



## Great Lakes Fruit, Vegetable & Farm Market EXPO Michigan Greenhouse Growers EXPO

December 5-7, 2017

DeVos Place Convention Center, Grand Rapids, MI



### Sweet Cider

**Where:** Grand Gallery (main level) Room D

**Moderator:** Bob Tritten, District Fruit Educator, MSU Extension, Flint, MI

- 9:00 am Cider Mill Inspection Results for 2017 and Plans for Next Season
- Mike Lally, MDARD Food & Dairy Division, Grand Rapids, MI
- 9:15 am Cider Apple Varieties and the Future of Ciders in North America
- Ian Merwin, Professor of Horticulture Emeritus, Cornell Univ. & Grower & Cidermaker, Black Diamond Farm LLC, Trumansburg, NY
- 9:55 am Cider Pathogens That Are on the Radar Screen
- Les Bourquin, Food Science Dept., MSU
- 10:25 am The Story of A Small Scale Cider Maker
- Brian Phillips, Phillips Orchard, St. Johns, MI
- 11:00 am Session Ends

Michigan Cider Makers` Guild Annual Member Gathering to follow the Sweet Cider educational session, moderated by Bob Tritten.

## Cider Mill Inspections for 2017

Plans for 2018 and Beyond



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**Michael J. Lally**  
Senior Food Safety Inspector  
Food and Dairy Division

*Michigan Department of Agriculture & Rural Development* 

## Cider Mill Inspections 2017

- 84 “mills” inspected in 2017 (may include non-apple cider or hot-fill juice)
- Two apple cider vinegar facilities identified by Lansing Office
- Since 99 mills were identified in previous years all facilities may not have been inspected or may not have operated this season
- No sample results were found in our database.

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## License Fees

- The Michigan Legislature approved fee increases for food business licenses
- Allow the Michigan Department of Agriculture and Rural Development (MDARD) to increase the number of inspections conducted
  - Help more businesses expand as they work to be in compliance with state and federal rules
  - Enhance customer service by becoming a mobile workforce.
  - Fees had not been increased in 15 years
  - During that time
    - Michigan has seen a 15 percent increase in the number of licensed food establishments
    - Staff numbers have decreased by 8 percent.
    - During that same time period, the number of food processing facilities has increased by 50 percent.

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## License Fees

- Three-year fee increase phase-in
- Will bring the amount paid by industry to just 37 percent of the total cost to run the Food Safety and Inspection Program. The rest is paid for by state general fund dollars and federal grants.
- This additional funding will allow MDARD to meet an inspection frequency schedule based on food safety risk of:
  - 6 months for high-risk businesses
  - 12 months for medium-risk
  - 18 months for low-risk establishments
- While meeting all the business services needs for new and expanding food businesses in Michigan.
- Food evaluations are especially important to smaller businesses who may have limited resources to monitor their food processes. MDARD’s highly trained food inspectors are sometimes a business’s last line of defense against the high cost of foodborne illness and recalls.

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## NEW LICENSE FEE SCHEDULE

\$38.00 (2015) \$43.00 (2016) \$58.00 (2017) \$73.00 (2018)	\$ 70.00 (2015) \$109.00 (2016) \$148.00 (2017) \$186.00 (2018)	\$138.00 (2015) \$153.00 (2016) \$156.00 (2017) \$159.00 (2018)	\$175.00 (2015) \$274.00 (2016) \$373.00 (2017) \$471.00 (2018)	\$175.00 (2015) \$186.00 (2016) \$189.00 (2017) \$192.00 (2018)
FTM - Temporary Food Establishment Operator 18 consecutive days or less including Saturdays AOB: 0435	FRF - Retail Food Establishment AOB: 0430	FST - Special Temporary Food Unit (STFU) AOB: 0436	FRE - Extended Retail Food Establishment (grocery with both food service and seating available) AOB: 0432	FMC - Mobile Food Commissary (selling mobile grocery) AOB: 0437
FSF - State or County fair only AOB: 0435	FWP - Limited Wholesale Food Processor with \$25,000.00 or less in annual gross sales. AOB: 0433			FMR - Mobile Food Establishment - License Plate No. AOB: 0434
	FWW - Food Warehouse AOB: 0438		FWP - Wholesale Food Processor AOB: 0432	

