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# Evaluation of Central Asian Melon Varieties in the San Joaquin Valley

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**Abstract**

Cantaloupes, honeydews, and watermelons were grown on 97% of the 27,200 acres (11,000 ha) of melons in Fresno County, CA in 2008. Only about 760 acres (310 ha) are devoted to "other melons" such as Casaba, Crenshaw, Galia, Juan Canary, Orange Flesh, Persian, Santa Claus, and Sharlyn. However the value of these other melons is over $US 3.5 million. The family of *Cucumis melo* includes many different subspecies of different shapes, colors, tastes, and sweetness. The Uzbek or Russian melon is one in this family that was grown on about 200 acres in 1993-1998 under the trade name Silk-Way. The farmers who had immigrated to the United States from Kazakhstan began growing this specialty melon during this period. During the last eight years (2002-2010) melon variety trials were planted and evaluated at the UC Kearney Research and Extension Center in Parlier to evaluate the production, soluble solids concentration, acceptability to the consumer, and other parameters. Varieties such as Hami, Piel de Sapo, Medellin, Fioli, Magenta, Esmeralda, Uzbek and others were planted and grown organically. During these trials the main disease problem was *Macrophomina phaseoli* (charcoal rot), a fungal soil-borne disease.

According to the 2008 Agricultural Commissioner's crop report for Fresno, California cantaloupes, honeydews, and watermelons were grown on 97% of the 27,200 acres (11,000 ha) of melons in Fresno County, CA. Only about 760 acres (310 ha) are devoted to "other melons" such as Casaba, Crenshaw, Galia, Juan Canary, Orange Flesh, Persian, Santa Claus, and Sharlyn. The value of these specialty melons, however, was over $US 3.5 million.

The family of *Cucumis melo* includes many different subspecies of different shapes, colors, tastes, and sweetness. *C. melo cantaloupensis* is very aromatic and has no netting on the rind. The fruits do not 'slip' or separate from the vine when mature. The subspecie *reticulatus* includes the muskmelon, Persian, and Galia types and fruits 'slip' or separate from the vine when mature. The fruit rind is netted and the flesh is also very aromatic. *C. melo inodorus* melons such as the Canary, Casaba, Crenshaw, and honeydew are not considered aromatic, the flesh is usually green or white, and the fruit dopes not slip from the vine. Makuwa uri, Chinese melon, and Sakata's 'Sweet' all belong to the subspecie *conomon*. They are widely grown in Asia and their flesh is usually crisp and white, with little to no aroma. Examples of *C. melo flexuosus* include the Armenian cucumber and snake melon, which are elongated fruit with no aroma. And finally *C. melo chito* fruit of mango and lemon melon are neither sweet nor aromatic.

In 2006, an observational trial of different melons planted on 20 June from seed using organic protocols was conducted. Harvest and quality tests including melon size, soluble solids concentration (ºBrix) measurements, and taste evaluations were conducted September 5 (78 days after planting). The results of those tests are presented in Fig. 1 and Table 1.

## The Uzbek

The largest and sweetest melon of the group tested was the Uzbek melon (Fig.1 and Table 1). Mystery and intrigue surround the short-lived history of this once popular Asian specialty melon. The Uzbek melon, sometimes referred to as the Russian melon, was grown in Fresno County of California starting in 1993 by about 10 immigrant farmers from Uzbekistan and Kazakhstan.

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**Table 1.** Characteristics of 13 melon cultivars assessed in the Californian field trial.

| Variety | Weight/melon (kg) | Soluble solids concentration (ºBrix) | Taste score (n=34); 1.0 = oustanding, 4.0 = poor |
|---|---|---|---|
| Nun 9166 | 1.77 | 8.6 | 3.8 |
| Castella | 1.77 | 7.2 | 3.6 |
| Margritte | 1.45 | 14.3 | 3.6 |
| Filoli | 1.82 | 11.2 | 3.3 |
| Magenta | 1.80 | 11.4 | 3.1 |
| Piel de Sapo | 1.80 | 11.4 | 2.8 |
| Uzbek | 3.63 | 14.4 | 2.5 |
| Dalton | 1.36 | 11.2 | 2.5 |
| Esmeralda | 1.59 | 13.3 | 2.3 |
| Cleo | 2.32 | 14.1 | 2.1 |
| Rudiera | 2.72 | 13.8 | 2.0 |
| Hami | 2.18 | 13.4 | 1.9 |
| Medellin | 1.77 | 14.3 | 1.5 |

