

The Young Grower Alliance and Precision Management Innovations



What is the Young Grower Alliance?



Our Mission



OUR INITIATIVES

- FARM TRANSITION PLANNING
- SHARING DIVERSIFICATION AND MARK
- EXPLORING INNOVATIONS
- HORTICULTURE STUDENT RECRUITMENT
- LEADERSHIP DEVELOPMENT
- NICARAGUA AG EXTENSION PROJECT
- SERVICE



NEWA WEATHER STATION

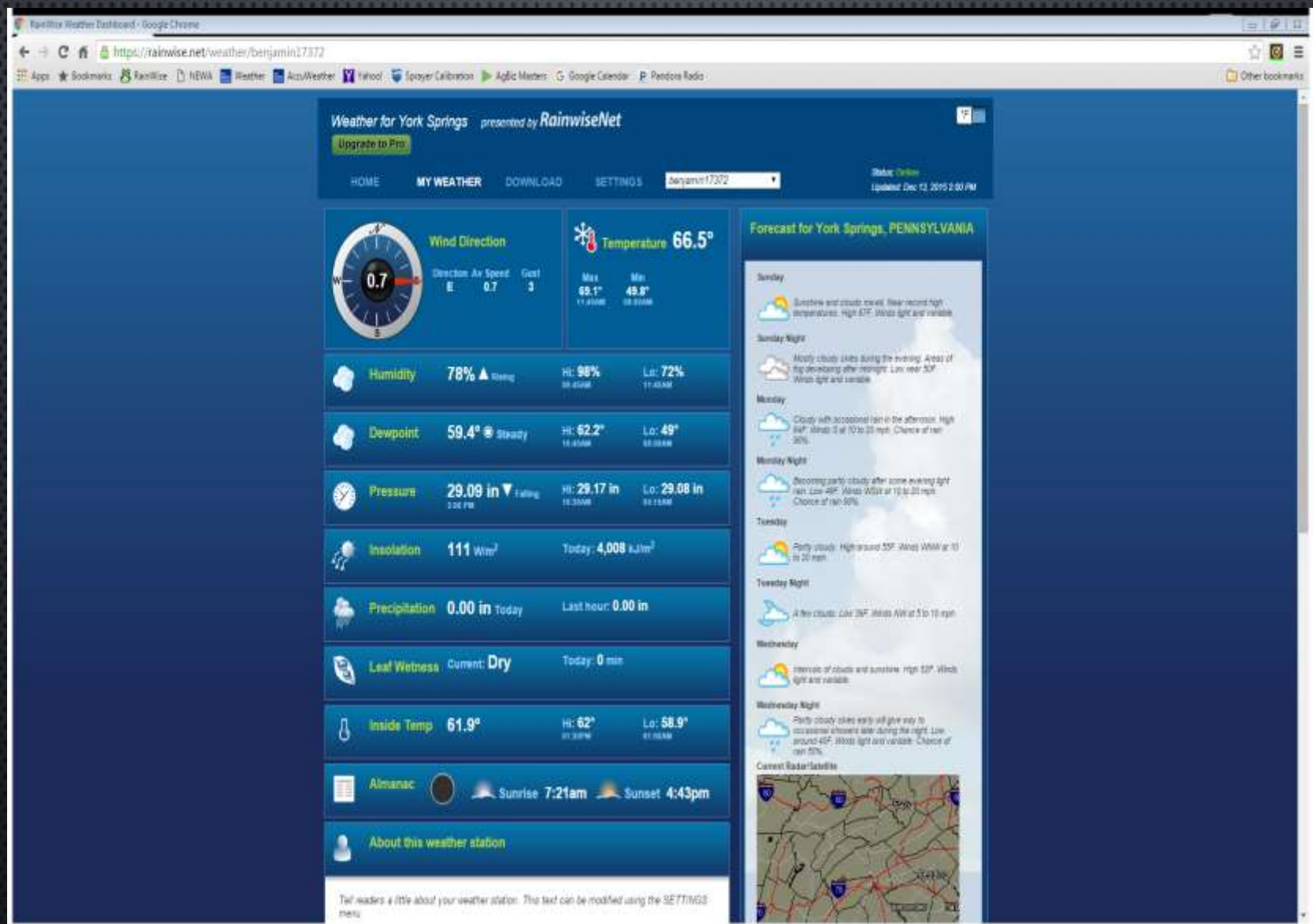
WEATHER OF YOUR FARM

AgroMET Weather Station





RAINWISENET



NEWA.CORNELL.EDU

MEWA - Weather Station Page - Google Chrome

newa.cornell.edu/index.php?page=weather-station-page&WeatherStation=pa_ysp

Search Cornell

New York State Integrated Pest Management Program
NEWA Network for Environment and Weather Applications

Search MEWA website
Enter Search... Search

Weather Data Pest Forecasts Station Pages Crop Management Crop Pages About Weather Stations

Weather Data Quick Links

Past 12 months shown. Current month highlighted.
Daily Summary:
Jan Feb Mar Apr May Jun
Jul Aug Sep Oct Nov Dec

Hourly Data:
Jan Feb Mar Apr May Jun
Jul Aug Sep Oct Nov Dec

Growing Degree Days (Base 50F):
Jan Feb Mar Apr May Jun
Jul Aug Sep Oct Nov Dec

Growing Degree Days (Base 50F BE):
Jan Feb Mar Apr May Jun
Jul Aug Sep Oct Nov Dec

Growing Degree Days (Base 60F):
Jan Feb Mar Apr May Jun
Jul Aug Sep Oct Nov Dec

National Weather Service Forecast

Enter "City, ST" or "zip code"
City ST Go

[The Station's 7-Day Forecast](#)
[National Doppler Radar Sites](#)

Helpful Links

How to Use and Interpret Pest Forecasts
Select a link from list

Pest Management Guidelines
