

# FIRST fruit



PHOTO COURTESY OF BILL DODD

**Bill Dodd stands next to the EverCrisp mother tree, which grows at the Doud family's County Line Orchard near Wabash, Indiana.**

## Midwest apple group releases its first apple, EverCrisp.

by Richard Lehnert

**T**he first fruit of a grassroots apple breeding program is making its way into growers' orchards.

EverCrisp apple trees are being sold this winter by Wafler's Nursery in Wolcott, New York. EverCrisp was bred by the Midwest Apple Improvement Association, which has no formal plant breeder other than a group of growers who organized in 1998, convinced they can recognize superior apples and could create them—and do it operating on a shoestring budget.

The EverCrisp patent has been applied for, the name has been trademarked, and Wafler's is budding trees that can be ordered now for delivery in the spring of 2015, according to Bill Dodd, the Ohio apple industry leader who is president of the MAIA. Bill Pitts from Wafler's is taking orders at some of the winter horticulture shows, Dodd said. Wafler's has been increasing budwood from the mother tree in Indiana for about four years, he added.

"Bill Pitts has been incredibly helpful to us," Dodd said. "It has to be a royal pain for him, providing 20 trees of this, 20 trees of that." The process of finding promising lines and evaluating them is starting to pay off, and Wafler's will be the only nursery offering EverCrisp trees.

"MAIA is interested in licensing EverCrisp with other nurseries," Dodd said, "but because of the limited supply of budwood, trees will only be available from Wafler's for 2015." No trees will be available before then.

Dodd said EverCrisp will be a "managed open release." Growers will pay \$1 per tree royalty to Wafler Nursery at the time trees are delivered, plus annual trademark fees (see "EverCrisp growers must sign license agreement"), and must become members of the Midwest Apple Improvement Association. The fees will help offset expenses of the breeding program, which up until now have been paid from \$100 annual membership fees paid by from 50 to 100 growers.

The name EverCrisp, suggested by board member Daniel "Dano" Simmons at Peace Valley Orchard in Rogers, Ohio, was chosen to capitalize on two features of the fruit. "Its outstanding quality is its keeping ability," Dodd said. "The fruit keeps so well, we thought it was worth investing in it. It harvests late, similar to Fuji, maybe a little earlier. It has a pretty wide window of harvest, mid- to late October in Ohio."

Its parents are Honeycrisp and Fuji. "It is more like a Fuji. It doesn't have quite the Honeycrisp texture, but it is crisp," Dodd said.

Two years ago, when David Hull of White House Fruit Farm in Canfield, Ohio, was MAIA president, he described this promising, unnamed selection this way: "This late-season apple is a roughly three-inch fruit, sweet with a crisp texture reminiscent of Honeycrisp, but somewhat harder. It is irregular in shape with color of washed red over a light yellow/green background. The seedling tree exhibits moderate to low vigor with good crotch angles. The fruit appears to store very well. We are now trying to build a quantity of scion wood to make large-scale testing possible for spring 2013 planting."

### A grassroots story

The decision to go with EverCrisp as its first cultivar is not easy at first to understand. The initial goals of MAIA don't mention storage quality. Like its parents, EverCrisp has no special resistances to diseases like scab or fireblight, nor is it thought to be a late bloomer. These were qualities that were given top priority. But there was another as well.

About 15 years ago, some experienced Midwest apple growers with good reputations as growers and marketers—Mitch Lynd, Ed Fackler, David Doud, Jim Eckert, Dano Simmons, Gregg Bachman, and others—came to believe their future was threatened by club apples. In their view, the clubs were capturing the best new apples and they were not going to be available to direct farm marketers.

These growers market their apples directly to consumers through their farm markets, many times as pick-your-own. Their markets are usually



PHOTO COURTESY OF BILL DODD

**EverCrisp apples are described as large, sweet, crisp, washed red in color over a yellow/green background.**





You can find more about EverCrisp, including the license agreement and application for membership in MAIA, at the Web site <http://evercrispapples.com>.

destinations for families seeking an on-farm experience that might last several hours or all day. To attract repeat business, they need a constant stream of desirable apples that start ripening in July and carry through past Halloween. These markets grow and sell as many as 50 varieties.

Many markets stay open all year and need varieties that store well for winter and spring sale until new apples arrive. That's where EverCrisp is scheduled to fit.

"Farm market people were not getting access to new varieties—that was a motive from the start," Dodd said.

### The MAIA process

Breeding apples need not be difficult. Apples readily cross pollinate. The Midwest Apple Improvement Association growers would get together, discuss good potential parent varieties, and make crosses. Then they would collect seeds and plant them out on member farms. The seedlings required minimal space and care as they waited five years or more to taste the fruit. This all takes time, labor, and space—but is something growers can do as a sideline.

To date, some 50,000 seedlings have been placed on growers' farms to be evaluated.

Given this history, it is not surprising that credit for making the EverCrisp cross goes to several people who worked together, and that the mother tree is located on one of their farms. Mitch Lynd and Greg Miller are given the credit for making the cross. Miller is the husband of Dr. Diane Doud Miller, the Ohio State University horticulturist and researcher who is listed as a "special advisor" to the organization. The tree is at County Line Orchards in Wabash, Indiana, owned by the Doud family and managed by Diane's brother, David.

