

# THE ORTET

Volume Six

Midwest Apple Improvement Association  
Autumn 2020 Newsletter



**MAIA**  
21st Century Apples

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**Illustration credit, front cover:**  
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**Newsletter produced by  
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## Key to MAIA Releases

Trademark Name	Cultivar Name	Test Name	Parents/Cross	Patent Number
EverCrisp®	MAIA1	MDD5-44	Honeycrisp x Fuji	PP24,579
Rosalee®	MAIA11	MDD5-41	Honeycrisp x Fuji	PP29,146
Summerset®	MAIA12	MDD3-75	Honeycrisp x Fuji	PP29,213
Ludacrisp®	MAIA-L	Juicy Fruit	Honeycrisp, open pollinated	PP30472
Sweet Zinger®	MAIA-Z	MJE 1238	Goldrush x Sweet 16	PP30059
Sweet MAIA®	MAIA-SM	MDD 7-50	Honeycrisp x Winecrisp	Patent Pending

# A Message from the Chairman



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

The MAIA Board welcomed two new members this past year: Chris Eckert from Illinois and Tom DeMarree from NY.

The second year of MAIA as a stand alone organization finds us in a strong position with an expanding membership approaching 1000. President Bill Dodd assisted by Senior Vice-President Chip Wigton have created order out of the rapid growth of the last 3-4 years. The MAIA Board has approved investments in technology that will allow the staff to manage the exponential growth for years to come.

Our offerings of apple varieties and our grower friendly strategy of making them available is being validated.

As members of our cooperative you can and have a responsibility to help. Take good care of these varieties. Make sure you are offering your customers the best possible fruit. Be a horticulturalist. Questions about cultural details? The MAIA Facebook page is a great resource. MAIA's annual newsletter, The Ortet, has many articles about our selections and all the past issues are available at [maiaapples.com](http://maiaapples.com).

Doing some 'grafting over'? Report the numbers to MAIA. Looking for scion wood? Let the office know of your needs and/or make a post to the Facebook page. Are you looking for fruit for your farm market? Do you have MAIA apple varieties to sell? We are here to help.

There are more '21st Century Apples' in the pipeline. The 20th century standards are fading fast. Any marketer recognizes the power of 'New' and we are fortunate to have not only 'new', but also 'wow'. Give the MAIA varieties an honest trial at your orchard. The apple variety world is changing faster than dreamed possible. Grab these opportunities and make the most of them.



Photo credit: David Doud

## Sweet Maia<sup>®</sup> is approved

MAIA is excited to announce the trademarked name Sweet Maia<sup>®</sup> has been approved. Apples that meet the quality standards set by MAIA will be marketed as Sweet Maia<sup>®</sup>. A plant patent has been applied for with the variety name MAIA-SM.

This is MAIA's earliest selection, ripening 7-12 days before Gala. Storage trials have shown that it keeps well in common storage, for up to 90 days, very good for such an early variety. A complete storage report was published in the summer newsletter and can be accessed at [maiaapples.com](http://maiaapples.com). The bright red color

is typically 80% to full and the crisp texture and very sweet flavor has scored incredibly well in consumer evaluations.

Wafler Nursery has a limited number of trees available for 2021 & 2022. Other nurseries will have availability as budwood allows.

Membership in MAIA and a signed MAIA License Agreement on file are required to purchase MAIA-SM trees and all other MAIA apple varieties.

## FROM THE PRESIDENT:



**Bill Dodd**

MAIA President, Hillcrest Orchard, Amherst, OH

# 2020 MAIA Update

## International:

MAIA and the International Pome Association (IPA) entered into an international testing agreement 4 years ago. The agreement required the establishment of a new company to manage the international affairs of the branded apple EverCrisp® if one of IPA's members exercised their option to plant MAIA1.

IPA members in Chile and New Zealand have begun commercial plantings of MAIA1. Apple Innovations, LLC has been established to manage the international affairs of the branded apple EverCrisp®. The board of directors of Apple Innovations consists of 3 members from MAIA (David Doud, Dano Simmons and Bill Dodd) and 3 members from IPA (Robb Myers (WA), John Skinner (Chile) and Brendon Osborn (Australia)). Apple Innovations has hired Stephen Rabe from South Africa to manage the day to day operations. Legal work is currently taking place to establish Articles of Association and Shareholder agreements. Work on contracts between members and Apple Innovations are also being generated. The other IPA partners in South Africa, Australia, and Italy continue to test MAIA1.