Select a link from list

University Cooperative Extension Programs
Select a link from list

York Springs (Lerew), PA Weather Station Page

Station Page forecasts use [default biofix dates](#) to provide last download date results. For prior years, other biofix dates, locations and models, choose from Pest Forecasts or Crop Management on the main menu.

York Springs (Lerew), PA Pest Forecasts

Apple Scab	ColonyBanded Leafhopper	Grown Disease Forecast
Fire Blight	Apple Mosaic	Grown Disease Log
Gotha Brown Flycatcher	Grape Diseases	Grown Short Alert
Leaf-Minor Cuckoo	Grapevine Downy Mildew	Grown Mulberry Short Alert
Scotted Oakworm Leafminer	Grape Berry Moth	Early Early Short
Grapevine Frost Nibbler	Apple Worm	Early Late Short/Blizzard
Grapevine Moth	Grapevine Moth	Tomato Diseases - Tomato
Flour Moth	Grape Moth	Late Short/Blizzard

Station Location
Lat, lon: 40.04, 77.14
Elevation: 740 ft.

Last Download
12/13/2015 2 PM

Station Sensors
Temperature
Leaf Wetness
Precipitation
Relative Humidity
Wind Speed
Wind Direction
Solar Radiation

Statewide and Regional Pest Forecasts
[Sweet Corn Downy Mildew Forecast](#)
[Peanut/Tomato Late Blight DSS](#)

PURCHASING AND USING OUR ORCHARD PLATFORM

RUSSELL HOLMBERG

HOLMBERG ORCHARDS

GALES FERRY, CT

CT FARM TRANSITION GRANT

- PROGRAM OF THE CONNECTICUT DEPT OF AGRICULTURE
- 50% MATCHING FUND GRANT
- NEW EQUIPMENT, STREAMLINE OR EXPANSION
- AWARDED \$38,379 IN 2014
- SUPPORTING DOCUMENTS FROM PENN STATE, CORNELL, OTHERS
- BIG STEP FORWARD FOR OUR ORCHARD
- OTHER GRANTS AVAILABLE: USDA, OSHA?



