



THE ORTET

Volume Three

Midwest Apple Improvement Association
Autumn 2017 Newsletter

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Congratulations to the MAIA Name Contest Winners!

Winning names were chosen at the MAIA Board Meeting in January 2017. Board members voted on names from an anonymous list of submissions.

MAIA12 = Summerset®

submitted by Sarah Brown, The Apple Works

MAIA11= Rosalee®

submitted by Amy Miller, Ciderwood Press

MAIA-Z= Sweet Zinger®

submitted by Mitch Lynd, Lynd Fruit Farm

MAIA-L= Ludacrisp®

submitted by James Pacello, Pacello Orchards

Learn more about all of MAIA's new varieties in this issue of The Ortet, Pages 6-8.

To obtain licensing agreements for MAIA varieties and to learn more about MAIA go to:

midwestapple.com

Midwest Apple Improvement Association

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A Message from the Chairman

Change. Constant and everywhere.



David Doud

MAIA Chairman of the Board
Countyline Orchard, Wabash, IN
Photo credit: Ann Hunt

A year ago the Midwest Apple Improvement Board asked that I serve as Chairman. I want to offer a sincere Thank You to David Hull. His steady and level-headed leadership since the 2010 reorganization is one reason we are here. I am honored to serve on this Board.

20 years into this apple breeding program 'for the rest of us' there is continuity. Of the 7 current board members, 3 served on the original Board. Our Founder remains busy advising, breeding, and evaluating. Our Science Advisor has been here from the start. We have younger people taking an interest and being involved. It is a group of people that should make every fruit grower proud.

Breeding and evaluations continue. MAIA is now using our patented and elite selections as parents for crosses. Through international cooperation, crosses were made this year utilizing pollen from apples with 'stacked' genetic resistances to common apple diseases. Seedlings go into the ground each year. The first fruits from seedlings having 'MAIA1' (EverCrisp®) as a parent were evaluated this year, with the bulk of those crosses still a year or two from fruiting.

EverCrisp® continues to impress. Our international partners now have trees planted on four continents. Europe looked at their first fruits this year. In the U.S., reports of consumer enthusiasm abound. This apple is in demand and under produced.

Commercialization leaps ahead this year as four new varieties are released. They are better than what you are growing now. None are perfect. They are opportunities. I'd suggest that any grower not aggressively evaluating new material to integrate into their operation is losing ground faster than they realize.

MAIA: What's the Deal?

There is a need for a Midwest apple breeding program as other regions' programs are unlikely to produce varieties that will be economically viable for the lower Midwest. We are an organization founded and maintained by growers to produce apple varieties for the Midwestern United States and wherever those varieties may be adapted.

So - what's the deal again?

The Midwest Apple Improvement Association is organized as a cooperative. Membership is open to anyone and costs \$100 per year. This money supports apple breeding.

MAIA membership gains the member access to varieties and selections developed by the program and also allows the member to participate in the production and evaluation of new material.

MAIA does not propagate or sell trees. There are a number of nurseries licensed to propagate our material and if your favorite propagator does not currently hold a license with MAIA it is possible for them to acquire one.

MAIA has applied for patents for 8 varieties. We have a 'playbook' of elite selections vying for a place in the queue to be patented and released. Members can access any of this material. If the selection is currently unpatented, access can be acquired by signing a testing agreement.

When a member accesses a patented variety (s) he signs a 20 year contract and pays a one time \$1/tree royalty to MAIA (handled through the nursery when paying for trees). In years 4-10, the grower agrees to pay a 'trademark fee' of \$.20 per tree per year - for example, if you purchase 1000 trees of MAIA1, in the year of the 4th leaf you will receive an invoice for your \$100 membership plus \$200 total trademark fees on those 1000 trees - in years 11-20 that trademark fee is \$.30/tree/year so those thousand trees will cost you \$300 per year.

Is that a good deal? Several hundred growers think so. We think it's a rather inexpensive way to obtain 21st century apple varieties and keep new and improved material coming. But you'll have to decide for yourself.