## MAIA1:

The millionth MAIA1 tree was planted in the spring of 2020. There have been 1.8 million MAIA1 trees planted in the US since its release by 674 MAIA members. The EverCrisp® marketing committee is meeting to organize the marketing of the 2020 crop. MAIA is poised to financially support the marketing efforts. The MAIA office has PLU labels for EverCrisp® 3490. There are 2,000 on a roll. Contact the office if you need some.

This fall a "So Crunchy, it's Scary" campaign was launched for farm markets and pick your own operations. Banners and other supporting materials have been produced by FLM Harvest, MAIA's Public Relations firm. This promotion will run again in 2021. Contact me (billdodd04@gmail.com) if you would like to get involved in 2021!

## Other MAIA Varieties:

The total number of trees planted since their release: MAIA-L (Ludacrisp®) 89,204; MAIA11 (Rosalee®) 40,167; MAIA12 (Summerset®) 13,729; MAIA-Z (Sweet Zinger®) 10,035.

870 MAIA member growers have planted a total 1,920,139 trees. International plantings will add to this total. Thank you.

## Research:

MAIA has funded research or supported the following:

Dr. Diane Miller, The Ohio State University; Craig Kahlke, Cornell Cooperative Extension; Reality Research; Dr. Jim Schupp, Penn State; International Fruit Tree Association; The Midwest Apple Foundation; Dr. Stefano Musacchi, Washington State University; The North Central Research facility, MI

## MAIA Annual Meeting

The MAIA annual shareholders meeting will be held virtually on February 25, 2021 at 10 am EDT. Email Bill Dodd at [bdodd@maiaapples.com](mailto:bdodd@maiaapples.com) if you would like to receive the Zoom information

## In case you missed it...

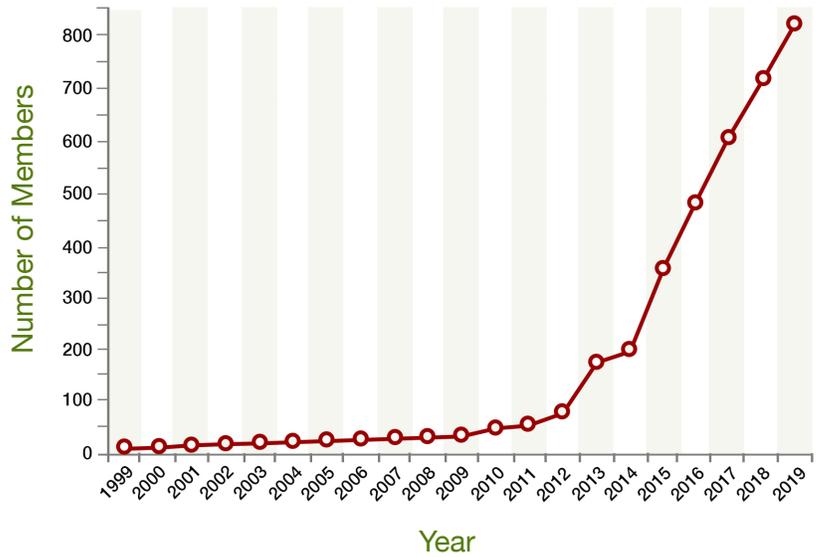
Check out the summer newsletter (MAIA News: Summer 2020) at [maiaapples.com](http://maiaapples.com) for info about the new release, MAIA-SM, and for more information about MAIA1/EverCrisp®