Big step forward
for our orchard:

- Auto steer
- Auto level
- Four wheel steer
- On board air
- Harvest equipment
- One person can access all four corners of the machine



onion



















OBSERVATIONS

- NOT ONLY ABOUT PAYBACK — ITS TIMELINESS, COMFORT, ETC.
- OVER-ESTIMATE POTENTIAL USE BEFORE PURCHASING
- SNOW IS VERY DIFFICULT
- STILL NOT USING IT TO FULL CAPACITY (AUTO STEER, BINS HANDLING, ORCHARD SYSTEM)
- ELECTRIC? HIGHER CLEARANCE OR TRACKS? MORE LEVELING?
- STAFF STILL NEEDS TO GET IN THE MINDSET OF CONSTANT MOTION
- EURO EXCHANGE RATE GOOD RIGHT NOW



“Harvista for precision harvest management”

MARK BOYER

RIDGETOP ORCHARDS LLC. FISHERTOWN, PENNSYLVANIA



"Rootstocks, PGRs and HoneyCrisp- Our Experiences"

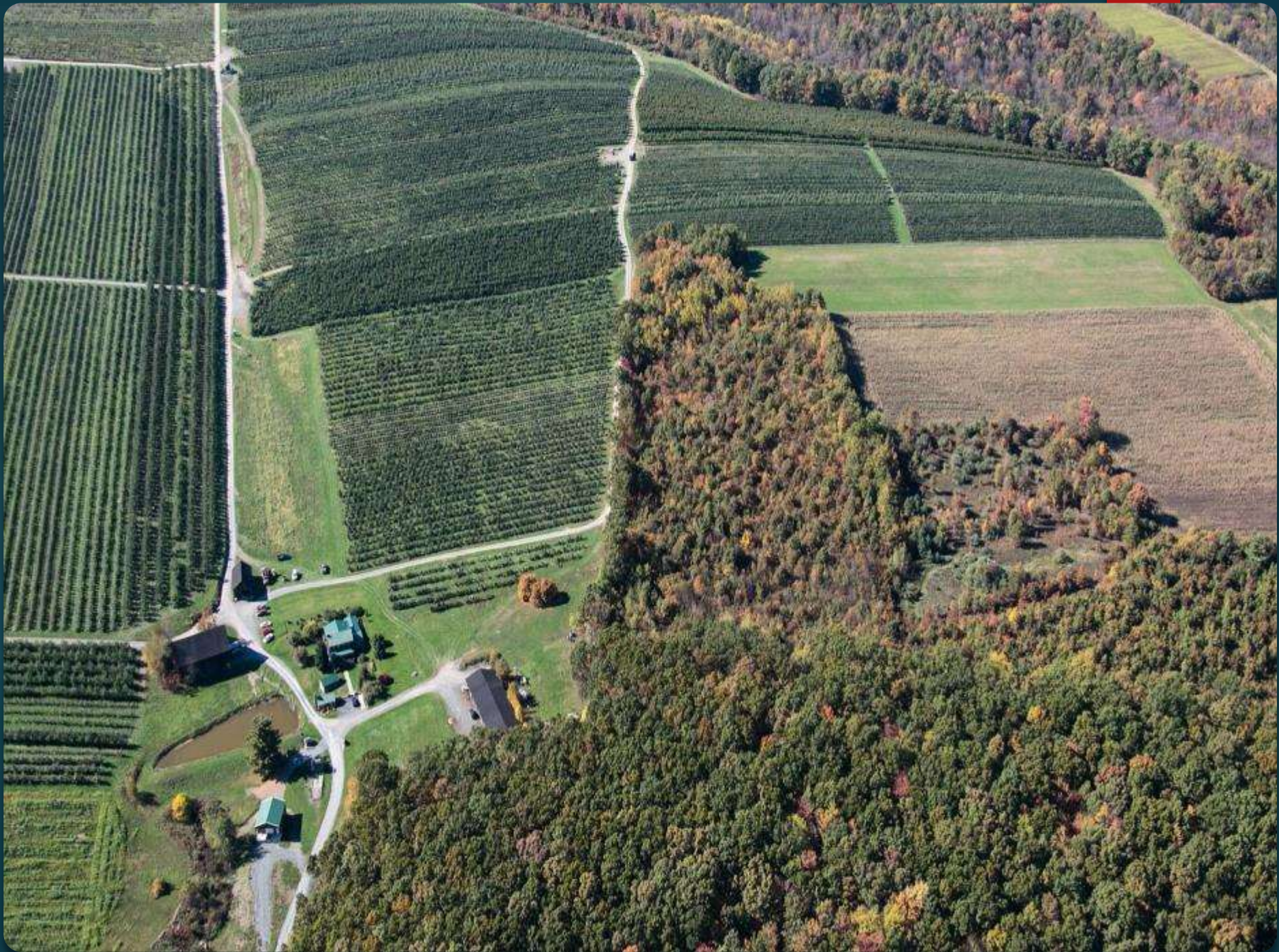
MARK BOYER

RIDGETOP ORCHARDS LLC. FISHERTOWN, PENNSYLVANIA



