

# Harvista™ by AgroFresh

## An Evolution



2002

2013

2017

2018

2019



SmartFresh™  
an AgroFresh solution



Harvista™  
an AgroFresh solution

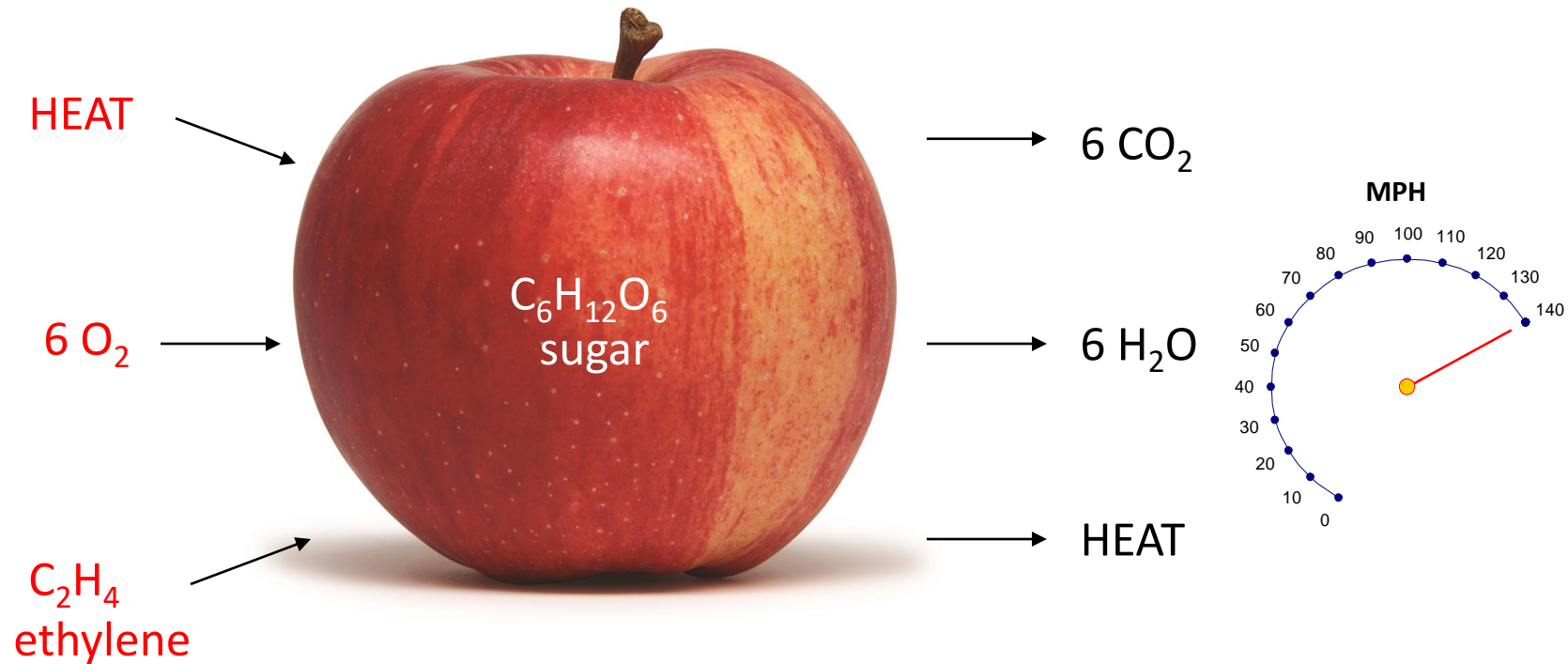