President's Report



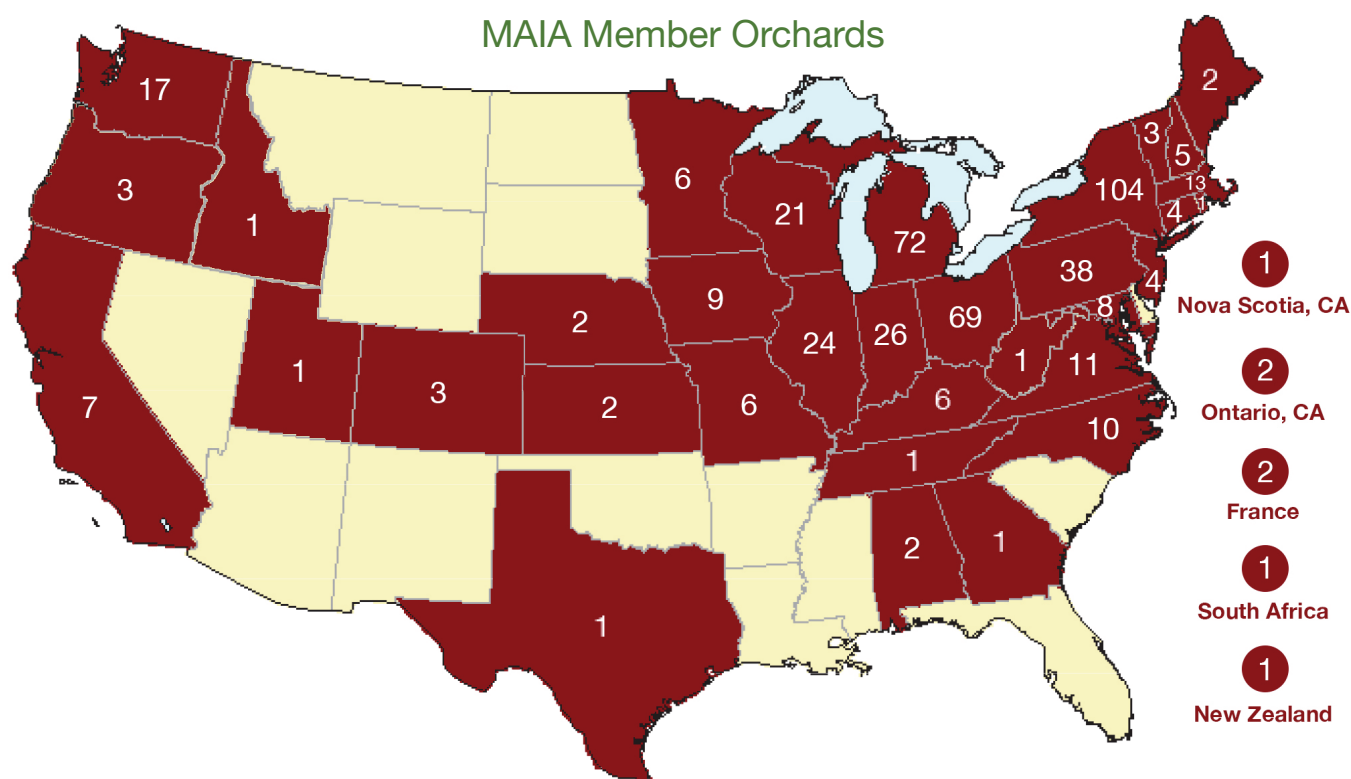
Bill Dodd

MAIA President, Hillcrest Orchard, Amherst, OH

- Budwood for new varieties will be available in 2020. It is in short supply and available on a first come, first served basis. Interested growers who have rootstock reserved should contact their local nurseries. Nurseries can contact MAIA for a nursery license and budwood.

- EverCrisp Marketing: MAIA has organized an EverCrisp Marketing Committee to coordinate the marketing of the EverCrisp apple brand. A PLU was applied for and was granted in August 2017. The committee hired a public relations firm, Harvest-PR, to formulate a social media plan and organize national media efforts. Harvest-PR began their work in April of 2017. The web site has been modified to be more consumer friendly. A tool kit has been established to aid both large and small growers in their EverCrisp marketing efforts. Packaging is being designed to set EverCrisp branded apples apart in the marketplace. Establishing packing standards is another task the committee will be working on.
- The International Pome Fruit Association (IPA) is our international marketing partner. They have been working on worldwide Plant Breeders Rights (PBR) which is the international equivalent of a plant patent. The EverCrisp name and logo are also being trademarked throughout the world. IPA has members in Australia, Chile, Italy, New Zealand, South Africa and the United States. All members of IPA have received MAIA1 test material and are evaluating the variety in their respective growing regions. Chile is expected to be the first member of IPA to begin large scale plantings in 2019 or 2020.

MAIA Member Orchards



Gardens Alive! Update on Baker's Delight® and Crunch-a-Bunch®

Both these apples received a significant amount of marketing in 2017.

- They were featured prominently in over 6 million catalogs across a number of mailings going to over 3 million individual households.
- They received over 500,000 impressions by email consumers and over 2 million web consumers
- Individual web product page views of these two were 60% of our top selling retail apple 'Pixie Crunch'.

Sales however for both cultivars was disappointingly low. Under 1,000 units for both.