RIDGETOP ORCHARDS LLC







RIDGETOP ORCHARDS LLC

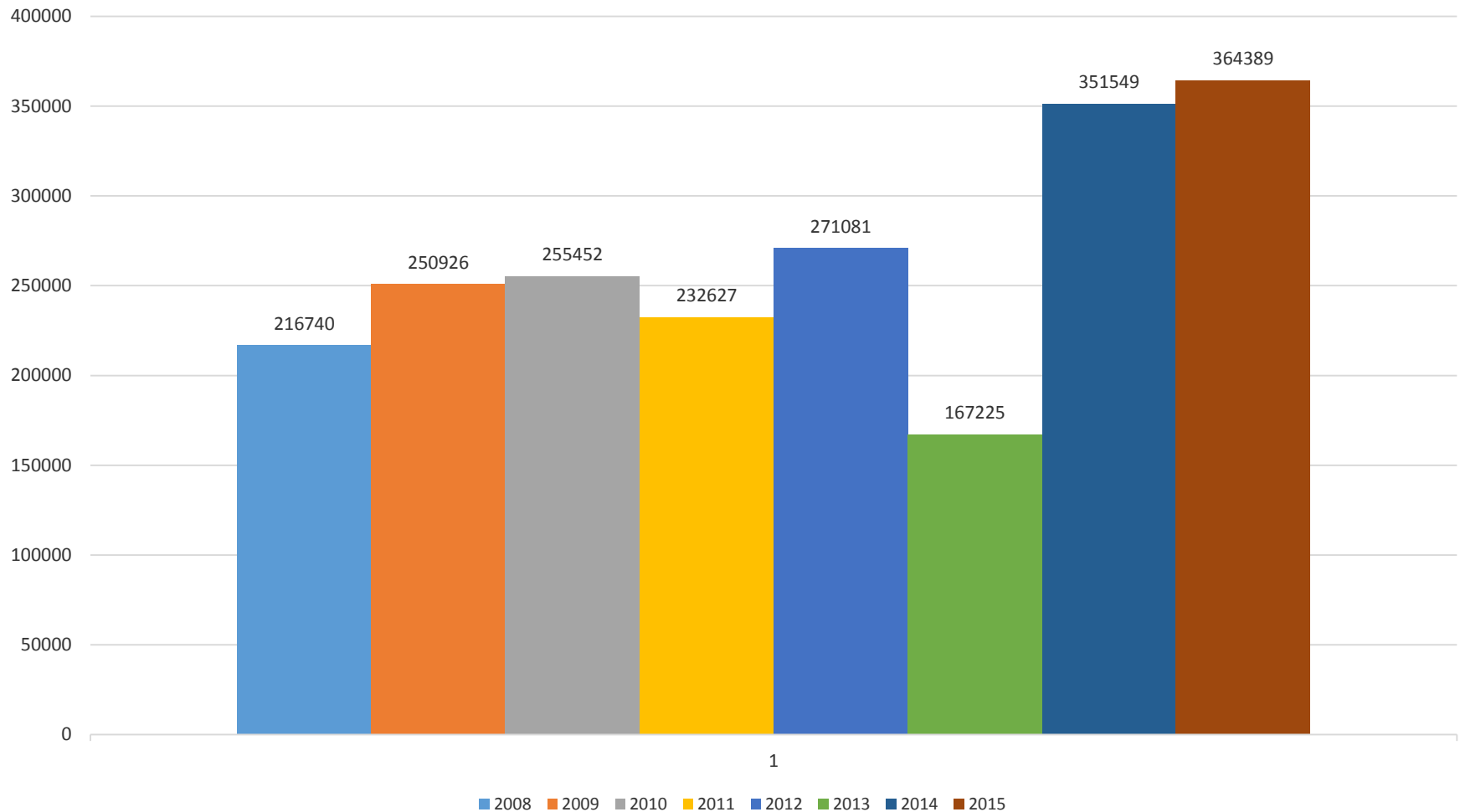


Ridgetop's Label



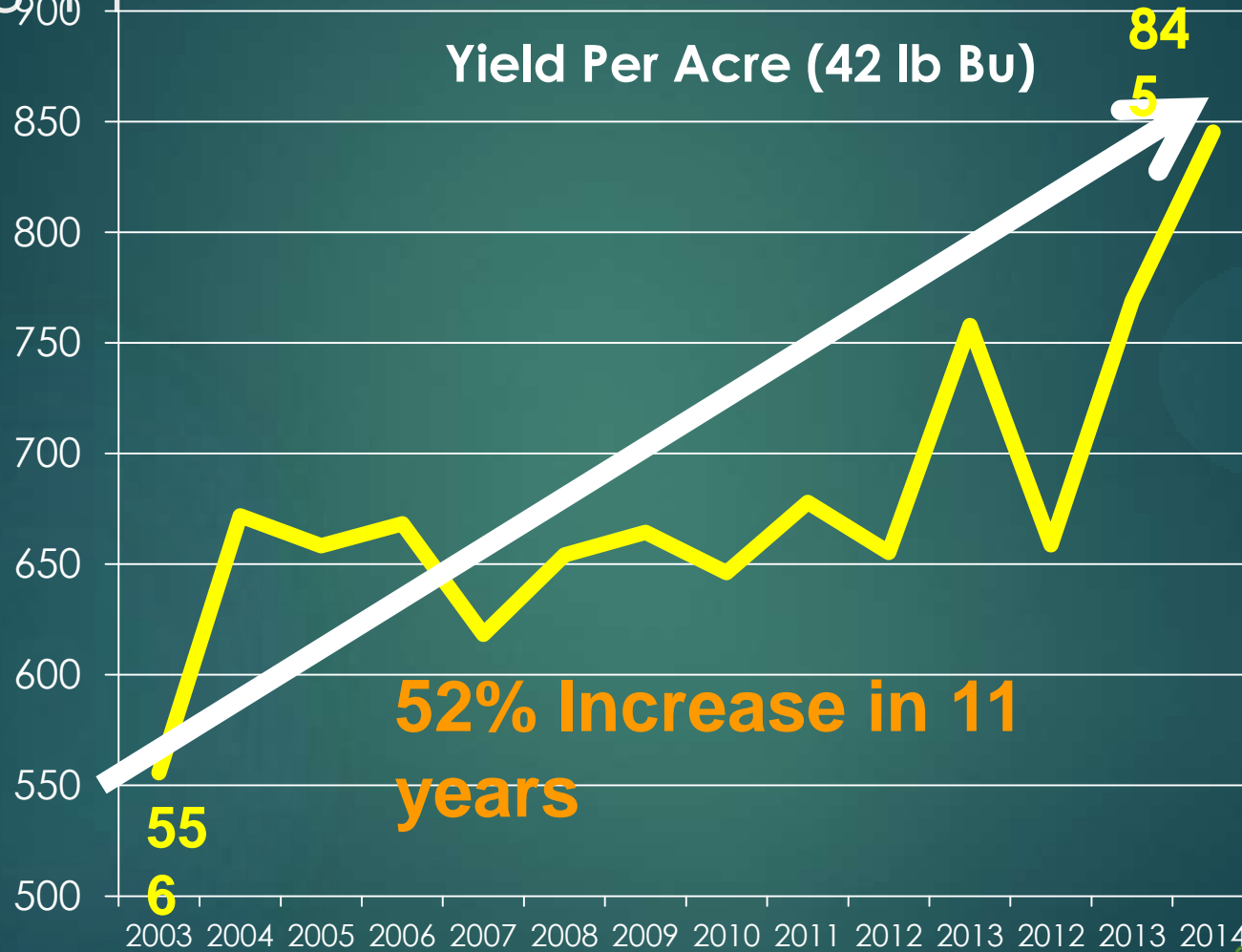
Five Year Average

Ridgetop Orchards Bushels Harvested



Yield Per Acre

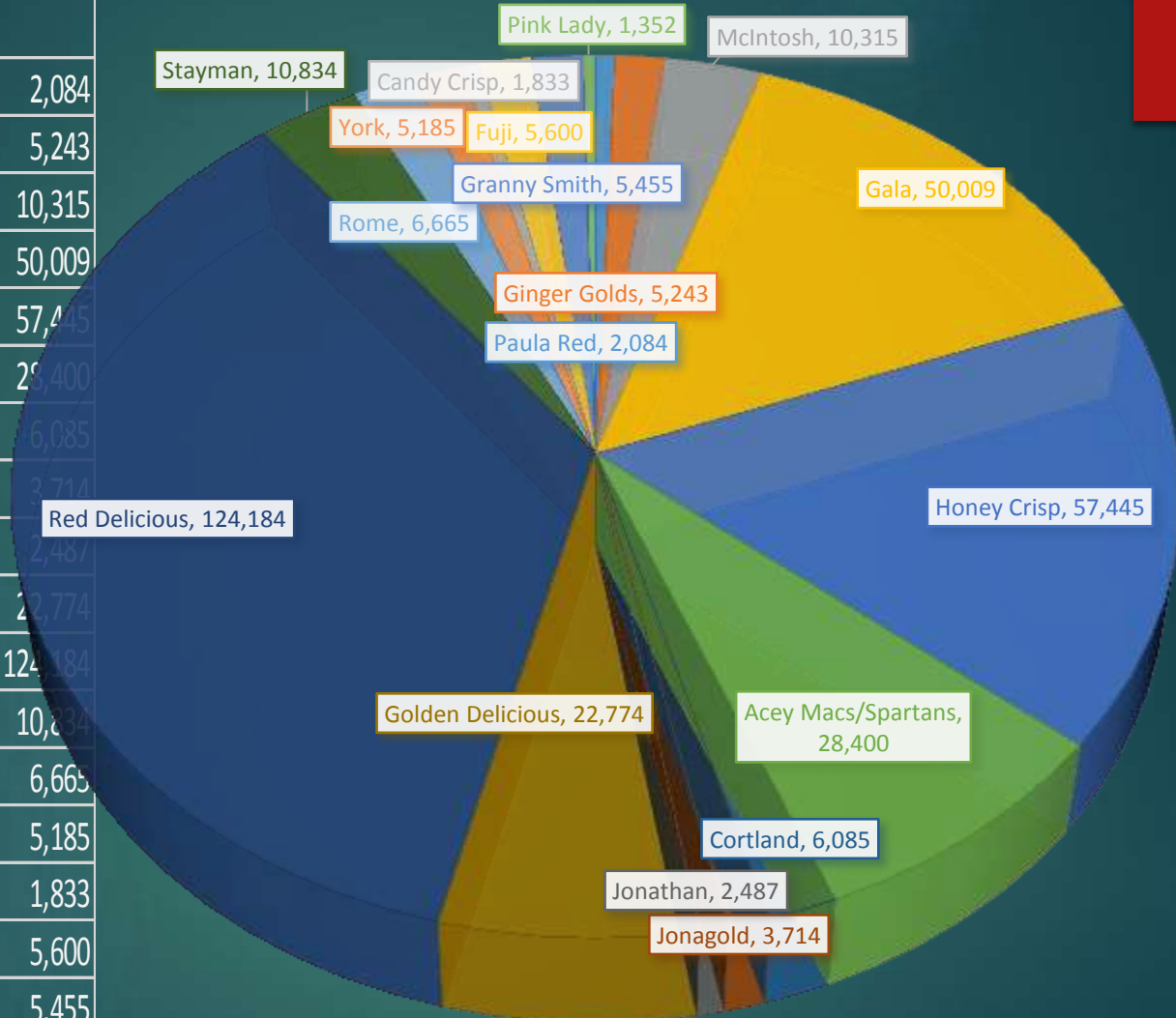
2003-14



Source: USDA

Varieties	2014 Bushels
Paula Red	2,084
Ginger Golds	5,243
McIntosh	10,315
Gala	50,009
Honey Crisp	57,445
Acey Macs/Spartans	28,400
Cortland	6,085
Jonagold	3,714
Jonathan	2,487
Golden Delicious	22,774
Red Delicious	124,184
Stayman	10,834
Rome	6,665
York	5,185
Candy Crisp	1,833
Fuji	5,600
Granny Smith	5,455
Pink Lady	1,352
Total Bushels	351,549

2014 BUSHELS

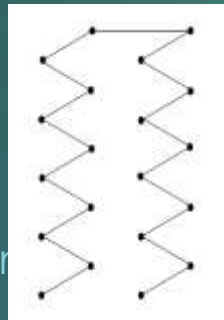


Pruning/Equilifruit Disk/Budcount/Che mical Thinning

Pruning Honey Crisp

Each Block take 12-15 full length limbs from all over the block as well as High & Low on the Tree.