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## FSMA Update for Cider Makers

- **Final Rules Released:**
- Several of the final rules have been released, which starts the clock for the compliance dates.
  - Preventive Controls Rule (Human Food and Animal Food)
    - Applies to firms that manufacture, pack or hold food.
  - Produce Safety Rule
  - Import Rules (Foreign Supplier Verification and 3<sup>rd</sup> Party Auditor Accreditation)
  - Sanitary Transportation
  - Intentional Adulteration

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## FSMA Produce Compliance Dates

Business Size	Compliance Dates for Produce	Compliance Dates for Meat/Poultry	Water Testing Compliance Dates	Compliance Date for Qualified Exemption Labeling Requirement 1	Compliance Date for Retention of Records Supporting a Qualified Exemption
All other businesses (<\$500K)	1/26/17	1/26/18	1/26/22		
Small businesses (<\$250K-500K)*	1/26/18	1/26/19	1/26/23	1/1/2020	1/26/16
Very small businesses (<\$25K-250K)*	1/26/19	1/27/20	1/26/24		

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## FSMA Update for Cider Makers 12-9-15:

- Impact on Cider Processors:**
- The impact to juice/cider processing operations should be minimal.
  - Facilities that fall under Juice HACCP (21 CFR 120) are exempt from most of the Preventive Controls Rule (some minor updates to cGMP's will apply).
  - "Retail Food Establishments" are also exempt, which covers "fresh cider" processors
  - Alcoholic beverages are exempt (Hard Cider)
    - Almost all cider processing should fall under one of these three exemptions.

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## FSMA Update

- By-product used for animal feed falls under the Preventive Controls for Animal Food Rule.
  - This should at least be on people's radar.
- Grower/Packers**
- The main impact will be on the growing/packing operations.
  - The Produce Safety Rule applies to the growing and harvesting of apples that will **not** be processed with a kill step (whole apples, fresh cider, sliced apples, etc).
- Compliance Timeline for Produce Safety:
  - Businesses with >\$500K in Annual Produce Sales = 2018 growing season

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## FSMA Update

- Businesses with \$500K – \$250K in annual produce Sales = 2019 growing season
- Businesses with \$250 - \$25K in annual produce sales = 2020 growing season
- Businesses with <\$25K in annual produce sales = Exempt
- If <\$500K and 50% local sales (275 miles or same state) = Exempt from most of the Rule
- Water testing requirement – Add 2 years to each of the compliance dates.
- Packers:**
- Packers that are not also growers will fall under the Preventive Controls Rule.

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## Upcoming Preventive Control Classes

- January 23-25 2018 The Right Place Inc. GR
- February 20-22 2018 The Right Place Inc. GR
- March 20-22 2018 Starting Block Hart

In partnership with MDARD and The Right Place Inc./Michigan Manufacturing Technology Center-West

\$200 per person- maximum of 3 people per business (cost includes lunches and breaks)

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## Great Lakes Fruit and Vegetable Expo 2017

- § 112.114 What requirements apply to dropped covered produce?**
- You must not distribute dropped covered produce. Dropped covered produce is covered produce that drops to the ground before harvest. Dropped covered produce does not include root crops that grow underground (such as carrots), crops that grow on the ground (such as cantaloupe), or produce that is intentionally dropped to the ground as part of harvesting (such as almonds).
- Interpretation:** Drops must go to animal food or processing with a kill step. If that's the destination, then it's not considered "covered produce".