Launching a new apple that most have not heard of to a retail market can be a challenge and take some time. When we launched Pixie Crunch many years ago, sales were not far from the above levels. Now we sell about 10,000 trees of Pixie each year. We would like to run some promotions into the Spring 2019 season by shipping fruit from these two varieties to potential customers. We believe this will help folks get over the hump.

For 2018 both apples will make appearances (In limited quantities) at a few big box retailers. We have also increased our inventories for ecommerce sales considerably. Crunch-a-bunch will see a 400% increase and Baker's delight a 150% increase.

The upcoming 2018 growing season will see further tree production growth as well. Somewhere in the 3x to 4x range. Most of these trees will be upgraded to containers and be showing up in a more featured position in the big boxes Spring 2020.

Felix Cooper

MAIA Board Member, Gardens Alive!, Tipp City, OH



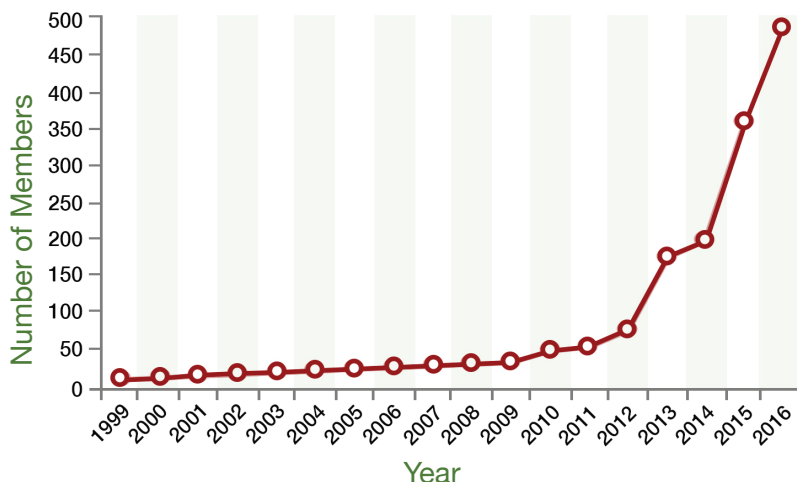
Crunch-a-Bunch® apples

Thank you, Bill Pitts!

Thank you to Bill Pitts and Wafler Nursery in Wolcott, NY for their incredible support of MAIA through the years. Bill has grafted and more importantly, kept track of hundreds of promising MAIA selections over the past 20+ years. He has consulted with MAIA management and the Board, offering suggestions and opinions on all aspects of our business. He has been a champion of our grower run, grass roots business model. You have been an incredible asset! Thank you Bill Pitts!



MAIA Membership Growth



Announcing New MAIA Releases!

MAIA-L (Ludacrisp®)

Patent applied for in 2017

Origin: Open-pollinated Honeycrisp
Harvest Date: 3 weeks after Golden Delicious
Color: Scarlet
Scab-Resistant: No scab observed
Fireblight Resistant: No fireblight observed
Long Keeper: Yes
Crispness: High
Sweet/Tart: Sweet/tart with tropical fruit tones
Fruit Size: Large
Tree Vigor: High

Observations from test orchards:

- Trees will require thinning, but seldom set more than one apple per cluster
- Bloom time later than average for domestic apple
- No instances of fireblight, apple scab, or powdery mildew observed
- Fruit set balanced between terminal and spur fruiting sites
- Fruit does not drop
- Complex tropical fruit flavor with sugar-acid balance
- Crisp texture, pressure 14-16 lbs
- Maintains texture and flavor for 20+ weeks in normal storage

“[MAIA-L] can more fully expand the number of well pleased customers and better diversify growers’ production risks...[MAIA-L] offers the best chance for a Midwest grower who needs rock bottom production cost to make money as a supplier to Kroger, Costco and Walmart where low cost production is critical for survival under the price squeezing environment...”

- Mitch Lynd, Lynd Fruit Farm



Results from Consumer Taste Panels

Lynd Fruit Farm, 21 Nov., 2015

Consumers were instructed to taste all 4 and rate them on a scale of 0-5 for the following attributes

	MAIA-L (Ludacrisp)	MAIA Selection	MAIA Selection	MAIA-Z
Texture Rating	4.1	3.7	3.9	4.3
Flavor Rating	4.0	3.7	3.7	4.0
Overall Rating	4.0	3.5	3.6	4.1
Willingness to Buy	3.4	3.1	3.3	3.8

Whitehouse Fruit Farm, 18 Oct., 2015

Consumers were instructed to taste all selections and vote for their favorite

MAIA-Z (Sweet Zinger): 33% (37/113 votes)
Golden Delicious: 14% (16/113 votes)
(MAIA Selection): 19% (21/113 votes)
MAIA-L (Ludacrisp): 35% (39/113 votes)

