

‘Hamdan’ and ‘Qasim’ Desert-adapted Winter Squashes

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The National Agriculture and Water Research Center in conjunction with the U.S. Dept. of Agriculture, under the Agriculture and Water Project of the United States–Saudi Arabian Joint Commission, started a program to develop, improve, and introduce vegetable crops and varieties that are suitable to the Saudi environment and local consumers’ tastes.

In the Kingdom of Saudi Arabia only one variety of winter squash, *Cucurbita moschata* (Duch. ex lam) Duch. ex Poir, is marketed. It is known as local or “Egyptian” pumpkin. The Arabic names for it are “Karra Assaly” or “Karra Misry.” Egyptian pumpkin was originally introduced to the Kingdom by Egyptian expatriates. In Egypt it is called “Istanbuli” pumpkin, after the city in Turkey from which it was probably introduced. The local variety is characterized by heat tolerance, insect resistance, excellent keeping quality of the fruit, and great diversity in fruit traits, including shape, size, color, and flesh thickness. Its fruit are large and have a thin rind and large seed cavity. Because of its size, large portions of a fruit may be wasted or spoiled if the consumer cannot use the fruit quickly. The Egyptian pumpkin is common in Saudi Arabia. It is very popular and is especially important in the Qasim area.

To our knowledge, there is no previous information available on any effort conducted for improvement of Egyptian pumpkin for desirable characteristics, such as a longer neck and a smaller seed cavity of the fruit, which bring a high price and are cherished by consumers. ‘Hamdan’ and ‘Qasim’ were selected from the local pumpkin.

Origin

The local pumpkin segregates for fruit size and shape (Fig. 1). The shape may be round, oblong, oval, or oblate and with or without a

long neck. Separate selection programs were initiated to develop two distinct varieties. In one program, a plant with small fruit was selected after four generations of selection and inbreeding from an open-pollinated population of the Egyptian pumpkin. From this plant, 100 seeds were planted. Each plant was selfed. Ten round small fruit, with small seed cavities, were selected and bulked for two more generations. This procedure was followed by three more generations of open pollination, mass selection, and testing. The resulting population was named ‘Hamdan’.

In the second program, a long-necked fruit was selected from a large population of Egyptian pumpkins at a local market in the Qasim area in 1989. Seeds of that fruit were planted at the National Agriculture and Water Research Center in Riyadh. Each plant was selfed. A single fruit selection scheme was adopted to achieve a long, straight, cavity-free neck and small bulb, and dark orange flesh with few fibers (Unander and Varela-Ramirez, 1982). Seeds from several selected fruit were then bulked until F₅. Subsequently, open pollination by honeybees was allowed from F₅ to F₆. The resulting selection was named ‘Qasim’.

Description and performance

‘Hamdan’ has small fruit of uniform shape. The skin of the fruit is cream-colored (Fig. 1), and the flesh color is light orange. The fruit diameter and cavity are smaller than those of the local variety. The flesh of ‘Hamdan’ is thicker than that of the local variety (Table 1).

Fruit of ‘Hamdan’ are easy to peel, have smooth texture, and, in informal taste tests, seemed sweeter than the local variety. Cooking time is similar. Fruit mature in 122 days from planting to harvest. The vines are vigorous; the plant extends to 5 m in diameter.

‘Hamdan’ averages three fruit per plant; the local variety averages one. ‘Hamdan’ has yielded ≈11% more than the local variety.

‘Qasim’ fruit is 62 to 87 cm long. The neck portion of the fruit represents 70% of the total fruit length and is 40 to 60 cm long. The neck weight constitutes 66% of the total fruit weight. The neck has solid orange-colored flesh. The bulb is small with a small cavity; seeds are embedded in the bulb. The skin of the fruit is cream-colored with a touch of bronze at harvest (Fig. 2). Fruit mature in 112 days. Vines are vigorous, extending to >3 m. Leaves are dark green and mottled around the veins.

‘Qasim’ averaged two fruit per plant and yielded 27% more than the local variety (Table 1).

As selections from the local pumpkin population, ‘Hamdan’ and ‘Qasim’ grow well in the hot, dry Saudi environment. ‘Hamdan’ and ‘Qasim’ may be planted in the spring in the Riyadh, Al-Kharj, and Qasim areas or in the fall in the Farsha and Wadi Al-Dawasir areas. Fruit of ‘Hamdan’ and ‘Qasim’ have excellent keeping and storing quality. They may be kept for 2 months at room temperature and 20% to 30% relative humidity. They are also suitable for export.