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## FSMA Update 2017

- Food safety plan required.
- Packing operations owned by the growers could either fall under the Product Safety Rule or Preventive Controls Rule.
  - Produce Safety Rule - Majority of product is from their own production.
  - Preventive Controls Rule – Majority of product is not from their own production.
  - There is flexibility in the rule for various types of ownerships (like Co-ops) to fit into the Produce Safety Rule.

## Questions?

**Michael J. Lally**  
**[lallym@Michigan.gov](mailto:lallym@Michigan.gov)**



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**Which apples should we grow for hard cider?**

Ian A. Merwin  
 Grower and Cidermaker, Black Diamond Farm  
 Emeritus Professor of Pomology, Cornell University



Lessons learned the hard way after 20 years growing cider fruit in upstate New York



**Black Diamond Orchard and Cidery**

- 64 acre family farm since 1992, 12 acres of tree fruit
- Good orchard soils, Cayuga/Seneca “lake effect” region
- At first we grew only new/old scab-resistant apples
- Started planting antique/heirloom apple varieties in 1994
- Planted our first bittersweet cider varieties in 1996
- Mainstream varieties in 1998: Honeycrisp, Jonagold, etc.
- Selling fresh fruit at Ithaca Farmers Market since 1998
- Making hard cider since 1985, only began selling it 2014
- We mostly grow apples (~130 varieties), but also cherries, plums, peaches, apricots, pears, grapes and blueberries

Black Diamond's booth at the Ithaca Farmers Market  
 \$1.89/lb for mainstream apples, \$2.89 for heirlooms

Dual purpose Apples (cider & dessert) .....  
 An alternative to specialty high-tannin cider varieties, if you also have a retail market for fresh fruit



**English (Long Ashton) Cider Apple Classification**

- **SWEETS:** Tannins < 0.2% Total Acidity < 0.45%
- **SHARPS:** Tannins < 0.2% TA > 0.45%
- **BITTERSWEETS:** Tannins > 0.2% TA < 0.45%
- **BITTERSCHARPS:** Tannins > 0.2% TA > 0.45%

Mainstream dessert apples are mostly Sweets or Sharps...

Plenty of inexpensive dessert apples for juice

**Dual Purpose Apples?**

- Includes both newer and older varieties
- Newer ones we grow — mostly scab-resistant sharps
  - Goldrush: Late season, high acid & sugar, good keeper
  - Crimson Crisp: Mid-season, tart, good keeper, aromatic
  - Liberty: Mid season, tart, aromatic, some tannins
  - Sansa: Early season, floral aromatics, hangs & keeps well
- Scab resistance will save some \$\$ in fungicide costs
- Need a strategy for marketing these apples fresh
  - Providing tastes of apples at the Market worked for us

### Dual Purpose—Heirloom Apples

- Heirloom (= chance seedlings, 100 yr-old) varieties
- High demand now in many local farm markets
- Cider was a primary usage in 1800s, thus important in selection and adoption of many heirloom apples
- Common traits: Late ripening & high dry matter content (storage potential), acidity, firmness
- Cosmetics were less important before supermarkets, emphasis on distinctiveness, flavor, eating qualities
- Synergism between fresh market sales and cider

### American Heirloom Varieties for Cider

- *Esopus Spitzenberg*: Mid season, hi acid, aromatic, fireblight
- *Rhode Island Greening*: Late season, hi acidity
- *Northern Spy*: Late season, acidity, aromatics, some tannins
- *Red Winesap*: Late season, good acid & aromatics
- *Roxbury Russet*: Mid season, acid, aromatics, some tannins
- *Newtown Pippin*: Late season, lots of acid, good keeper
- *Golden Russet*: Late season, hi acid & sugar (20 brix), aromatic, good keeper, can make single variety ciders?
- *Black Oxford*: Late season, hi acid, good keeper, aromatic
- *Baldwin*: Late season, hi acid & Brix, good keeper, aromatic
- *Hudson's Gem*: Mid season, unique aromatics (vanilla) come thru in the cider, also popular at our farmers markets