MAIA-Z (Sweet Zinger®)

Patent applied for in 2017

Origin: Goldrush x Sweet 16

Harvest Date: 2 weeks after Golden Delicious

Color: Red skin, yellow-green ground color

Scab-Resistant: No scab observed

Fireblight Resistant: No fireblight observed

Long Keeper: Yes

Crispness: High

Sweet/Tart: Sweet/tart

Fruit Size: Large

Tree Vigor: Medium

Observations from test orchards:

- Non-dropping fruit, long harvest window
- No instances of fire blight, apple scab, or powdery mildew observed
- Maintains texture and flavor for 15+ weeks in normal storage
- Flavor is “honeyed citrus” with sweet/tart balance
- Crisp texture, pressure 14-16 lbs
- Tender skin with short stem
- Coloration can vary based on site and weather
- Branches freely, easy to maintain close spacing

“[MAIA-Z] has superior flavor and production advantages over most apples and will be worth introducing to smaller direct market oriented growers who will learn to appreciate and market its unique taste desirability...It offers both texture and fire blight resistance advantages... It could be grown to an exquisite level of unique gourmet perfection and command high margin pricing for many years.”

- Mitch Lynd, Lynd Fruit Farm



Results from Consumer Taste Panels

Consumers were instructed to taste all selections and vote for their favorite

Lynd Fruit Farm,
25 Oct., 2015 - 356 votes

Fuji (harvested 17 Oct.): 5%
MAIA1 (harvested 22 Oct.): 19%
MAIA-Z (harvested 12 Oct.): 26%
Sundance (harvested 20 Oct.): 3%
MAIA-L (harvested 15 Oct.): 16%
Goldrush (harvested 25 Oct.): 11%
(MAIA Selection harvested 15 Oct.): 19%

Whitehouse Fruit Farm,
17 Oct., 2015 - 164 votes

MAIA-Z: 38%
Suncrisp: 21%
(MAIA selection): 8%
MAIA7: 33%

Whitehouse Fruit Farm,
18 Oct., 2015 - 108 votes

MAIA11 (early harvest): 29%
MAIA-Z (early harvest): 19%
MAIA11 (late harvest): 20%
MAIA-Z (late harvest): 31%

Introducing New MAIA Trademark Names!



MAIA_{II} (Rosalee[®])

Origin: Honeycrisp x Fuji
Harvest Date: 1 week after Golden Delicious
Color: Red/Bi-color
Scab-Resistant: No
Fireblight Resistant: Undetermined
Long Keeper: Yes
Crispness: Very High
Sweet/Tart: Sweet/tart with floral tones
Fruit Size: Medium
Tree Vigor: Medium

Observations from test orchards:

- Matures between Honeycrisp and Golden Delicious
- Long harvest and storage windows
- Fruit does not drop
- Crispy texture, pressure 13-16 lbs
- Floral flavor with pleasant sugar-acid balance
- Medium-sized fruit (2.75in-3.25in)
- Bi-color with over 50% rosy blush
- Tends toward biennial bearing
- Sets multiple fruit per spur
- Fireblight susceptibility but not mortality
- Skin-cracking can lead to summer and/or storage rots



MAIA_{I2} (Summerset[®])

Origin: Honeycrisp x Fuji
Harvest Date: With Honeycrisp
Color: Pink/Red
Scab-Resistant: No
Fireblight Resistant: Undetermined
Long Keeper: Autumn apple only
Crispness: High
Sweet/Tart: Sweet/tart
Fruit Size: Large
Tree Vigor: High (for this cross)

Observations from test orchards:

- Matures late August-early September
- Long harvest and storage windows compared to other late summer varieties
- Easier to consistently produce than Honeycrisp
- Crispy texture, pleasant flavor with sugar-acid balance
- Regular shape, large-sized fruit (3 in-3.5+in)
- Red/pink color, more green on younger trees
- Modest tendency toward biennial bearing
- Easily thins to one fruit per spur
- Fireblight susceptibility but not mortality



MAIA12

SUMMERSET

juicy fresh apple

Harvest: With Honeycrisp



MAIA8

BAKER'S DELIGHT

berry peach

Harvest: 1 week after Honeycrisp



MAIA7

CRUNCH-A-BUNCH

sugar pineapple

Harvest: 1 week after Golden Delicious



MAIA11

ROSALEE

clean floral

Harvest: 1 week after

Golden Delicious



MAIA-Z

SWEET ZINGER

honeyed citrus

Harvest: 2 weeks after

Golden Delicious



MAIA-L

LUDACRISP

tropical fruit



Harvest:

3 weeks

after Golden

Delicious



Harvest:

4 weeks

after Golden

Delicious



MAIA1

EVERCRISP

crispy pure apple

Marketing EverCrisp®

Resources Available for You

Sign-up for text alerts for EverCrisp and MAIA information. Text 'MAIA' to 612.202.9407.