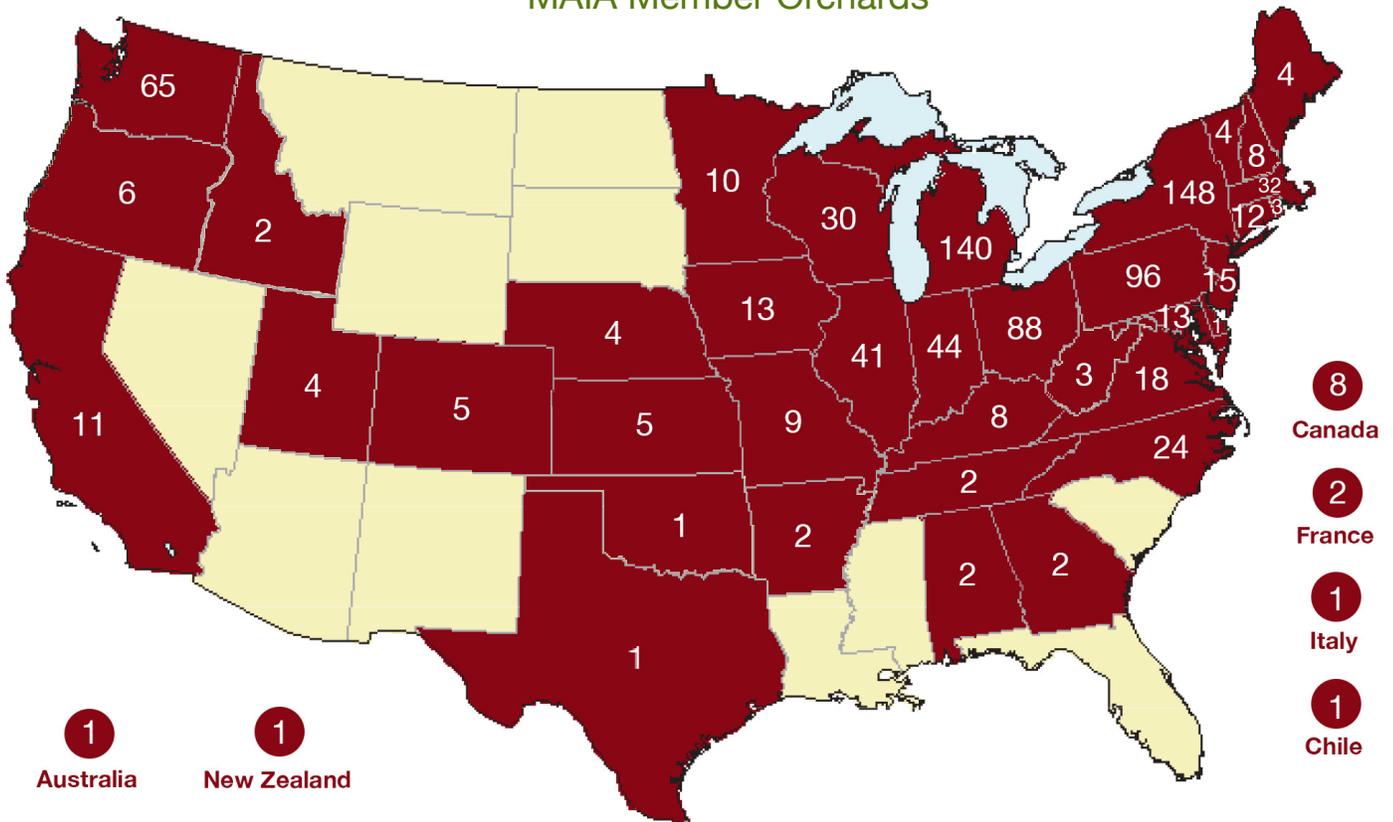
## MAIA Membership Growth

### New Varieties:

Work is ongoing to develop new varieties. Controlled crosses are made every year, seeds are collected and planted. Fruit from seedlings are evaluated with the current priorities being disease resistance and mid-season harvest timing. Second generation test trees of exciting candidates are propagated for further consumer evaluation and horticultural observations. 10 potential second generation candidates are being planted on 4 different rootstocks each at Reality Research in NY in 2022.



## MAIA Member Orchards



# Ludacrisp®

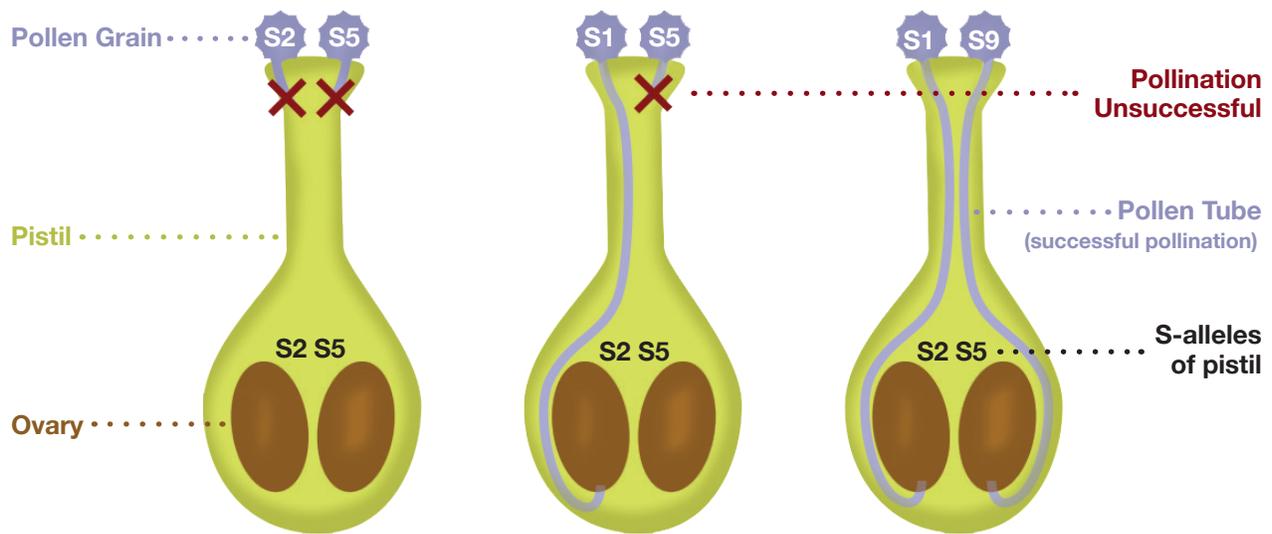
Ludacrisp® continues to be an exciting new variety! Not only does it have impressive color, texture, and horticultural characteristics, but also it has unique flavor components and non-fermentable sweetness, making it exciting for both fresh market and hard cider. Lynd Fruit Farm (Pataskala, OH) first picked out MAIA-L, the tree that bears Ludacrisp® apples, from their test block of MAIA seedlings in 2010, and here they share their observations from a block of 35 trees, 8 years old, on B9 rootstock.