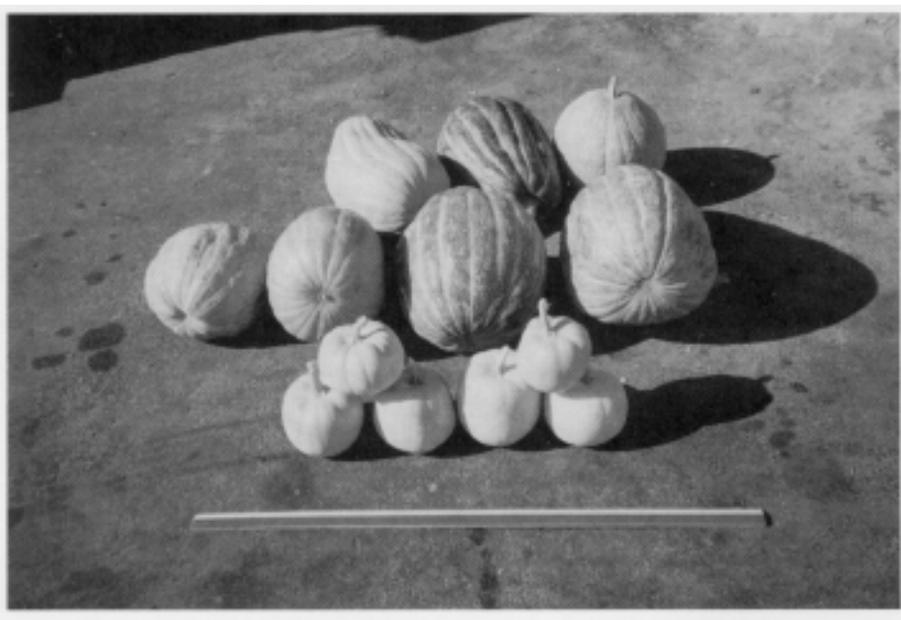


Fig. 1. (front) ‘Hamdan’ winter squash, (back) local pumpkin. Ruler is 60 cm.

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Table 1. A comparison of selected traits among Saudi Arabia's local pumpkin, 'Hamdan', and 'Qasim'.^z

Pumpkin	Wt (kg)		Fruit diam (cm)		Flesh thickness (cm)		Cavity diam (cm)		Total ^y yield (t·ha ⁻¹)
	Range	Mean	Range	Mean	Range	Mean	Range	Mean	
Local	7.0–17.0	11.0	23.0–31.0	27.2	2.5–4.2	3.2	17.0–27.0	21.5	265
Hamdan	1.1–4.2	3.0	13.0–17.5	15.2	2.5–4.0	3.5	6.5–9.0	8.3	295
Qasim	5.0–9.0	7.0	19.0–22.0	20.0	18.0–19.0	18.5	11.0–13.0	12.0	336

^zTest was conducted in the Riyadh area. The data represent an average of 30 plants of each variety. The plot was 500 m². The planting was 3.5 m between rows and 1 m within row.

^yNonsignificant by *t* test at *P* ≤ 0.05.

Availability

'Hamdan' and 'Qasim' seeds are available in small quantities for research from the National Agriculture and Water Research Center, P.O. Box 17285, Riyadh 11484, Saudi Arabia.

Literature Cited

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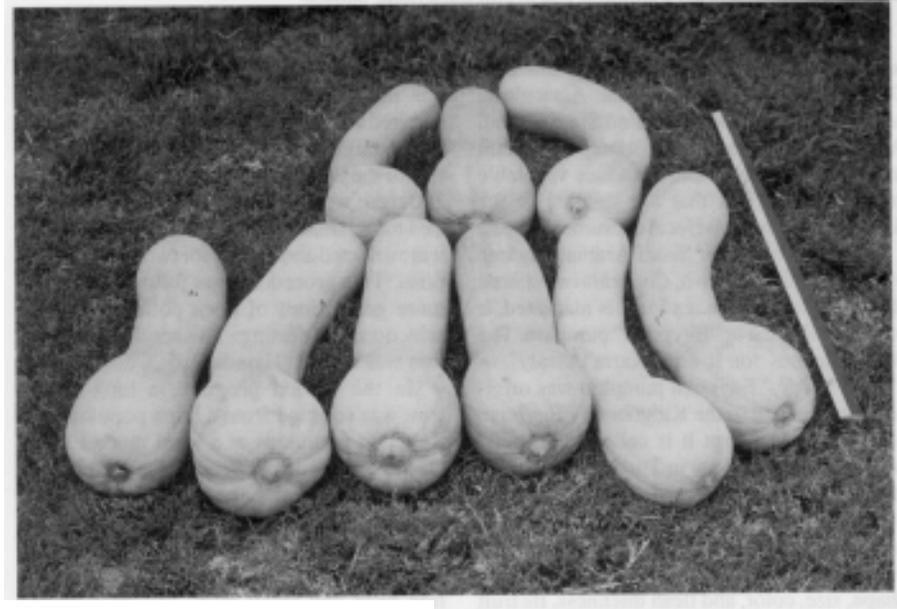


Fig. 2. 'Qasim' winter squash. Ruler is 60 cm.