As you market EverCrisp, we have created a variety of materials for you, including logos, retail/POS signs, templates for bags, and guidelines for printing logos on apple boxes. You can download all these files here: <http://bit.ly/2fgEky1>.



Recommendations for Harvesting EverCrisp

Do not rush to harvest. EverCrisp apples will not get overripe and soften and will not drop. They have a modest susceptibility to watercore. Often, but not always, the green background color on fruit from 2- and 3-year-old trees is pronounced and does not turn to the expected cream, resulting in brownish fruit at harvest, a trait shared with its Fuji parent. Eating and storage qualities are unaffected.

We suggest testing brix and pressure: 16 brix and 18-20 pounds pressure is most desirable, 15 brix and 20-22 pounds is acceptable, and with less than 15 brix and over 22 pounds pressure it is recommended to wait. You are encouraged to use your judgment and experience, but expect these apples to get better every week.

We suggest holding harvested fruit at room temperature for 3-4 days before refrigeration. CA storage is not generally necessary and trials are being conducted this year to develop more definitive storage regimens. 1-MCP (SmartFresh) is not recommended or necessary. Growers have seen flesh browning in storage because they have harvested too early and rushed to refrigeration/CA storage. Do not forget late season pest and disease control. A late fungicide application is recommended for apples intended for long storage.

Tell Us Your Plans So We Can Help You Market EverCrisp

Please let us know where and how you will be selling EverCrisp. Our marketing team will use this information to share EverCrisp's availability on our website's "Where to Buy" page and to promote through local media and social media channels.



We'd like your feedback!

Included with this newsletter is a survey: "Evaluation of EverCrisp fruit and MAIA1 trees." Any data you can provide about fruit, trees, and/or your experiences with MAIA varieties will be useful to our future research and marketing efforts. Fill out the survey and follow the instructions at the bottom of the second page.

Please contact marketing representative, Eric Davis (eric@harvest-pr.com or 612.424.7545) with any questions or to share your information.

MAIA Research Update

Research within the MAIA encompasses the spectrum from cross-pollination to new variety release. We get excited when some obscure test tree with a label such as MDW 3-89 bears apples that taste better than anything in the grocery store or farm market. That label and number tells us where the original seedling tree is located, which helps us track which cross it is from. Once the apple catches our attention, we observe how it performs on rootstocks under orchard care at several locations. When a test selection stands out as superior at several locations it gets put on our list of elite selections, a.k.a. candidates for release.

Here is a brief report on MAIA research activities this past season:

1) Creating new seeds. We generated the biggest collection of controlled-cross seeds in 2017 since the original batch that launched MAIA in 2000. One focus was harvest timing: creating apples that will ripen in the gap between Honeycrisp and Golden Delicious. We chose high-quality parents from our elite selections whose harvest time flanks our desired harvest window. We consider this to be the immediately applicable line of research. The second focus was toward the longer-term goal of incorporating multiple disease resistance into MAIA selections. We collaborated with Markus Kellerhals in Switzerland to access pollen from his apple lines that have homozygous multi-gene scab resistance and various other resistances.

We pollinated MAIA's best fruit quality selections. We sent Markus pollen of our best quality selections in exchange. Any selections from these crosses will have at least heterozygous resistance for the various disease traits that we can select based on phenotype (orchard appearance).

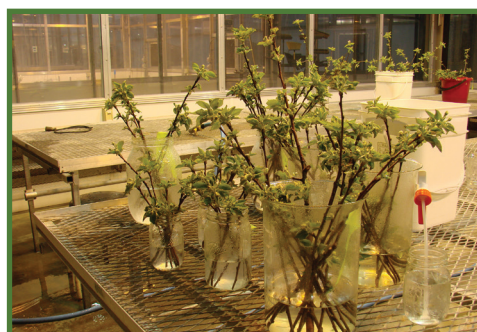
2) Evaluating seedling trees. We have a 15 acre block of seedling trees at Dawes Arboretum near Newark, OH that is the current focus of seedling tree evaluation. There are crosses of immediate commercial value (i.e. Goldrush x Honeycrisp), and seedlings and crosses of longer-term value, such as wild apple germplasm and disease resistant germplasm. There are almost 1000 seedling trees from Kyrgyzstan for which the USDA Apple Crop Germplasm Committee has helped fund evaluations. There are almost 1000 seedling trees derived from 'Sage's Late' which have been evaluated for late spring bloom time. There are probably more than 1000 seedling trees derived from the Kazakhstan seedlings originally collected by the USDA. This large block is used not only for MAIA commercial selections, but also for long-term apple genetic resources conservation and utilization. It is appropriate that Dawes Arboretum, which has a mission in tree genetic resource conservation, houses the long-term genetic material.