Harvista™  
an AgroFresh solution  
Cherry  
Blossoms

FreshCloud™  
Predictive Screening

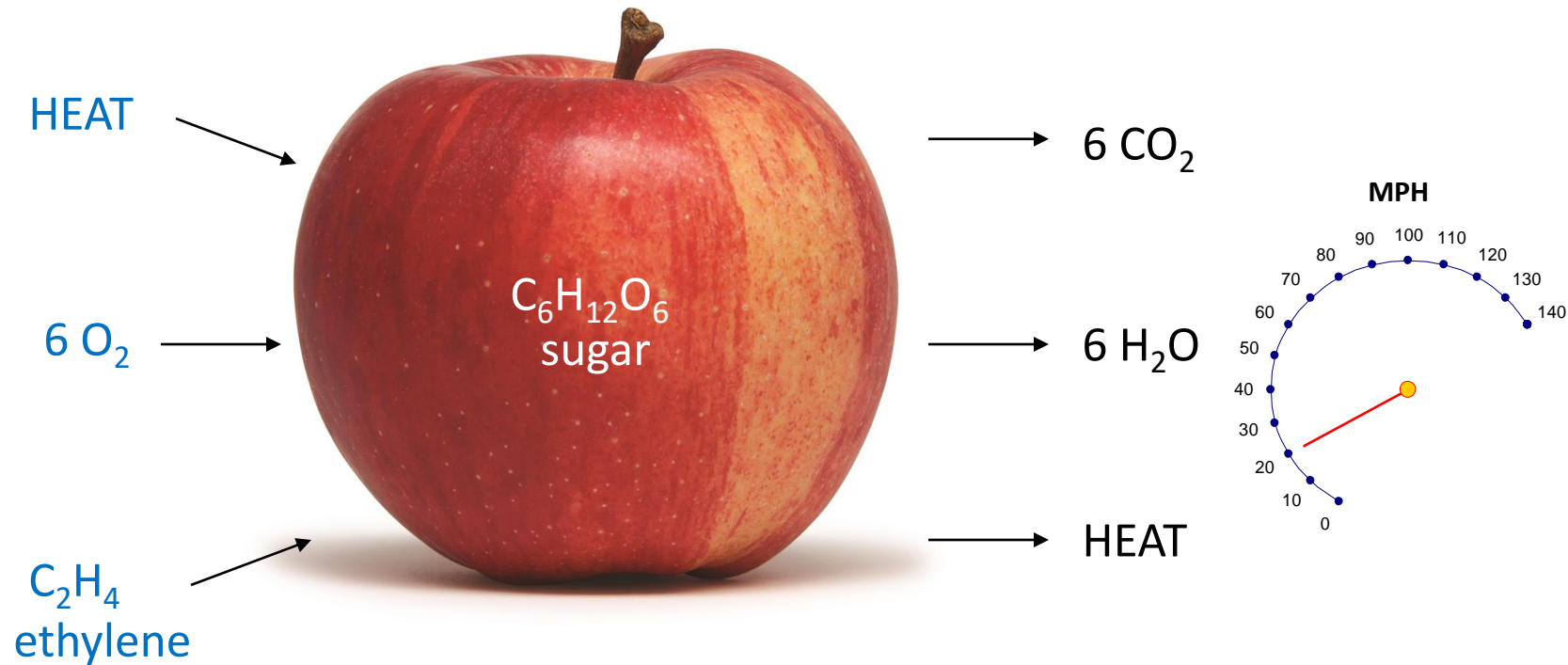
FreshCloud™  
Storage Insights  
Powered by AdvanStore™

