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'Naomi': A New Mango Cultivar

E. Tomer, U. Lavi, C. Degani, and S. Gazit[1]
Institute of Horticulture, Agricultural Research Organization, The Volcani Center, Bet Dagan, Israel

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The mango *(Mangifera indica* L.) industry in Israelis based on cultivars selected in southern Florida. However, the Israeli climate (lat. 31° to 32°) differs appreciably from that of southern Florida (lat. 26° to 27°) in that the winters are cooler and the summers dry. Productivity of most mango cultivars in Israel tends to be erratic. Fruit characteristics (especially size, external color, and flavor) do not usually satisfy local and export market requirements.

Outbreeding program is aimed at selecting more productive cultivars with good quality and attractive fruit. In 1975, 1200 seedlings of 'Palmer', 'Kent', and 'Keitt' were planted in the Agricultural Research Organization's (ARO's) Besor Experimental Station in the northwestern Negev in Israel (Lavi et al., 1989). 'Naomi' was the best seedling in this plot and the first cultivar selected from our breeding program.

Origin

'Palmer' fruits were collected in 1975 from the ARO's experiment orchards in Bet Dagan, from trees that could have been open-pollinated with 'Maya', 'Haden', 'Nimrod', 'Keitt', or 'Irwin'. Three hundred seedlings were planted in Fall 1976, and 'Naomi' (Besor- 16/36) was selected as the best of these.

'Naomi', 'Palmer', and possible male parental cultivars were characterized by isozyme analysis of leaf extract using the following enzyme systems: phosphoglucose isomerase (PGI, EC 5.3.1.9), triosephosphate isomerase (TPI, EC 5.3.1.1), leucine aminopeptidase (LAP, EC 3.4.11.1), isocitrate dehydrogenase (IDH, EC 1.1.1.42), phosphoglucomutase (PGM, EC 2.7.5.1), and aconitase (ACO, EC 4.2.1.3) (Degani et al., 1990).

'Naomi' and 'Palmer' have an identical phenotype for all isozyme systems studied except PGM, for which 'Palmer' is heterozygous (ab), and 'Naomi' homozygous (aa). According to the isozyme phenotypes, 'Naomi' could have originated from 'Palmer' either by self-pollination or by cross-pollination with one of the following cultivars: 'Maya', 'Haden', 'Nimrod', or 'Irwin'. 'Naomi' could not have been a product of outcrossing between 'Palmer' and 'Keitt', as both 'Palmer' and 'Naomi' possess the cc phenotype at ACO, whereas 'Keitt' has the ad phenotype (Table 1).

Description

'Naomi' ripens in midseason. Trees planted along the coastal plain of Israel are harvested in September, 3 or 4 weeks after 'Haden' and 'Tommy Atkins'. The tree is medium-sized and fairly erect. Young leaves are reddish-brown. Mature leaves are symmetric and oblong lanceolate with mostly acute tips and wavy margins that are sometimes folded. The leaves are ≈30 cm long, with a length : width ratio of ≈4.9. Petiole length is ≈4.5 cm. Secondary leaf vein spacing is dense (≈0.7 cm apart).

The inflorescence is pyramidal, ≈30 cm long, and densely flowered (Fig. 1). The inflorescence stem is red and covered with fine pubescence. Flowers are pentamerous and ≈1 cm in diameter. The flower disk is swollen and much broader than the ovary. There is a maxi-

Table 1. Isozyme phenotypes of 'Naomi' compared with those of 'Palmer' and its neighboring cultivars.

	Isozymes[z]					
Cultivar	PGI-2	TPI	IDH	LAP-1	PGM-1	ACO
Naomi	ab	ab	cc	aa	aa	cc
Palmer	ab	ab	cc	aa	ab	cc
Maya	ab	aa	cc	aa	ac	cc
Haden	ab	ab	ac	aa	aa	ac
Nimrod	aa	bb	cc	aa	ac	ce
Keitt	ab	ab	cc	aa	ac	ad
Irwin	ab	ab	cc	aa	aa	cc

[z]PGI-2, phosphoglucose isomerase; TPI, triosephosphate isomerase; IDH, isocitrate dehydrogenase; LAP-1, leucine aminopeptidase; PGM-1, phosphoglucomutase; and ACO, aconitase.