"We're not professional breeders," Dodd said. Dodd, himself a grower and farm marketer (Hillcrest Orchards, Amherst, Ohio), manages two organizations involved in marketing apples for many Ohio growers (the Fruit Growers Marketing Association is a wholesale marketing cooperative, and the Ohio Apple Marketing Program, a checkoff program that promotes fresh Ohio apples). Dodd was recently selected to head Premier Apple Cooperative, a group that had been led by New York grower George Lamont. He is also president of the U.S. Apple Association this year. Because of these administrative abilities, he got the job of MAIA president—and of working with lawyers and making the patent applications.

Diane Miller, and her Ohio State University extension associate Dr. Jozsef Racsko, have helped the growers in many ways. In 2009, they began conducting consumer taste tests to determine how well the public would like the new apple and other new strains MAIA is developing. "For the last three or four years, we have taken fruit to the Fabulous Food Show in Cleveland," Dodd said. "We have a booth there where we can do consumer evaluations. EverCrisp has scored very high."

### The MAIA niche

From the start, Dodd said, the goals of the Midwest Apple Improvement Association were to find apples that fit into important niches in the marketing year and would suit grower/marketers in the lower Midwest, a region that stretches in a band across the center of the United States and includes the states of Ohio, Indiana, Illinois, Iowa, Kentucky, and Missouri. The area needs late-blooming varieties that survive spring freezes. Spring there comes earlier than in New York and Michigan, bringing trees out of dormancy earlier and exposing them to late freezes that are a common occurrence.

The MAIA mission statement begins: "There is a need for a Midwest apple breeding program, as current apple breeding programs are unlikely to produce varieties that will be economically viable for the lower Midwest."

The goal was to carry out a grower-driven, grower-involved breeding program with the help of Ohio State University and other research institutions. They wanted "qualities acceptable to the modern consumer: size, firmness, storability, flavor, unique qualities, and maturity fitting with current or other new varieties to lengthen the apple harvest and marketing season."

They also wanted fireblight and scab resistance and "reliable and productive cropping equal to or better than Golden Delicious."

Many of the growers who are in the Midwest Apple Improvement Association also have a long association with the PRI cooperative program—the Purdue-Rutgers-Illinois program that developed and released more than 30 scab-resistant varieties, including Goldrush. They all agreed that disease resistance is a worthy breeding goal, and Goldrush was a parent in early crosses the members made. Dr. Jules Janick, the Purdue University horticulturist who remains the key person in PRI, and Dr. Chris Doll from the University of Illinois, are both long-time members of the MAIA board.

Dodd said MAIA has two or three other apples in the pipeline. "We have a couple we like for their timing. There's a gap now between Honeycrisp and Jonagold." That window in early to mid-September is currently filled by the old varieties Jonathan and Cortland. ●



**In the original home of the apple in central Asia, apples grow in pure stands in apple tree forests.**



**These wild apples were collected from trees growing in Kyrgyzstan.**

## MAIA'S special advisor

While not associated with the Midwest Apple Improvement Association as its apple breeder, Ohio State University's Dr. Diane Doud Miller has credentials as an apple geneticist and researcher with a special interest in working with apples from their original home in the central Asian countries that were once part of the Soviet Union.

She also grew up on an Indiana fruit farm where she saw the devastation late freezes can cause. She is listed as a special advisor to the MAIA.

When the Soviet Union collapsed, United States researchers, led by Phillip Forsline, the curator of the USDA's Plant Genetics Resources Unit at Geneva, New York, organized an apple collection mission in 1995. A decade later, as a Fulbright Scholar, Miller traveled to Kazakhstan to collect apples with a wide array of diverse genetic traits—including red flesh and disease resistance—from the place in the world where apples originated and grow wild in pure forest stands.

Some of the seedlings from Kazakhstan, and many others, are now growing, protected by deer fence, at the Dawes Arboretum in Newark, Ohio. There are several thousand trial seedlings from the MAIA, about 900 from Kazakhstan, about 30 elite Kazakh lines selected by Forsline at USDA, and several of Jules Janick's PRI releases or advanced selections.

Miller also made lasting contacts with researchers in both Kazakhstan and Kyrgyzstan, where apples grow wild in the Tien Shan Mountains.

While Ohio is not today a leading producer of apples, its historical record is significant. Ohio was the home of John Chapman, known in the early 1800s as Johnny Appleseed, who spread apple seedlings from New England across the Midwest. —R. Lehnert



**Diane Doud Miller**

PHOTOS COURTESY OF DIANE DOUD MILLER



# Hello EverCrisp, goodbye Fuji?

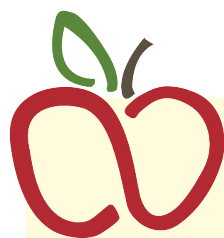
**Mitch Lynd thinks EverCrisp will fill the niche better than Fuji ever did.**

by Richard Lehnert



PHOTO COURTESY OF DIANE DOUD MILLER

**Midwest Apple Improvement Association founders Ed Fackler (left) and Mitch Lynd (right) met in Jim Eckert's MAIA planting to help with apple evaluation, a process that has members tasting thousands of fruit each fall.**



## EVERCRISP agreement

Producers wanting to grow EverCrisp must sign an agreement with the following stipulations:

- They must join or be members in good standing of the Midwest Apple Improvement Association and pay annual dues, currently \$100 per year;
- They must use only the name EverCrisp and its trademark and logo and not use any other names or trademarks in selling this variety.
- They must not register or otherwise seek to develop any EverCrisp sports or mutations, which become the property of MAIA.