The genetic material from Kyrgyzstan is much more climatically adapted to the Midwest environment than is the material from Kazakhstan, which blooms very early



Left: Samples of MAIA elite selections are harvested for use in consumer taste panels. Photo Credit: Amy Miller

Top Right: Advanced selections get their "mug shots" for the research database. Photo Credit: Diane Miller



Bottom Right: Twigs with flowers of desired father trees are brought into the greenhouse to induce pollen shed. Photo Credit: Diane Miller



Researcher Amy Miller makes exciting crosses of MAIA's elite selections. Photo Credit: Diane Miller

and has a short growing season. The Kryrgyz material blooms just slightly before our commercial apples and ripens in September. Typical appearance is similar to Grimes Golden. We have selected the 30 best of these Kryrgyz seedlings, based on fruit quality, disease resistance, and horticultural characteristics, to propagate for use in long term breeding to incorporate/expand genetic diversity.

3) Evaluating tree and fruit characteristics of 2nd test trees. Seedlings that stand out as exceptional are propagated and distributed to volunteer growers as "2nd test trees." Any MAIA member can request 2nd test trees and participate in advanced evaluation. Sometimes we end up with fruit that makes us wonder "why did we ever select that?!" Others are really exciting! We put a lot of effort into systematic data collection of 2nd test selections this fall. We are developing a new database that will let us quickly access and sort the ever-growing pile of evaluation data, including appearance, time of bloom, time of ripening, disease resistance, fruit flavor, texture, size, etc. We're assembling a list of best test selections within weekly harvest windows throughout the fall season. Consumer taste evaluations help us move advanced test selections to "elite" status where they can be recommended to be released as new varieties.

An interesting challenge we have discovered is that fruit from original seedling trees can pack a powerful flavor which can be lost in the 2nd test trees. Impressive flavor from the original seedling tree does not necessarily mean that flavor will be carried on in the propagated trees. But we never know until we propagate the trees and find out!

Amy Miller
MAIA Researcher,
Ciderwood Press

Diane Miller
MAIA Advisor,
The Ohio State University

An Orchard of "Pretty Good"

One of the benefits of being a member of the Midwest Apple Improvement Association (MAIA) has always been access to test trees of interesting selections. Our farm has had a continuous MAIA test planting for a number of years and while those trees do take ground and work, I find it a good way to begin to understand the process of sorting through all those selections that are "pretty good" and hopefully end up with the elusive few. I once heard one of the group joke that calling a potential selection "pretty good" would surely mean its doom as many of the second phase selections we have planted are pretty good. What MAIA hopes to continue to find are the exceptional ones.

I was asked to write a short piece describing what it is like to have a second phase test planting. We have had dozens of trees sent to us every year for the past several years and all of those selections have impressed at least one person who thought they should get a second look on a dwarfing rootstock. This means dozens of potential new apple varieties being planted every year with some

Right and Opposite: Test trees with "pretty good" apples.
Photo Credit: Diane Miller



of them being repeats from past years. The result is an acre or so of mostly respectable apples ripening over an eight week season. You can imagine the difficulty! One of the most challenging aspects is keeping tree identification straight. Any marking system we have tried tends to fall off or blow away as years pass.

The plan is that three times per month, myself and more importantly others, will walk the rows with knife in hand sampling fruit. Half or more are “pretty good”. Hence the dilemma, at least from my stand point. It has been suggested to me that my problem is past experience. I keep looking at a new apple through the eyes of a grower who wants to grow many bins to sell now and later. My eyes have been opened to the new (at least to me) possibility of growing only enough of a particular variety to sell now while at their peak flavor and then move on to later varieties. This strategy may work best for a small grower like ourselves in that it could create excitement in customers who know the variety they want is only available for a few weeks and then the farm is on to another. Interesting idea!

Meanwhile, we wander the rows of “pretty good” apples confident in the notion that here, somewhere, are fruits of distinction. And there are. If not now, then in the future. I just need the right viewpoint. Big grower or small



grower. Sweet cider or hard. I would encourage MAIA members who have an interest to ask for test trees and contribute to the gathering of information. The more experience the group has with potential selections, the quicker the decision may be made to advance or discard. There are many selections to consider and the key may be to consider them across multiple uses where a few may prove to be more than “pretty good”.