### European Heirloom Varieties for Cider

- *Ashmead's Kernel*: Mid season, acid & aromatics, reliable
- *Calville Blanc*: Mid season, hi acidity (ascorbic acid), scabby
- *Cox Orange Pippin*: Aromatic, hi acid, popular but finicky
- *Margil*: Mid season, hi acid, some tannins, small fruit size
- *St. Edmonds Pippin*: Earliest russet, aromatic, skin tannins
- *Egremont Russet*: Mid season, acid and aromatics, popular
- *Zabergau Reinette*: Mid season, aromatic, very productive
- *Orleans Reinette*: Late season, acid and aromatics
- *Cour Pendu Plat*: Late season, hi acidity and aromatics

**Subtext: Except for Calville Blanc, these are all russet apples**

### Growing for Craft vs. Mass-Market Cideries

- Mass-Market ciders mostly made from juice concentrate (AJC), added tannins, sugars, flavorants—priced like beers
- Artisanal or Craft ciders made from fresh-pressed cider (by definition)—usually priced and marketed more like wines
- New orchard systems (high density) are much more productive per acre, increasing US dessert apple volume
- Supply exceeds demand for mainstream apple varieties (Macs, Grannies, Fuji, Gala, Red & Golden Delicious, etc)
- Mass-market cider makers can expect an abundant supply of cheap AJC for their ciders. Not so for craft cideries...
- Still a shortage of high tannin apples in the US. **Will it last?**





**Single purpose cider varieties:  
High-tannin apples from Europe**

- Quite different from growing dessert apples, but still doable
- Small fruit, set in tight clusters, hard to thin and biennial
- Uneven ripening within pairs or clusters, lots of push-offs
- Premature drop of unripe fruit makes after-ripening useful to obtain good quality juice for fermentation
- Very late bloom on some varieties, makes fire blight and chemical thinning more difficult to manage
- Heat stress and sun-burn on some Bittersweets/sharps
- Vigorous sprawling growth habits, lots of blind wood
- Viruses in available budwood (avoid sensitive rootstocks)

- Heat-stress on Ellis Bitter (in NY!)
- Most bittersweets originated in cool maritime regions.
- A problem in central WA or CA orchards?
- Evaporative cooling or Surround may be needed to grow bittersweet apples in hot regions...

Chisel Jersey cluster ripe on the tree and "sweating" in mid October (note the slight heat stress...)



**<— Hereford Redstreak**  
 Early ripening, soft tannins annual & productive, heavy preharvest drop, short storage potential, good cider



**Kingston Black —>**  
 Late ripening, good tannins and acids, biennial and not very productive. Makes a great cider, but not very much of it!

**(Geneva) Tremletts Bitter—>**  
 Early season, full bitterssharp, low vigor spur type, biennial but productive, good choice for early season ciders




**<—Brown Snout**  
 Late season, mild bittersweet, low vigor spur type, productive but biennial, preferable to Michelin or Medaille D'Or in upstate NY



**<—Harry Masters Jersey (on M.9)**  
 Mid season, a mild bittersweet (astringent), moderate vigor, upright tree.  
 Productive and annual. Red tinted flesh, hangs well.



**Somerset Redstreak**  
 (On M.9 rootstocks in front, on G.30 in back. All 5<sup>th</sup> leaf trees!)



Early season, mild full bittersweet. High-vigor sprawling tree  
 Biennial but productive, has some scab tolerance.  
 Note the drops...



**<—Porter's Perfection**  
 Late ripening, nice soft tannins, vigorous, annual & productive, scab tolerant, few preharvest drops, good acidity, cold hardy!



**Fox(Faux)whelp —>**  
 Almost no crop, rots on tree and then drops, excessive blind wood, US trees are NOT the English bittersweet Best to skip this one!