## Ludacrisp® Quick Facts (Mitch Lynd, Lynd Fruit Farm):

- Color is consistently bright scarlet red
- Texture is crisp and breaking, approaching the quality of Honeycrisp
- Flavor is “fruity” with tones of pineapple, strawberry, and grape and has an equal sweet-tart balance
- Harvests at the end of Golden Delicious, at the beginning of Melrose and Suncrisp
- Fruit keeps in good condition until late April in normal storage
- Growth habit is a tip bearer with very few spurs
- Best apples are on tips of short dards, and all others should be thinned off
- Thins nicely with 10ppm of NAA and 1 qt. of Sevin
- Trees are as frost resistant as Golden Delicious
- Fireblight susceptibility is about the same as Golden Delicious
- Tree vigor is similar to Golden Delicious

Photo credits: Andy Lynd





# What are S-alleles? (and why should you care?)

There is a new buzz phrase in the world of apples, and that is ‘S-alleles’ (pronounced S ah-leels). I am going to tell you what that means and why it is important to you as a grower.

Allele is a fancy word for a gene variant or variation. In this case, the variation is in a gene which functions in the pistil of the apple flower and serves to prevent self-pollination.

We have known for a long time that for fruit set, apples need to be pollinated by another variety, preferably one not closely related. Identification of the S-alleles allows us to determine more precisely the success rate for pollination between cultivars.

With a great number of new varieties being planted, cross-pollination questions have been multiplying. Knowing the S-alleles for a new cultivar will help in orchard planning.

Each regular (diploid) cultivar has two alleles; triploids like Mutsu have three. They are notated as S2 S5 (Gala), S2 S3 (Golden Delic.), etc. Each pollen grain carries only one of the two variants. If an S5 pollen grain lands on a Golden Delicious pistil, it can grow freely and pollinate. If an S2 pollen grain lands on the same pistil, its growth will be blocked. Only 50% of the pollen will be effective in this case. If two cultivars happen to have the same two alleles, neither will pollinize the other at all. Conversely, the best pollinizer will differ in both alleles from the target pistil. See the figure above.

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## Key to S-alleles

### Common Varieties

Red Delicious – S9 S28

Golden Delicious – S2 S3

HoneyCrisp – S2 S24

Fuji – S1 S9

Gala – S2 S5

Jonathan – S7 S9

### MAIA Varieties

MAIA1 (Evercrisp®) – S1 S24

MAIA-L (Ludacrisp®) – S10 S24

MAIA12 (Summerset®) – S9 S24

MAIA11 (Rosalee®) – S1 S2

MAIA-Z (Sweet Zinger®) – S3 S28

MAIA-SM (Sweet Maia®) – S2 S9

## Thinning Recommendations for MAIA Varieties

A most common question about these varieties is chemical thinning. Thinning trials have been commissioned for 2021 and we expect to offer up the results in a year.

Here are our best recommendations based on anecdotal experiences:

### MAIA-1 (EverCrisp® apples):

No chemical thinning. Use pruning and hand touch up to tune the crop. Beware long branches. Tip bearing and limber twigs results in garlands of poorly colored apples hanging to the ground.

### MAIA-12 (Summerset® apples):

1 quart Sevin, with or without 10ppm NAA. This is also a tip bearing variety. It thins readily, but does need a shot of something.

### MAIA-11 (Rosalee® apples):

1 quart Sevin + 10ppm NAA. Treat this variety as you would Golden Delicious. It will overset and will become biennial without a thinning regime.