David Hull

Board member, White House Fruit Farm, Canfield, OH

Pros and Cons of Growing Test Apples

Growing apples in the Midwest is a lot more exciting than it was a few years ago, at least for me, due to the development of fantastic new varieties like MAIA1. I say varieties because there are many more potential commercial varieties on the near horizon. How do we figure out which ones are the winners for our operation? How about growing test blocks of selected numbered varieties on your farm?!

Let's look at the pros and cons of tending a test block on your farm. Let's start with the cons—too much time, too many records to keep, too many numbers!!

I agree that it takes valuable time, especially at harvest when your attention is already going 8 different directions. I agree there can be considerable data collection. I agree it can be daunting to keep the difference between DD 3-44 and DD 4-34 straight in my head!

There are ways to deal with these issues. Find an employee or other interested party to walk the block and taste on a bi-weekly basis during harvest. Create a flagging system to indicate when to harvest each variety. Pay special attention to the ones you really like, both the tree and the fruit. Any data is good data!

I maintain it is worth the effort to tackle all these challenges, especially if your operation has a retail outlet. Let's look at the pros now—hands on experience with exciting new varieties (which might be part of your future

success), knowledge gained of local adaptability to your local growing conditions, and direct consumer feedback possibilities at your market.

I cannot overestimate the importance of direct experience with test varieties for both positive and negative traits. Your soils and growing conditions may be very different from other growers. Tree form and growth habits are best experienced up close and personal. Disease and nutrition problems can be directly observed.

I have had a lot of fun offering test varieties to my customers at farmer's markets. Nearly all of them taste better than anything else I am selling, so it is easy to offer them slices to taste. Their reactions and comments are often surprising and always valuable.

If you enjoy the process of growing and training apple trees, of exercising your horticultural skills, I urge you to consider reserving a small plot of ground, preferably close to your house, for a test block. Take the time to train them to be excellent trees, as they are excellent varieties and deserve the same care as a commercial block. MAIA is still making crosses and selecting new numbers for testing, so the need for new test blocks is ongoing. You can help our Co-op succeed by taking a more active role in testing. Please consider stepping up.

Brad Phillips

Science Committee, AB Phillips & Sons Fruit Farm, Berlin Heights, OH



Left: Over 150 apples samples were collected for hard cider analysis. Photo Credit: Diane Miller

Right: Cider researchers calibrate their palates by tasting experimental ciders alongside commercial products. Photo Credit: Amy Miller

Ohio Cider: Blending Tradition and Discovery for the Modern Market

The Ohio State University fruit researchers Diane Miller and Andy Kirk are collaborating with MAIA research coordinator Amy Miller, and Ohio cider maker Brent Baker, to evaluate MAIA selections for the growing hard cider industry. This 2-year project, funded by the Ohio Department of Agriculture Specialty Crops Block Grant Program, is bringing together apple growers, cider makers and consumers to develop quality products with local identity. We are guided by the intent to develop great Midwest US hard cider using local, adapted, and unique apple varieties.

In traditional hard cider, 4 classes of apples are used: bittersweet (high in tannin, low in acid), bittersharp (high in tannin, high in acid), sharp (low in tannin, high in acid) and sweet (low in tannin, low in acid). Juices from these different types of apples are blended and fermented. The Midwest industry has thus far been limited by lack of diversity in each of these classes for well-rounded blends and outstanding varietals. There is no shortage of sweet apples, and even tart (sharp) apples in the Midwest. There is a shortage of high tannin apples because those don't have a fresh market niche and consequently haven't been selected for or planted in commercial quantities.

We are taking a different approach toward obtaining apples of sufficient diversity for hard cider. Instead of growing the high tannin varieties used in England/Europe where they are not well adapted and are fraught with horticultural challenges, we are selecting new high tannin varieties from the huge genetic diversity available in our breeding program that are adapted to Midwest climate and soil and have the desirable fruit size, cropping characteristics, and horticultural traits of our fresh market varieties. We are selecting powerful apples that can be

used individually or in a blend to create distinctive, unique products. There are several selections from the Sweet 16 x Goldrush cross that have powerful, complex flavors. In small amounts they would jazz up fresh cider. In larger amounts they could result in an excellent fermented cider. We also are exploring the diversity of wild apples from Central Asia and red-fleshed selections from around the world.

This fall (2017) we harvested one-peck samples of many MAIA selections, along with commercial standards, and pressed each sample separately. Andy Kirk at Ohio State's Ashtabula Agricultural Research Station is leading a team to press juice and analyze sugars, acids, and phenol/tannins. This will give us the scope of diversity present in the MAIA and associated germplasm. Brent Baker at Twigg Winery will ferment the samples to evaluate their finished quality. Chemical analyses and taste panels of cider enthusiasts will help us determine which MAIA varieties to release and market to growers interested in the hard cider production chain.

