

An Apple a Day May Cause you to Need a Doctor

By Reg P. Wydeven
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Last week I wrote about Apple temporarily dropping out of the EPEAT program, as the company was more focused on design features and functionality over environmental concerns. The crux of the article was Apple refusing to go green; this week I'm writing about an apple that refuses to go brown.

Okanagan Specialty Fruits is attempting to sell genetically engineered apples that do not turn brown when sliced or bruised. The company is hopeful its creation, dubbed the Arctic Apple, will be popular with consumers and food service companies, leading to increased apple sales, especially if sold in slices. He also asserted that supermarkets would reject fewer apples because of the decrease in minor bruising caused by handling the fruit.

Neal Carter, the founder and president of Okanagan Specialty Fruits, based in British Columbia's Okanagan Valley, says the product couldn't hit the market at a better time. According to the United States Department of Agriculture, consumption of fresh apples in the U.S. in the late 1980s was at about 20 pounds a year per person. Today, that number has dropped to about 16 pounds a year.

Carter says that apples sold as slices are becoming more popular as a healthy snack, thanks in part to McDonald's including them in their Happy Meals. These slices, however, are often coated with vitamin C and calcium to prevent browning and preserve crispness, but this process can affect the taste.

Arctic Apples, though, will not turn brown because they contain a synthetic gene that drastically reduces the production of polyphenol oxidase, an enzyme responsible for browning. The gene contains DNA sequences from four of the apple's own genes that regulate the production of polyphenol oxidase. The extra copy of the gene activates a self-defense mechanism in the apple known as RNA interference, which disables the extra copy and the naturally occurring gene.

Okanagan Specialty Fruits has filed an application with the USDA for regulatory approval of their genetically engineered apples, which would first be available in the Golden Delicious and Granny Smith varieties. The application indicates that the lack of polyphenol oxidase does not harm the apples or the trees, and that Arctic Apples are the nutritional equivalent of non-engineered apples.

In response to the application, the USDA has opened a 60-day public comment period, seeking input prior to ruling. A similar public comment period just ended in Canada, where Okanagan is also seeking approval. In addition, while genetically engineered foods do not require approval from the U.S. Food and Drug Administration, Okanagan has also voluntarily submitted data for agency review.

The USDA is expecting lots of comments, especially in opposition to the Arctic Apples. One such opponent is the U.S. Apple Association, which represents the American apple industry. The organization does not support the apples, claiming genetic engineering is dangerous. Other growers, especially organic ones, fear the anti-browning gene will spread to their apples.

Other critics claim the lack of browning could conceal problems with an apple that consumers may want to know about. Carter counters that injuries to apples from bruising or slicing is not harmful to consumers. Also, Arctic Apples will still change colors if they are rotten from a bacterial or fungal infection.

Personally, I hope the USDA approves the Arctic Apples. If so, maybe I can spread some of Okanagan's enzymes on my lawn, seeing as it went from green to brown about a month ago.

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