# Heat, Oxygen & Ethylene All Accelerate Ripening



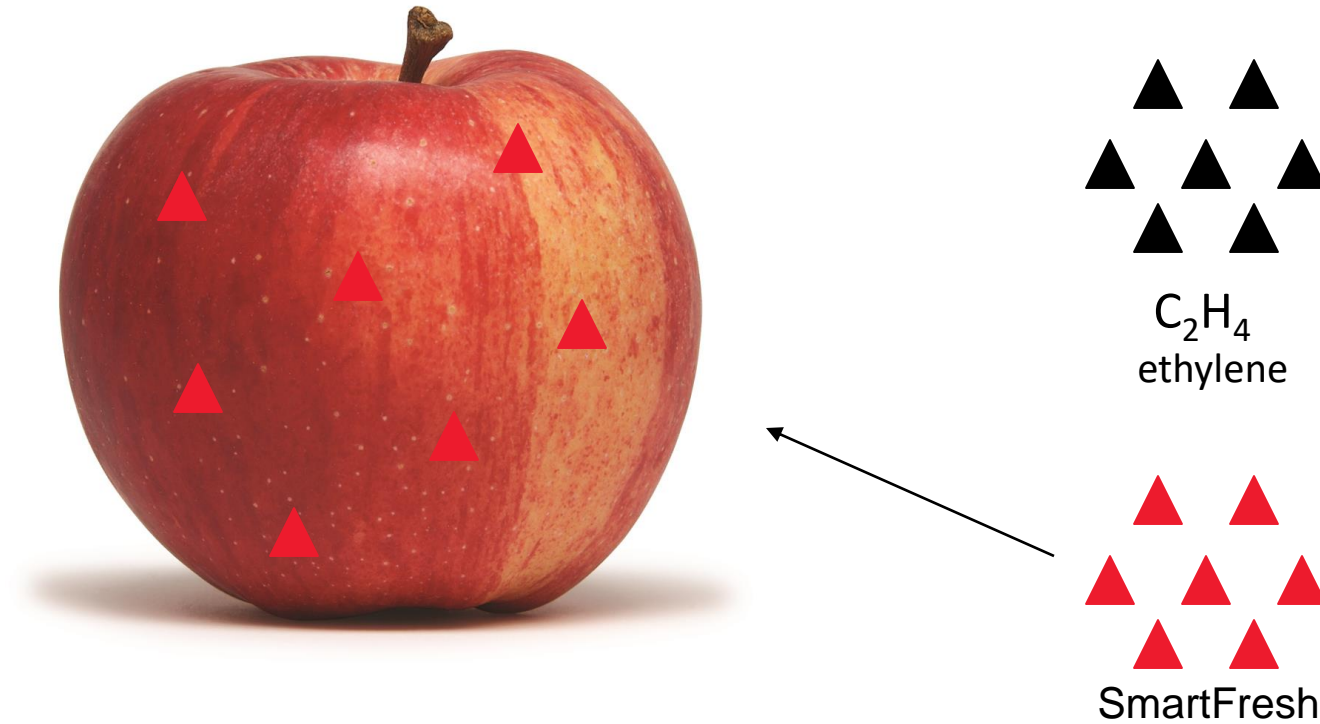
Respiration converts oxygen and sugar to carbon dioxide and water. Ethylene triggers the reaction, and heat speeds it up.

# To Slow Ripening: Reduce Heat, Oxygen & Ethylene



Refrigeration reduces heat. CA storage reduces oxygen and manages  $\text{CO}_2$  exhaust. SmartFresh technology blocks ethylene.

# How Does SmartFresh Technology Work?



SmartFresh outcompetes ethylene for its receptor sites and disables them so ethylene can't trigger ripening or scald.

# 1 ppm – One part per million

**1 million pennies...**

is about the size  
of a refrigerator



**or a stack 1 mile high**

**or, stacked side-by-side, a line 12 miles long...**

***and SmartFresh would be  
the ONLY wheat penny***



# SmartFresh<sup>SM</sup> vs. Harvista<sup>TM</sup>

- SmartFresh is released in a sealed environment
- SmartFresh is nearly 100% effective in storage
- Both products feature 1-mcp as the active
- Harvista is released in an open environment
- Harvista requires modified application equipment
- The rate of 1-mcp is higher
- Tree architecture is very inconsistent from grower to grower , even block to block

# Moving 1-mcp to the Orchard

- Stable formulation
- Install Equipment Updates
- Train and Calibrate
- Learn and Improve



# 2012 R & D Sprayer

- **Used to apply AF2005**





# First Commercial Sprayer 2013





# 2014 Sprayer

- **Converted late season to apply AF701**



# 2015 Sprayer

- **Injection System Added to Apply AF701**





# 2016 Sprayer w/Cartridges

- AF701

**SmartFresh™**  
an AgroFresh solution



# 2017 Sprayer

- Harvista 1.3SC



# 2018 Grower Kits

- 26 Different Models,  
162 Machines





# Harvista sprayer kits

- Includes ingredient tank, mixing pump, hardware and plumbing
- Universal for all sprayer makes and models
- AgroFresh supplies installation and calibration
- Cost of kits \$2,000-\$3,000 depending on make and model
- No mark-up
- Rover sprayers available in some locations