Porter's Perfection and Kingston Black  
 Two Bittersharp, both on Bud.9

Biennial bearing can be extreme in some bittersweet varieties—hard to thin them adequately




Binet Rouge (good French bittersweet, every other year) on M.9 rootstocks 2008 vs. 2009




**Dabinett** →  
A late season full bittersweet. Young trees prone to winter injury in NY. Older ones OK.  
Crops regularly, “Vintage” quality fruit (?) Low vigor tree “Strawberry” aromas?

**12 yr old Fillbarrel on MM.111 Rootstock:**



Despite its name, not so productive

Vigorous and biennial with lots of blind wood on young trees

Early bloom, mid season harvest

Astringent juice

**Black Diamond’s Shortlist of High-Tannin Varieties:**  
Somerset and Hereford Redstreak, Tremletts (Geneva) Bitter, Ellis Bitter, Harry Masters Jersey, Dabinett, Brown Snout, Chisel Jersey, Fillbarrel, Yarlington Mill, Porters Perfection, Vilberie, Bedan des Parties, Binet Rouge, Kingston Black




Most of the 35+ apple species, and wild *Malus domestica* seedlings, are tart, tannic and inedible—but they can make nice blends for cider:

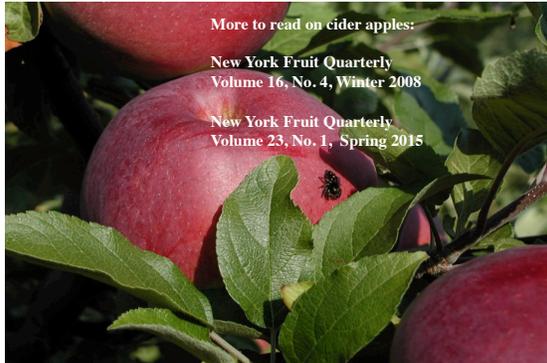
Good use for fruit from feral and pollenizer trees



More to read on cider apples:

New York Fruit Quarterly  
Volume 16, No. 4, Winter 2008

New York Fruit Quarterly  
Volume 23, No. 1, Spring 2015



# The Story of A Small Scale Cider Maker

Brian Phillips, Co-President, Phillips Orchards & Cider Mill

Phillips Orchards & Cider Mill was founded in 1852. For a farm that's been in our family for 165 years our cider history in earnest only goes back to about 52 years, to 1965.

But let me start back at the beginning, my third great-grandfather, Parmer Phillips, came from upstate New York in 1851 to look for land to settle. He located the property in what is now Gratiot County, which wasn't established until 1855. After locating the property, he returned to New York, returning in 1852 with his wife and began working the farm. Like all frontier farms of that time, it was a diversified affair with cows, sheep, chickens, pigs, hay, grain, and of course apple trees. Of course having a few apple trees on a farm was common at the time. You still see farmsteads from that time and earlier that still have apple trees growing near the house or barn, even if they've been uncared for for decades. However, our family fairly quickly began to expand their orchard. Published in 1884, the "Portrait and biographical album of Gratiot County, Mich." said of Parmer "He has placed 180 acres in first-class condition, with suitable farm house and other buildings, and with 12 acres of unusually valuable orchard." We know that the original orchards were planted with Baldwin, Rhode Island Greening, Steele Red, Northern Spy, Snow, and Tolman Sweet.

The 1914 plat map of Fulton Township has a notation on the side of the original parcel, listing it as "Fruit Ridge Farm", so perhaps we can claim to be part of Michigan's "other" Fruit Ridge.

But what about cider? Unfortunately we don't have any detailed records from those early decades. However we do have a reasonable overview of the early days.