As a part of the grant, we will be initiating an Ohio Cider Guild to connect local apple growers with local cider makers. A hard cider information and tasting session, led by Diane, Andy, Amy, and Brent, will be held at the Ohio Produce Growers and Marketers Association (OP-GMA) meeting in Sandusky, OH on Tuesday January 16, 2018 from 7-8pm. Ohio apple growers are encouraged to attend. We believe Midwest hard cider is an exciting new product that can be created from unique germplasm without being beholden to other parts of the world for the "right" produce.

Stay tuned.

Amy Miller
MAIA Researcher,
Ciderwood Press

Diane Miller
MAIA Advisor,
The Ohio State University

What About Yellow Apples?

The rise of Honeycrisp popularity has taken a huge bite out of the sales of all other apples. Apple growers everywhere are scrambling to reorganize their production to better match up with changing consumer demand and it raises the question about the future of yellow apples.

The rejection rate for minor cosmetic flaws is higher on yellow apples than red apples. The tiniest of flaws are more obvious. Margin-squeezed wholesale apple growers have increasingly said “no more yellow apples.” In addition to higher rejection rates on packing lines, the reputation of Golden Delicious has been damaged by some supermarket buyers’ insistence that growers pick them green. Meanwhile many apple growers who market their apples u-pick or at a farm market, where consumer buying decisions are less appearance-driven and more taste-driven, are still selling yellow apples and in some cases, more than ever.

Every farm market operator I ever knew sold more Golden Delicious than Red Delicious at their orchard. As the years passed we sold less and less Red Delicious and more Golden Delicious. This effect was even more so on the U-Pick side of our business. To this day there is a small but significant number of consumers who prefer yellow apples over red apples because of an on farm experience of tasting both Red and Golden Delicious.

We sell both Goldrush and Suncrip at our orchard and even though they taste noticeably tart, their flavor complexity soon gained a significant market share while cosmetic flaws kept them off grocer’s shelves. While larger growers and supermarket buyers were complaining about their russet, we were selling more and more Goldrush and Suncrip. Even in years of substantial russet, we noticed little adverse impact on demand for these yellow apples. Suncrip has more spring freeze resistance than any apple we grow. Both Goldrush and Suncrip are nearly immune to scab.

The first yellow apple introduced by MAIA was an open pollinated Honeycrisp seedling later released as MAIA7. Gardens Alive purchased the exclusive rights to MAIA7, marketed as Crunch-A-Bunch. Their marketing effort for Crunch-A-Bunch has been focused on promotional effort in retail mail order catalogs like Gurney’s. According to Ed Fackler, retired MAIA co-founder and retired Gardens Alive executive, no matter how well a yellow apple does in taste trials, no amount of scientific data or clever marketing slogans can overcome the fact that yellow apples NEVER sell as well from catalog pictures and descriptions as red apples. They have sold Golden Deli-

cious, Goldrush, and Sundance before their recent efforts with Crunch-a-Bunch but none of these yellow apples ever triggered as many tree orders as the best red apples offered in the same catalogs. Like apples on supermarket shelves, people can’t taste the catalog pictures or descriptions. Tasting is a powerful advantage the u-pick operator has when marketing great tasting yellow apples.

A dozen or more yellow apples are undergoing advanced testing at MAIA. In our opinion, several taste better than most of what’s on grocer’s shelves. The current leaders of the pack come across the tongue nearly as sweet as MAIA1, almost as crispy/juicy as MAIA11, and like both they have a long picking window with great keeping quality from ethylene resistance. Like MAIA1 and MAIA11, several have been a favorite in taste panel trials where hundreds of tasters have declared them their favorite. One in particular picks from the time when Honeycrisp is ending to when Golden Delicious is beginning, a time slot begging for a better apple. Its name and other details will be coming soon.

We at Lynd Fruit Farm expect to be ordering as many or more of these trees than either MAIA1 or MAIA11 because of our need for a great apple in a specific maturity time slot. We not only have no fear of selling yellow apples, we

welcome the virtual monopoly advantage handed us by those who choose to say “no more” to yellow apples. It’s understandable why nurseries have a declining interest in yellow apples because grocers the world over account for more than 90% of total apple sales, and growers everywhere struggle to make a profit by selling them yellow apples whose pack-out percentages are usually less than red apples. However, there is a place for yellow apples and I hope it is not overlooked in the scurry for relatively quick and easier profits from new red apples.

Yellow apples are still profitable to many of us down on the farm, the front lines of new apple introduction, where taste trumps all other consideration and there is sufficient demand for profitable yellow apple sales. Yellow apples have their problems, but we will be planting new yellow apples as taste panel results predict them to be a wise choice for pleasing many consumers.



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