# What's next?

**Over the row spray applications?**

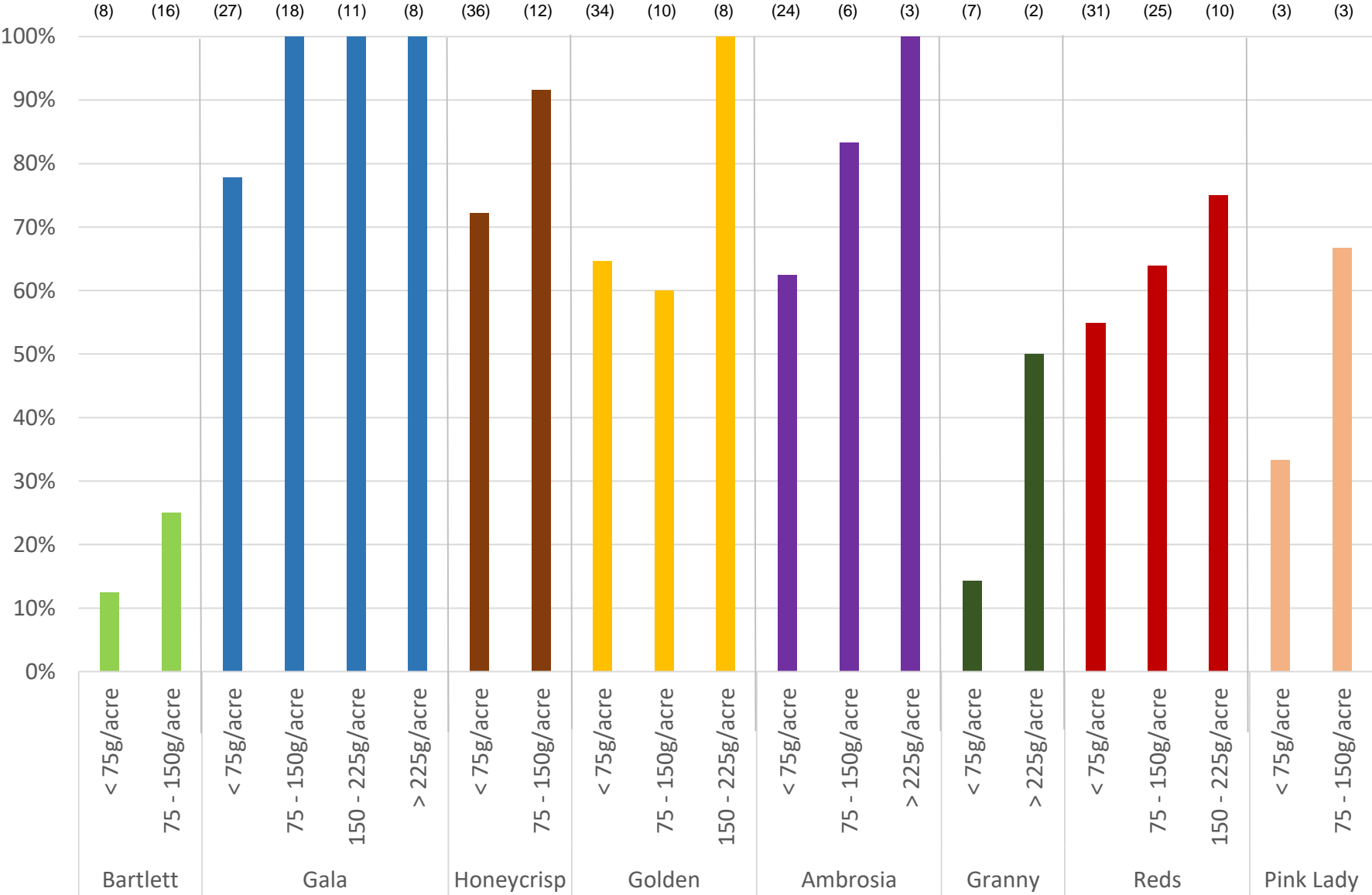
# Harvista Performance

- Rate
- Timing
- Application method

# Is 60g/acre enough for all cases? (2014 and 2015)



## % Success (Firmness and/or Starch at Harvest)



# Efficacy is rate dependent



# Harvista Performance

- Rate
- Timing
- Application method



# McIntosh results

- Superior drop control
- Firmness retention
- Apply at 3.0-4.0 Starch



# Gala

- Harvest management, apply at 1.5 starch, multiple applications
- Color, size development
- Reduces stem cracking, shoulder browning, maturity related storage disorders