During the years from 1852 through the 1896, our family used a small press, probably similar to this basket press that I inherited from my mothers family, to press enough cider to make a few barrels of hard cider and vinegar for personal family use. From 1896 - the 1940's, we sold apples to the Elmer Emmons Cider Mill in Saint Johns, which produced 70 - 80 railcars of vinegar per year, and also would sell fresh cider to those who stopped by the mill. We believe that during this time, the family purchased cider from the Emmons Mill, but we don't have any reason to believe that we sold their cider at the orchard.

By the 1940's, we were purchasing cider, in barrels, from Atwood's in Lainsburg, MI. Atwood's original mill was built in 1912, and then a more modern building and mill were built in 1938, when it was rebranded Atwood's Cidertorium. We would bring the barrels back to the orchard, and customers would come fill their jugs from the barrel. My great-grandfather Austin, was also known to keep a barrel or two of hard cider in the basement of the house for his own enjoyment and to share with his friends. The Atwood's were known for being showmen, and my father has relayed the story of how Freddy Atwood loved to scare kids at the mill by pretending to get his arm caught in the press. It seems that there has been some entertainment associated with cider mills for a long time.

The first serious step we took in producing cider to sell was in 1965, when my grandfather and father built Centennial Farm Market on what was US-27 in Dewitt, MI, about 25 miles south of our orchard. There we installed a Mount Gilead 28" rack and cloth press, that was purchased used from an orchard in Fountain, MI. Once the market was up and running the first addition to the market was a bakery that was added to the north side of the original market, and donuts came were first introduced. Then in 1969, the market was expanded, more than doubling it's size. The press was moved to the new portion of the building, and we added an innovation to the press, separating the grater in a separate room from the press, and collecting the pomace in a stainless steel tank, and using an auger to transfer the pomace to the press room, to fill the cheeses.

Centennial Farm Market used unique square cider jugs, with metal cider caps. We used a 4 position siphon filler for jugging cider. Cider sold for \$0.69 gallon, although I've discovered a sale flyer offering cider for \$0.29 gallon, perhaps from when the mill first opened. Donuts were \$0.59 dozen or \$0.69 dozen for sugared donuts. Customers could bring in their own jugs to refill direct from the barrel, which was actually just the front of a barrel with the cider running directly from the stainless steel tank in the cold storage room. Customers could also drink all the cider they wanted for \$0.10 from the "Jet Spray" cooler in the bakery. We did sell some bulk cider to customers in barrels, but it wasn't a significant portion of the cider business. Centennial Farm Market continued until 1973, when it was sold, so that my father could return to focus on the orchard operation.

For a couple years after the sale of Centennial Farm Market, we sold cider at our orchard that was made at the market by the new owners. However, the quality of the cider quickly deteriorated and the family decided that they should start pressing their own cider again. In 1975, we built an addition onto the storage building, and purchased a small, wood framed, 16" rack & cloth press. We used two stainless steel dairy tanks, a 100 gallon tank, used again to dispense cider to our customers for refilling their jugs through another "faux" barrel, and a 300 gallon tank. All the cider was jugged directly from the tank with a hose with a clamp used for shut off. Jugged cider was packed 5 gallons in a bushel apple crate for storage or transport to wholesale customers.

The cider business continued to grow, including the wholesale business. We sold to several smaller markets, as far away as Pontiac, MI but our largest customer during this time was Horrocks Farm Market in Lansing, MI. Their demand really put a strain on our capacity, with this small press.

In 1986, we purchased a JWI Belt press. The belt press had significantly more capacity than the small rack and cloth press. However, it had two serious drawbacks. First the cleanup on the belt press was significantly more time consuming than on the old rack & cloth press. But more importantly, the juice quality was inferior. There was a large quantity of suspended solids in the juice, which was always very cloudy and created a great deal of sediment in jugs. We utilized many techniques to try to deal with the juice quality, including settling tanks, settling agents, different filters, basically anything we could think of to try to remediate the quality of the juice. In our experience, it was impossible to make cider of the same quality that you could with a rack and cloth press. We added another 300 gallon tank and used a small, 2 spout, manual rotary jug filler, for jugging. By 1998, cider production ceased as did sale of cider at the orchard.