### MAIA-L (Ludacrisp® apples):

1 quart Sevin + 10ppm NAA

### MAIA-Z (Sweet Zinger® apples):

1 quart Sevin + 10ppm NAA. Sweep through the trees late spring/early summer and thin any multiples at the tips of branches.

### MAIA-SM (Sweet Maia® apples):

1 quart Sevin

There are about 28 known alleles in Apple, plus additional in Crabapples, so there are many possible combinations, but due to the extensive use of Red and Golden Delicious as parents, and more recently Honeycrisp, certain alleles are more prevalent in current varieties.

MAIA recently used the services of Stefano Musacchi at WSU to determine the S-alleles of some of our varieties, and I invite you to look at the included table to see how they relate to various others. For example, you will see that Golden Delicious is a good pollinizer for MAIA1, MAIA-L, and Fuji (assuming overlapping bloom). It is not so good for Honeycrisp, Gala, MAIA11 or MAIA-Z, as it shares the S2 allele with the first three and the S3 with the last.

Research is ongoing to determine the S-alleles of additional varieties, especially for varieties whose parents' S-alleles have not been determined.

When two varieties are crossed, the possible resulting S-allele combinations will equal four. Using Golden by MAIA-L as an example, the offspring will be either (S2 S10), (S3 S10), (S2 S24), or (S3 S24). This information can be useful when the parentage of a new variety is unknown or dubious, as certain possible parents can be eliminated.

As acknowledgement of sources and to encourage further reading, see an article in HortSci Vol. 39 (5) from August 2004 by Broothaerts et al. Also New York Fruit Quarterly Vol. 20 Num. 2 from Summer 2012 by Orcheski and Brown. Finally <http://treefruit.wsu.edu/article/cross-compatibility-of-apple-cultivars-and-pollinizers/> by Scheick, Serra and Musacchi Oct 2019.

**Brad Phillips**

Chairman of the MAIA Science Committee





Above: Orchard affected by Marssonina Blotch. Inset: Close-up photo of Marssonina Blotch on a leaf. Photo credits: John Clements

# Marssonina Blotch

Recently I visited a block of MAIA1 apple trees in an orchard in the hilltowns of western Massachusetts west of the Connecticut River. I went to look at what is probably the largest planting of MAIA1 apples in Massachusetts. A few acres, with more in the works to be planted. The trees are 3-4 years old and on Geneva 41 rootstock. A couple of observations and even more questions.

First, crop load management is essential as MAIA1 can go somewhat biennial if over-cropped. And apple quality is not what it should be on over-cropped trees. What is the best crop load (number of apples) and chemical thinning recommendation for MAIA1?

Second, MAIA1 appears to be quite susceptible to the fungal pathogen *Marssonina coronaria* causing the disease Marssonina blotch. Now, the big question is how important is it to keep this disease under control until the

fall harvest? These MAIA1 trees had not been treated with a fungicide in well over a month, and groups of trees showed significant Marssonina blotch. Even some partial defoliation. The grower acknowledged that Marssonina blotch has been observed on these MAIA1 trees in the past. A standard fungicide program for apple scab -- that includes Captan and mancozeb fungicides, because it appears these fungicides have good activity against Marssonina -- should keep it at bay for the majority of the growing season. Slacking off on fungicide applications towards harvest, however, can result in Marssonina blotch becoming rather "ugly." So my questions include:

1. Will letting the disease build up -- it overwinters in leaf litter on the orchard floor -- make it more difficult to control in future years? (Remember, sanitation is a

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Leaves affected by Marssonina Blotch.  
Photo credit: John Clements

basic tenet of plant disease control.)

2. What are the ramifications of late-season “leaf blotch” and partial defoliation on tree health and productivity?

3. What fungicides have best action against Marssonina, and how late into the summer or early fall should fungicide application continue?

4. What weather conditions are most favorable for Marssonina infection? Surely moisture is an essential ingredient, and in fact, RIMpro has a Marssonina coronario infection risk model. Might be worth heeding.

I know some of these questions are currently trying to be answered by University researchers in the Northeast, but Marssonina is a relatively new apple disease here and MAIA1 appears particularly susceptible. Both its parents, Honeycrisp and Fuji, are known to be susceptible to Marssonina. So keep an eye out on those MAIA1 blocks!

**Jon Clements**  
Extension Educator, Tree Fruit  
UMass Amherst

# EverCrisp®: So Crunchy It's Scary

Thanks to all who participated in our fall EverCrisp® promotion! These and more photos can be found online by searching #EverCrispHalloween