- Fruit being picked in the heat --- esp. where night temperatures DO NOT drop (below 70°F?): starch index will accelerate, respiration control is vital
- The more fruit with a high starch index the more likely for those Gala's to develop Shoulder Browning

# Harvista Impact on Gala Color



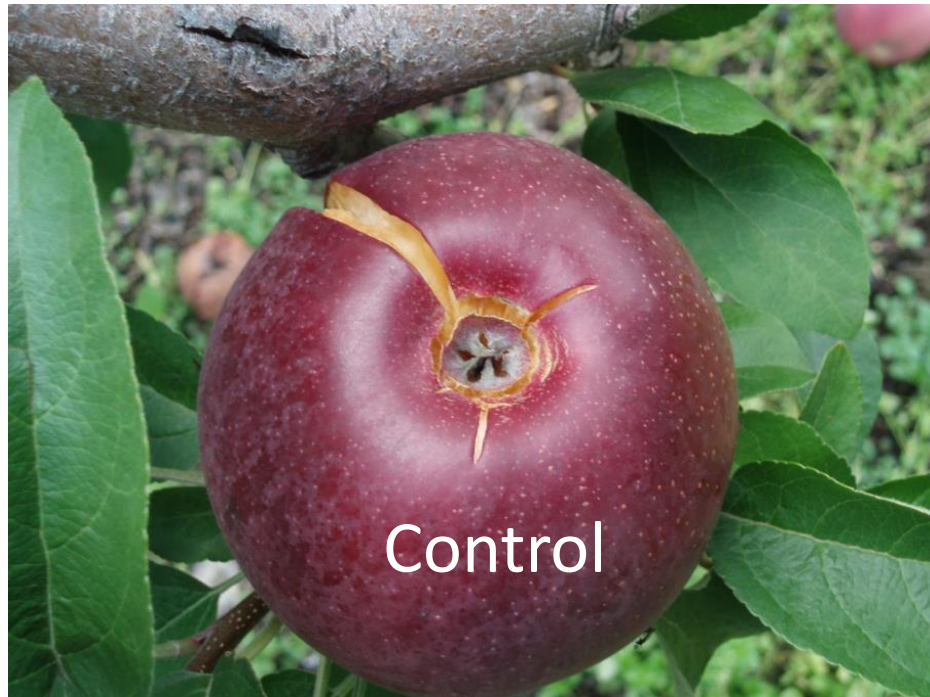
Four Gala blocks: Commercial vs. 7 day delay harvests



			<u>% Color Distribution</u>		
Control	1.0	1.7	13.5	42.9	40.9
Harvista	1.2	2.0	9.4	35.5	51.9
	+0.2	+0.3	-4.1	-7.4	+11.0



# Cracking



# Honeycrisp

- Harvest Management, delays starch hydrolysis
- Drop Control, ethylene management
- Reduces Peel Greasiness
- Acid Retention
- Soft Scald Suppression
- Condenses pickings
- Apply at 4.0-6.0 starch
- First pick vs. second pick