Then in 2006, we began selling cider again, purchasing it from Hill Brothers Cider Mill in Grand Rapids.

In February 2008, we flew to Spokane, WA, rented a Penske Truck, and drove to Corvallis, Montana and Swanson's Mountain View Orchards, where we purchased a 20 inch, Suntech Rack & Cloth press. Three more days driving back to central Michigan, and the current era of cider production was underway.

We remodeled our on farm store, expanding it to about 3 times its previous size, and incorporated a viewing room where customers could watch the cider being made. In 2008 our first season back in cider production we pressed approximately 3,000 gallons of cider. We used a 50 gallon converted steam kettle to jug the cider, with a custom fill system consisting of two PVC spigots, operated manually of course. In 2009, after only one season, we buckled to customer demand and added donuts to our product offering.

Based my experience growing up at the orchard, and reinforced by our first two years back in the cider business, the very real limit of how many customers we could get to drive 3 miles down a gravel, dead end road to come to the orchard became very clear. In 2010, we opened our Gatehouse Market on US-127, just 3 miles from the orchard and our production increased to about 8,500 gallons. We upgraded to a 4 spout siphon filler we purchased from McIntosh Orchards in Mount Pleasant, MI. Production continues to increase, about 25,000 gallons in 2017.

We've sold bulk cider as far away as Texas and Chicago, and we've developed ongoing relationships with several Michigan breweries. This Saturday, we'll be delivering to our first distillery customer. Bulk cider sales continue to expand as individuals who got in the habit of heading to west Michigan to pick up cider for their barrels, rediscover cider in central Michigan. There is also continued growth with customers who are fermenting hard cider at home in small to medium quantities. In 2014, we started selling cider slush, and sales of slush continue to expand strongly, averaging growth of 43% annually over the past three years.

So where does our cider business go from here?

We'll continue to grow our retail cider business, incrementally, year over year. We firmly believe that once we get customers to taste our cider, they'll become regular customers. We believe that we make cider at least equal to the best in the state of Michigan. You wouldn't know that from our lack of medals in the cider competition, but our own taste buds and the feedback from our customers gives us all the reassurance we need.

We do have a cider style philosophy. We don't like overly sweet cider, so our blend typically contains a significant portion of Jonathon, McIntosh, Ida Red & Empire apples, balanced with Jonagold, Golden Delicious, Gala & Fuji for sweetness and Northern Spy, Spigold, & Steele Red for color. Having said that, we currently grow 34 varieties of apples and all but the 3 varieties of summer apples would find their way into our cider in some quantity.

Cider slush sales will continue to grow, and we continue to expand our capacity to make slush so we are always able to keep up with demand.

We use a significant amount of cider in our donuts. We only sell cider donuts and they are over 30% cider by weight

We've done test batches of cider syrup or boiled cider and that product is another future product that we'd like to introduce.

If all goes as planned, in 2018 we'll finally enter the hard cider business which will help keep the press running, and hopefully push us to upgrade to a larger press in the next few years. When it is time to upgrade to a larger press, it will definitely be a rack and cloth press. The quality advantage is too important in our opinion to change to a more labor efficient press. Instead, we'll continue to focus on process improvements using the rack and cloth press to make our operation as efficient as possible.

We'll continue to grow our cider business wherever we can. We'd be happy to re-enter the wholesale market with UV treated cider if the rules ever allow us to do so while still being able to sell unpasteurized cider.

We believe that the future for the cider market in central Michigan is bright, for both hard and sweet cider. Our long term goal is to continue to expand and improve our cider business as a critical part of our overall operation. To enter 2052, which would be our bicentennial celebration with a robust and profitable operation. If I achieve that, I'll 87 years old. Before then, hopefully we'll have been able to identify someone who will continue to carry the business on, and continue to evolve so that it can last long into the future.

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