A New Specialty Crop
Orange-Fleshed, Organic Honeydews!

PEGGY GREB (D942-1)

Orange-fleshed honeydew melons may be a better choice for organic growers than cantaloupe because of its absence of netting, which is known to harbor bacteria that can cause human illness.

Among the various foods associated with foodborne illness, cantaloupes—or muskmelons—have been implicated in more than 25,000 individual cases in the United States since 1990.

The problem lies in cantaloupes' rough outer netting, which is known to harbor human-illness pathogens and defy sanitation measures. Microbes can hide in the netting's crevices, covered by naturally forming biofilms that protect them from sanitizers. When netted melons are cut, any microbes present on the exterior can be transferred to the inner flesh.

For organic melon growers—who use manure as fertilizer—this is a major concern. The organic melon market is a relatively new one, but at its forefront are ARS scientists searching for new ways to solve this food-safety problem.

Plant physiologist Gene Lester, in the Crop Quality and Fruit Insects Research Unit at Weslaco, Texas, leads a team of ARS scientists developing ways to reduce foodborne illness associated with cantaloupe. They suggest that netted cantaloupes be replaced with nonnetted melon genotypes, such as an orange-fleshed honeydew (*Cucumis melo,* Inodorus group). This kind of melon is a cross between a cantaloupe and a honeydew. The smooth-skinned honeydew types don't carry the same consumer risk as melons with rough outer netting.

Another benefit of these melons is their nutrient content. Until recently, little has been known about how the health-promoting phytochemicals or antioxidant capacity of orange-fleshed honeydews compare to those of netted cantaloupes. Lester's collaborations have shown that orange-fleshed melons contain higher amounts of vitamins (C, A, and folic acid), minerals (calcium, iron, magnesium, and potassium), and antioxidants (phenolics and enzymes).

Current work with Earl Harrison, chair of human nutrition at Ohio State University-Columbus and former research leader of the ARS Phytonutrients Laboratory in Beltsville, Maryland, is comparing the beta-carotene in cantaloupes and orange-fleshed honeydews to that in carrots and sweetpotatoes. It is expected that the beta-carotene in fruit—particularly warm-season fruit like melons—will be better absorbed, or more bioavailable, than that in vegetable crops. Melons may equal carrots when it comes to exceeding the recommended daily amounts of beta-carotene.

"Orange-fleshed honeydews could easily be marketed as specialty produce in retail supermarkets," says Lester. "That's where their superior sweetness, color, taste, and nutritional levels could be capitalized on." The melons store well, too—around 3 weeks, compared to 10 to 14 days for a typical netted cantaloupe in simulated commercial retail storage.

One cultivar, Orange Dew, is being grown organically in limited quantities in the United States. It has already won out in a taste test with the netted Cruiser cantaloupe because it is sweeter. Orange Dew has a Brix—a measurement of sweetness—of 11 to 14, compared to 9 for most cantaloupes. Sweetness has been shown to be the most important taste factor in repeat purchase of melons.—By **Alfredo Flores,** ARS.

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