# Harvista™ Honeycrisp

13 DAA – First Pick

- Starch conversion
- Control 4.7, Harvista™ 3.5



20 DAA – 2<sup>nd</sup> Pick Control

- Starch conversion
- Control 5.9, Harvista™ 4.4

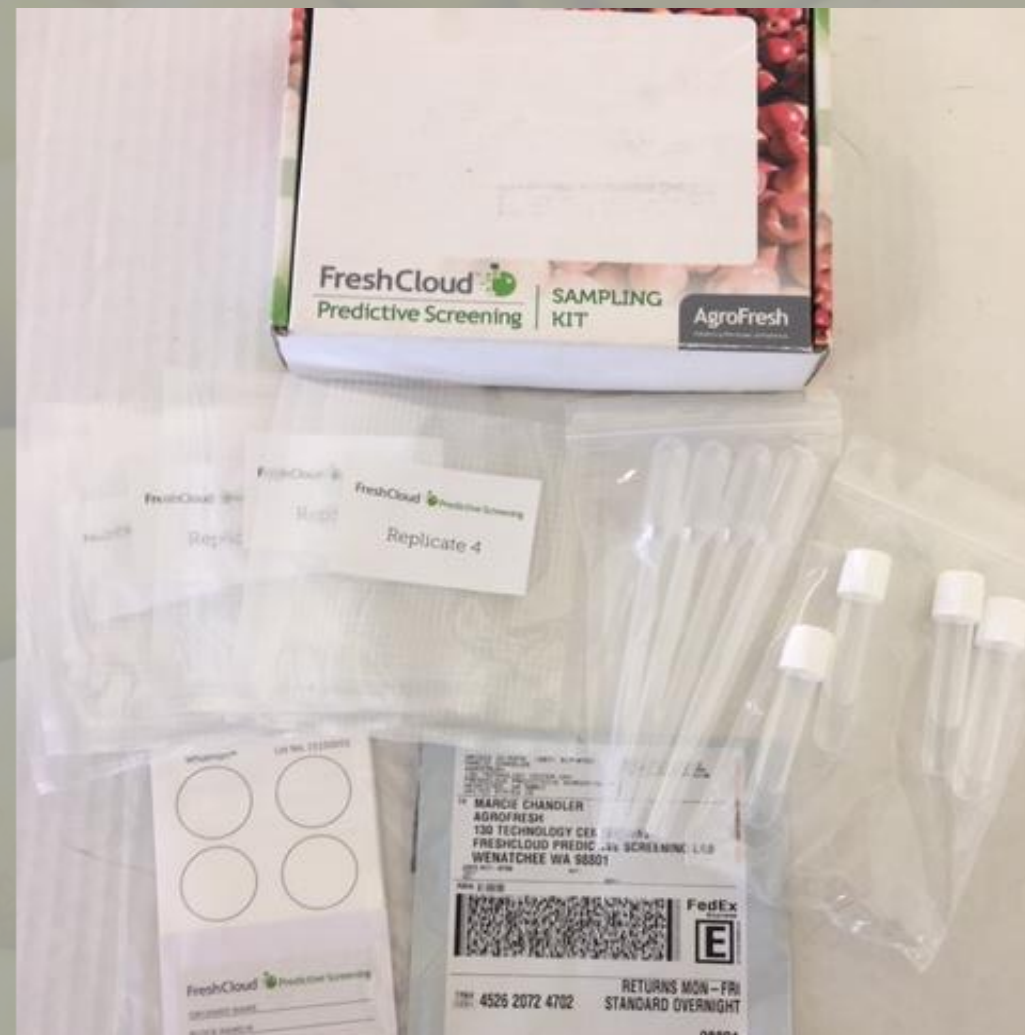