One of the larger farm names was Silk-Way Enterprises. To many people this became the "best tasting specialty melon they had ever tasted". The area planted grew to over 200 acres (80 ha) by 2007-8. Then, in late 2008, the owner of Silk-Way was found murdered, thus ending the large scale growing of this specialty melon in California. The once popular Uzbek is still grown by some, but on very small areas in the state.

*Pest Problems:* When Silk-Way Enterprises was producing the Uzbek, they had to find ground that was not infested with root knot nematode. The melon seems especially susceptible to this pest. In our research with the specialty melons, we encountered various problems that would limit the production of specialty Asian melons. Charcoal rot **(***Macrophomina phaseoli* (Tassi) Goid) was an especially bad soil-borne fungus that can survive in the soil for 3-12 years. Soil fumigation will control the fungus but

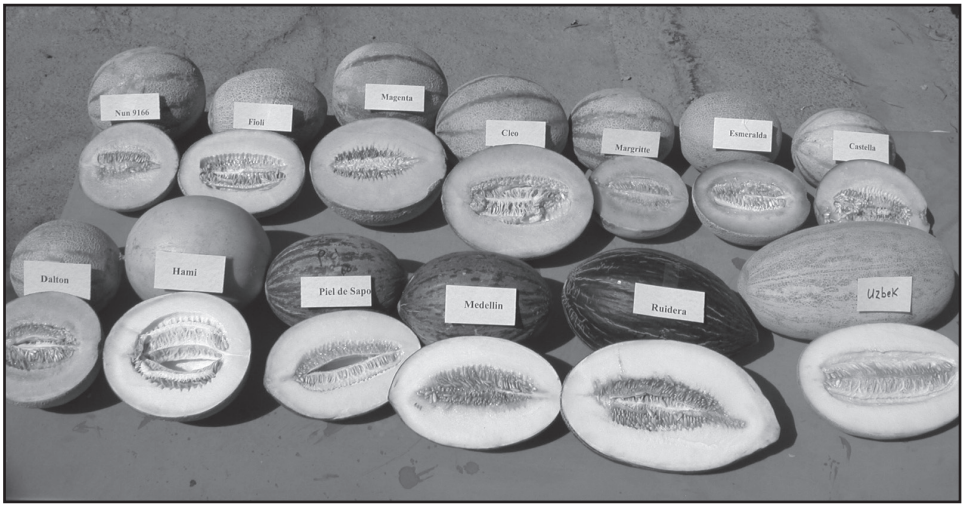


**Fig. 1.**Comparative shape and size of melons in the 2006 observational trial. Lowest soluble solids concentration (ºBrix) was determined in Castella (right back) and highest in Uzbek (right front).

is expensive. No pre-plant or post-plant chemical control measures have been reported.

A black plastic mulch was used on the planting beds to help with weed control, however, yellow nutsedge (*Cyperus esculentus* L.), still managed to punch through the plastic and in soils with high populations of the weed, it can be quite problematic. Halosulfuron (Sandea) provides good to excellent control of nutsedge and is labeled for all cucurbit crops, but of course we could not use this material as our research was being conducted on organic ground in transition.

The main insect problem encountered was melon aphids (cotton aphids) (*Aphis gossypii* Glover) and would build up to large populations in a short time. Our organic control measures included Pyganic and/or Trilogy, which would only provide temporary control. When we introduced lacewing larvae, the problem was resolved in a short time. Part of the problem, especially later in the year, was the viruses that the aphids would spread into the melon crops (watermelon mosaic and cucumber mosaic).