount of seed is available to interested researchers. Requests for seed should be made to V.I. S. or the Crucifer Genetics Cooperative, Dept. of Plant Pa-

thology, 1630 Linden Dr., Univ. of Wisconsin, Madison, WI 53706.

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## 'Adafuel', an Almond × Peach Hybrid Rootstock

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'Adafuel' is an almond × peach hybrid [*Prunus amygdalo-persica* (West) Rehd.] rootstock developed at the E.E. Aula Dei as a rootstock for peach and almond and now released for commercial use.

Peach and almond scions grafted on 'Adafuel' grow vigorously. Tree size and cropping efficiency are similar to that on the INRA almond × peach hybrid GF 677. 'Adafuel' maiden trees have a vigorous and semi-upright growth, compared to the open-spread form of GF 677. About 150 hardwood cuttings or 300 softwood cuttings can be obtained per adult tree each year.

This stock is vegetatively more easily propagated by cuttings than GF 677 (Table 1) (Cambra, 1979, 1983; Opazo et al.; 1984). Shoots show a strong apical dominance with very few feathers on them, which facilitates budding in the nursery.

'Adafuel' adapts well to light and calcareous soils but requires good drainage.

Tests carried out in the nursery have shown that 'Adafuel' is resistant to *Sphaeroteca pannosa*, *Tranzschelia pruni-spinosae*, and *Corineun beijerinckii* (Cambra and Iturrioz, 1986). It is sensitive to *Agrobacterium tu-*

*meffaciens* and very sensitive to *Meloidogyne* spp. (Gomez et al., 1989).

#### Origin

'Adafuel' was selected from an open-pollinated seedling population of 'Marcona' almond trees growing in Jarafuel, Valencia (Spain), and collected in 1970. Selection work was carried out at the E.E. Aula Dei in Zaragoza. The clone was initially tested as 'Jarafuel'. It has been selected because of its superior rooting ability compared to other almond × peach hybrids.

#### Compatibility

'Adafuel' has shown good compatibility with 30 peach and 40 almond cultivars. It is also compatible with 'Paviot' apricot. Tests are being conducted with plum and prune cultivars.

#### Description

One-year-old shoots are intensely red and usually bear one flower bud per node. Internodes are long and leaves are of almond type, small, dark green, with straight serrated margins. Mean length : width ratio of the leaf blade is 14:4, slightly greater than that of GF 677 (12:4). Leaf petioles generally have more than two reniform nectaries and two short stipules. Leaf fall is late. Flowers are showy, medium to large, with petals of intense pink. They have 35 to 40 stamens

Table 1. Percentage rooting of hardwood cuttings of 'Adafuel' and INRA almond × peach hybrid GF 677 treated with 4000 ppm indolebutyric acid.

Rootstock	Year			
	1978-79	1979-80	1980-81	Mean
Adafuel	92	80	91	88
INRA GF 677	74	76	72	74

and one pistil that remains low beneath the anthers. Fruits are intermediate between those of peach and almond, with a mean weight of 31 g, a length of 45 mm, and width of 35 mm. The epidermis is tomentose and orange. The stone is free, and the seed is slightly bitter and dark golden brown (Cambra and Iturrioz, 1986).

#### Availability

Almond × peach hybrid 'Adafuel' registration is in progress at the Instituto Nacional de Semillas y Plantas de Vivero, Ministry of Agriculture. Small amounts of rooted cuttings or budwood can be obtained from the Estación Experimental de Aula Dei. 'Adafuel' is free of all known viruses.

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