# Honey Crisp, Soft Scald



## Predictive Screening Sample Kit





# Fuji and Red Delicious, water core



# Harvista Performance

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- Timing
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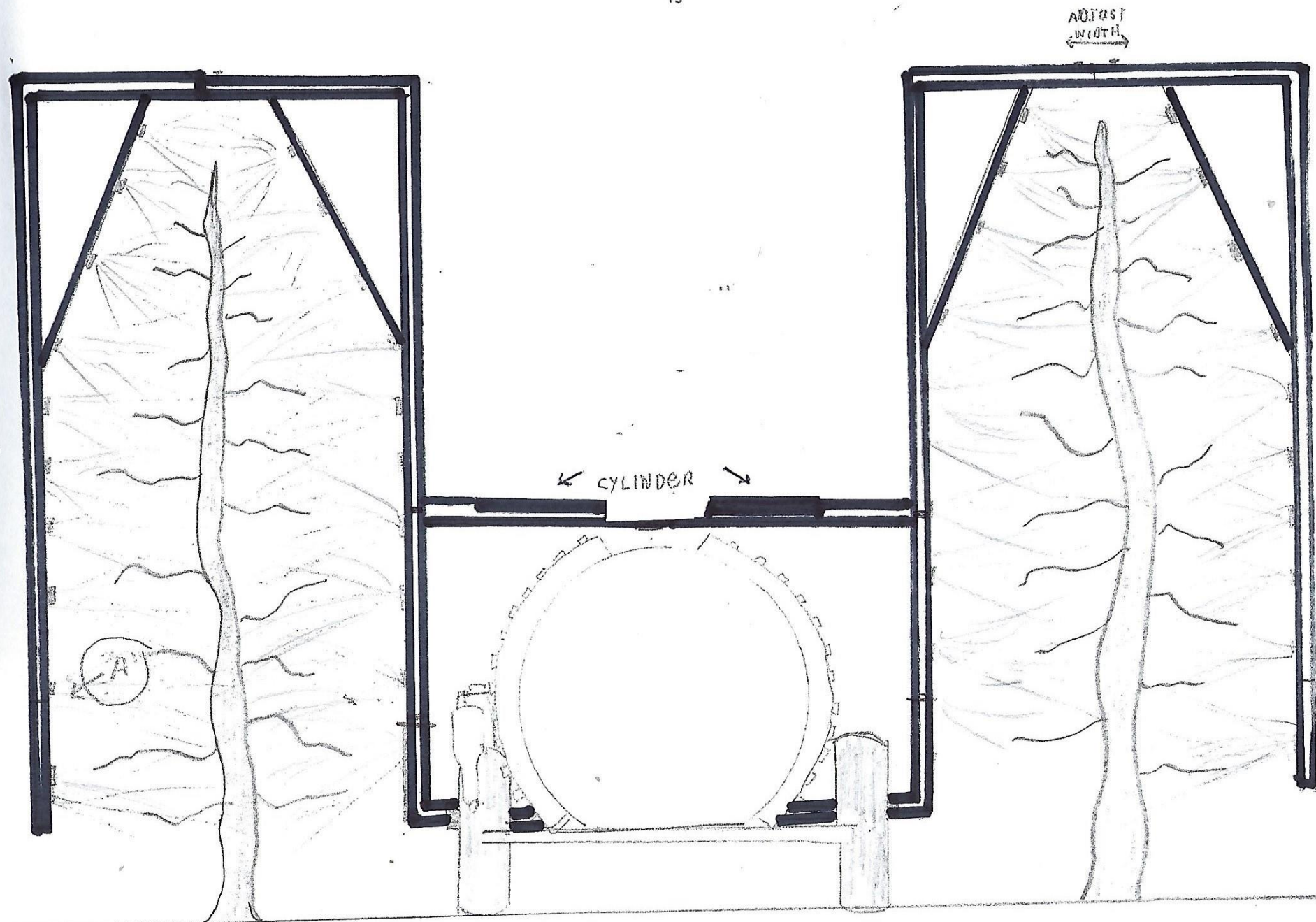