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[1]The Hebrew Univ. of Jerusalem, Faculty of Agriculture, Rehovot, Israel.

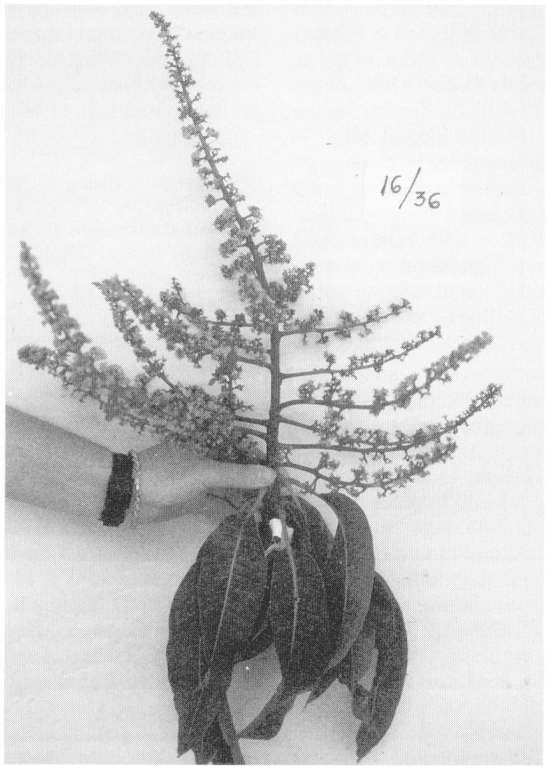

Fig. 1. A typical 'Naomi' inflorescence.

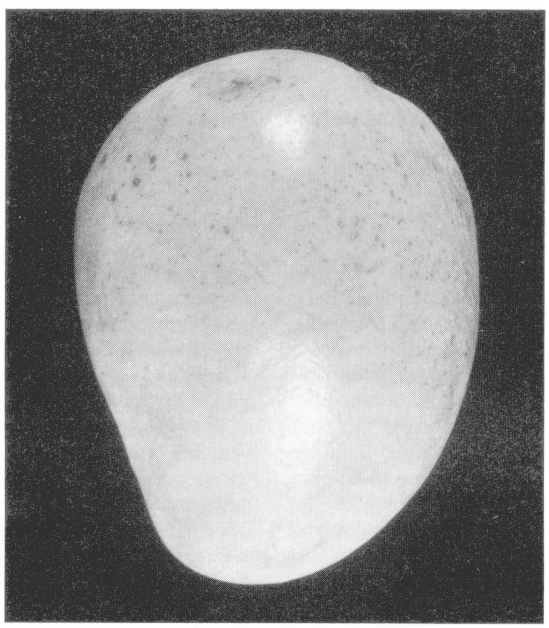

Fig. 2. A typical 'Naomi' fruit.

mum of one fertile stamen per flower. The flowering season is early to intermediate, lasting ≈6 to 8 weeks.

Fruit are oblong, usually with a small, but sometimes absent, sinus (Fig. 2). The ventral shoulder is higher than the dorsal one, and the apex is obtuse or rounded. Fruit size is uniform; average fruit weight is ≈450 g. The skin of mature fruit is smooth and thin, with an attractive red pigmentation. The yellow flesh is tender, juicy, and nearly fiberless. The flavor is mild and moderately sweet, with a weak pleasant aroma. Harvested fruit were sensitive to rough handling.

The above cultivar description follows the rules of the International Board for Plant Genetic Resources (1989).

'Naomi' was distributed in 1986 for experimental purposes to growers throughout Israel. The original seedling and ≈60 grafted trees currently are bearing fruit at the Besor farm, and a total of ≈10 ha of 'Naomi' have been planted in Israel. The yield in the southern coastal area seems to be consistent and significantly higher than those of many other mango cultivars.

'Naomi' also has been distributed to the Citrus and Subtropical Fruit Research Institute in South Africa; the Arid Zone Research Institute in Alice Springs, Australia; and Sun World in southern California.

Availability

'Naomi' is patented, and budwood may be obtained from the ARO, the Volcani Center, Bet Dagan, Israel.

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