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Eden, a new apple with flesh that is slow to turn brown, is compared with MacSpur, on the right. A dark red apple with pure white flesh, Eden could be ideal for making into apple chips, fresh-cut slices, or pie filling.

Eden

The Quebec apple, Eden, once cut, stays white for two days.

By Peter Mitham

A quest for hardy, scab-resistant apple varieties led to a surprising discovery for a Canadian researcher.

Six years ago, Dr. Shahrokh Khanizadeh was trying to pinpoint traits that would make it easier—and faster—to select apples that would be resistant to disease. A colleague suggested he examine antioxidant levels as a possible indicator.

“Most of the scab-resistant apples—almost 95 percent of them—have a specific antioxidant,” said Khanizadeh, a research scientist with Agriculture and Agri-Food Canada in St. Jean-sur-Richelieu, Quebec.

Phenolic compounds—antioxidants that lend aromatic qualities to fruit but can also be toxic to some fungi—became a focus of his research.

Meanwhile, Khanizadeh was trying to identify new apple varieties for Quebec’s juice and cider producers. The two research projects began to blend, and one day he noticed one apple that wasn’t browning as quickly as the other samples. At first, he thought it had been prepared later than the others.

“We were using those advanced lines that we had already selected for juice or for cider apples,” he said. “All of a sudden, we realized that one of these apple varieties that we were working on and that we were hoping to use for cider wasn’t turning brown.”

Further research into phenolic levels linked the resistance to browning to the low level of phenols in the flesh of the apple, which has approximately two-fifths of the phenolic compounds found in a Spartan.

Recently trademarked with the name Eden (its formal name is SJCA38R6A74), the new variety is the product of a cross originally made in 1971 of Linda, a Langford Beauty cross, and Jonamac.

The skin is dark red over greenish yellow, and the flesh is pure white, prompting an early suggestion the variety be named Snow White.

Nonbrowning

The flesh of the fresh-picked fruit remains white up to two days after cutting, making it appealing to processors who see its potential for apple chips, fresh-cut slices, and pie filling, where appearance is important. Natural resistance to oxidation would eliminate the need for chemical washes that account for up to 60 percent of the cost of processing apple slices for the fresh-cut and pie markets.

Though Khanizadeh and colleagues at the Summerland research station in British Columbia have tested other varieties that resist oxidation, none have matched Eden.

“We’ve been testing various apple cultivars to look for nonbrowning or low-browning traits in them, and Eden is probably most consistently the best-performing apple that we’ve tested,” said Dr. Peter Toivonen of the Pacific Agri-food Research Centre in Summerland.

Ambrosia compares favorably, but Toivonen said it falls short. And while Eden is similar to McIntosh in appearance and flavor, Toivonen said Eden is superior for processing.

“The McIntosh doesn’t make a good pie apple because it has very mushy flesh, but this one is a very crisp and hard type of apple,” he said.

Making sure Eden keeps for a reasonable length of time is a challenge Toivonen is trying to solve. He believes Eden may prefer a storage temperature above 1 degree Celsius (33.8°F).

Ice cider

But a tendency to not drop when ripe gives Eden an appeal among ice cider producers.

A variation on ice wine, ice cider uses fruit left to hang on the tree until midwinter, when the frigid weather of Quebec has concentrated its flavors to produce a rich juice.

Since Eden tends not to drop, it has a longer hang time and is easier for ice cider producers such as François Pouliot, co-owner with Stéphanie Beaudoin of La Face Cachée de la Pomme (“the hidden side of the apple”) to harvest at midwinter.

Located in Hemmingford, an hour’s drive south of Montreal, La Face Cachée has won awards in North America and Europe for the innovative character and overall quality of its products. Since starting up in 1994, Pouliot and Beaudoin have developed markets in 15 countries.

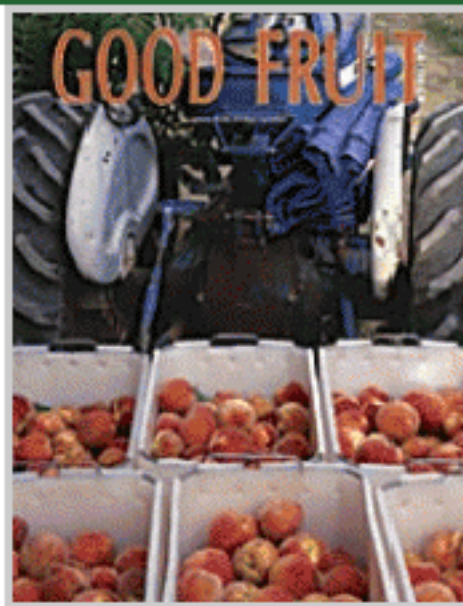
“We’re always trying to be ahead and trying new ways to do things,” said Pouliot, who owns 22 acres of orchard and rents another 60 acres with standard-size trees bearing McIntosh, Spartan, and Cortland.

Pouliot recently planted 15 trees of Eden as part of an ambitious development program that has seen him plant 2,000 trees over the past two years. About a tenth of the new plantings were Primavera, another new variety whose fruit stays on the tree.

Eden’s resistance to browning isn’t as much of a draw for Pouliot.

“To me, the oxidization is not much of a problem, because it gives a nice color to the cider,” he said. “If it doesn’t oxidize at all, maybe [the cider] won’t be that interesting.”

Khanizadeh expects it to be three years before Eden is available in significant volumes. A limited number of plants is available for research purposes from the St. Jean-sur-Richelieu research station. Bud wood is available from the Canadian Food Inspection Agency.



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SUMMER FRUITS

Organic peaches,
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