The agreement is in effect for 20 years after date of tree delivery. Annual fees are due January 1 for years 4 through 20. Fees begin in 2019 and are 20 cents per tree per year through 2025 and 30 cents per tree in 2026 through 2035. —R. Lehnert

For Mitch Lynd, the introduction of EverCrisp apples into Midwestern growers' orchards will probably mean they won't plant Fuji in the future.

The new apple looks a lot like a Fuji, is sweet like a Fuji, matures late like a Fuji, and keeps like a Fuji. But it does not crop like a Fuji, and that's good news.

"In our region, Fuji is all tree and no apples," Lynd said in a conversation with *Good Fruit Grower*. "Here, 350 bushels per acre is the maximum we can get with Fuji if we are to get return bloom. EverCrisp will make growers more money than Fuji ever did. There'll be no reason to grow Fuji ever again."

Lynd, now 70 and retired both from the Lynd family's fruit farm at Pataskala, Ohio, and from the Midwest Apple Improvement Association that he is credited with cofounding 15 years ago, sounds pretty negative on Fuji—considering he was one who chose it as a parent for EverCrisp, mating it with Honeycrisp.

"The cross made sense to us," he said.

Fuji is a wonderful apple that "keeps like rocks," he said, but it is unproductive. Fuji, as a parent, also offered the potential for late blooming, a trait that was foremost in the minds of lower Midwest growers when they organized MAIA. One of Fuji's parents is Ralls Janet, a late-blooming apple that is called Never Fails where it's grown in Virginia, Lynd said.

"We grow in an area with zero maritime influence," Lynd said. "Our family here has enjoyed a wonderful income from apple growing since the 1860s, but we've had to live with crop failures because of late spring freezes. What Michigan and New York experienced this year, we can expect one year in five.

"Rome Beauty has been one of our anchor varieties, not because it's a great apple, but because it's late-blooming and therefore a reliable cropper."

Of course, the choice of Honeycrisp as the other EverCrisp parent was easy to make because of its great texture and crunch. "Fuji can be chewy, and that's hugely different than crispy," Lynd said.

Honeycrisp also blooms somewhat later, and it is somewhat disease resistant, Lynd said. While it does not carry the Vf apple scab resistance gene that was bred into apples in the PRI breeding program, there are other "complicated" sources of disease resistance, and Honeycrisp has some of that, Lynd said.

While the new variety has not been observed for very long and was only selected for elite treatment in 2008, indications so far are that it's an annual cropper, Lynd said. Despite being grown on its own root, the mother tree is naturally precocious, he said. Growers will have to manage young trees so they don't overcrop early and runt out.

"I should also mention that I spoke with David Doud yesterday and, much to my surprise, he told me he never thinned the original EverCrisp tree," Lynd said. "It had four heavy crops in a row, and the apples were always perfectly spaced. I was shocked. The crop load always looked so perfect, I just assumed it was hand thinned.

MAIA is also evaluating other Honeycrisp-Fuji crosses. "The one I like best has a maturity date that is the same as Honeycrisp," he said. "That is not the apple to introduce right now, with Honeycrisp having momentum like no other apple ever. We don't need a competing apple in that season."

Lynd believes the Midwest Apple Improvement Association will establish its reputation based on EverCrisp—but will go on to find lots of other good apples. He gives two reasons.

First, the members who participate in the breeding and evaluation are farm marketers who meet the public face to face. U-pick customers at Lynd Fruit Farm are invited to taste any of the apples that are ripe that week and then fill their baskets with those they like. Given that opportunity, they choose taste. "We are driven by taste, not appearance," he said.

Second, formal taste tests reveal that not all people like the same things. Apples that rate a 10 by one person may rate 0 with another. Supermarkets tend to settle for an apple that rates a 5 with everybody, but that's no reason to deprive apple lovers of those 10s they'd like to have. But these apples have been thrown away in conventional breeding programs.

There is a lot of room at farm markets for niche apples.

Breeders like Dr. Susan Brown at Cornell University, Dr. David Bedford at University of Minnesota, Dr. Jules Janick at Purdue University, Dr. Joseph Goffreda at Rutgers University, and Dr. Diane Miller at Ohio State University have shown great willingness to teach and help the MAIA grower/breeders understand apple genetics and breeding.

Ed Fackler, the person who worked with Lynd in cofounding the Midwest Apple Improvement Association, is still a member. A former nurseryman and apple grower, he is now associated with a mail order nursery company, Gardens Alive, in Lawrenceburg, Indiana. ●



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