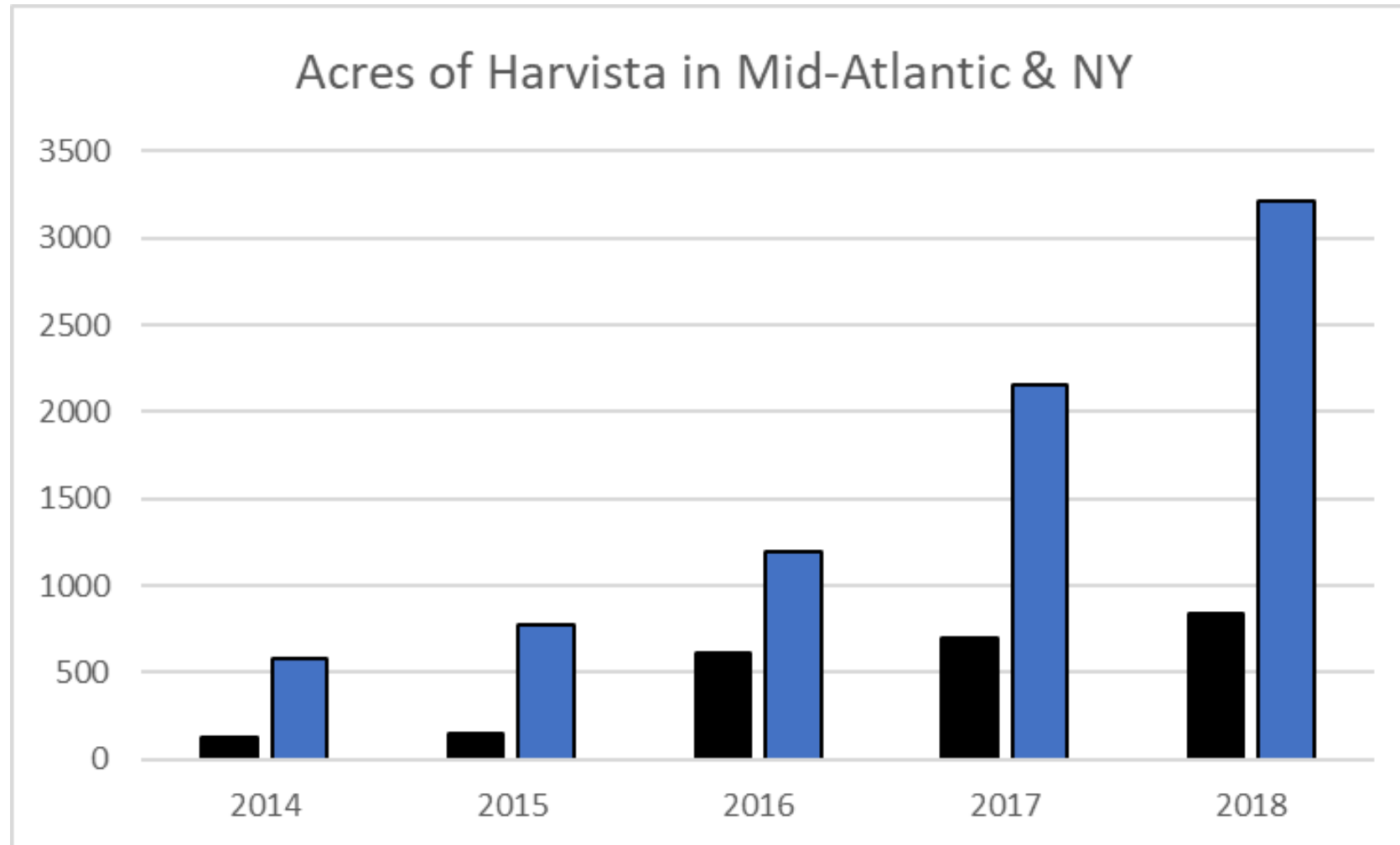




# Fuel costs for orchard spraying

- Fuel costs are a big part of your spray bill
- Costs of fuel (\$2.75 is the most recent price for farm diesel)
- Travel Speed (ranges from 2 mph. to 4.5 mph.)
  - .5 gal. fuel per acre. x \$2.75 per gal. = \$1.37 per acre
  - \$1.37 x 12 sprays = \$16.44 per acre
  - 300 acres x \$16.44 per acre = \$4,932.00 for fuel only
- Spraying without the additional power needed to move air could significantly reduce the overall spray bill
- Add to this the potential for savings based on increased efficacy, perhaps even reduced rates and trips over the orchard

# Adoption rate in acres, New York





## Harvista Reference Guide