Completely random order. "Z" Like.



Count buds on limb
Equilifruit Disk for bud count
of fruit per limb size.

Take Limbs to PSU.

Make Pruning adjustments in
orchard.

Real Time Adjustments.

Depending on Return Bloom.

After Petal Fall two thinning application.

1qt Carbaryl + 1qt Oil per/A (Softener) then
5-7days later.

1qt Carbaryl + 2oz NAA per/A.

NAA can stunt growth BUT still thin in
suboptimal temps.



Rootstocks & Apogee Reduction in Bitter Pit

Honey Crisp on Rootstocks;

B9, Emla-9, M9-337T, M9-Nic29

Emla26, CG16, CG30, Support 4

M7, MM106, MM111 interstem M9

Bud 118.

Use 8oz per/A of Apogee 3
Times

Pink. Bloom/ish. Petal Fall/ish.

7-10 Day Intervals

M26, MM106, M7, CG30

MM111Interstems M9 , Bud 118

****Could Not Get Result @ 6oz
per/A****



Calcium Needs for Honey Crisp

Pennsylvania Fruit News Vol. 95
8/15 No. 7

Ridgetop Orchards
LLC

Managing Bitter Pit in 'Honeycrisp' Apples Grown in the Mid-Atlantic United States with Foliar-applied Calcium Chloride and Some Alternatives

By A. Biggs & G. Peck

Three separate experiments were conducted to test standard calcium chloride salt (CaCl_2) rates and several new formulations of calcium (Ca) for amelioration of bitter pit, a Ca-related physiological disorder that affects fruit of many apple (*Malus domestica*) cultivars, including the popular cultivar Honeycrisp. Even small amounts of bitter pit damage make apples unmarketable. We evaluated various formulations of Ca to compare their effectiveness in controlling bitter pit, including proprietary Ca products (InCaTM, System-CalTM, Vigor-CalTM, XD10, and XD505) with and without antitranspirant. Calcium chloride is the most common Ca product used to reduce bitter pit incidence, but it has negative impacts, such as

phytotoxicity and corrosiveness. Of the products that were tested in 2011, XD10 at the high rate and XD505 are candidates for future study. In 2012, both the CaCl_2 and XD10 treatments had lower bitter pit severity than the nontreated control, but only the CaCl_2 treatments had a lower total percentage of fruit with bitter pit compared with the control. The antitranspirant reduced bitter pit incidence in one of three treatments. Full season Ca treatments and higher rates (up to 23.5 lb/acre per season of elemental Ca) are needed to significantly reduce bitter pit incidence in 'Honeycrisp' apples in the mid-Atlantic United States.

(From HortTechnology 25:385)

- ▶ Started CaCl_2 around 20-25mm @ 5lbs for first 3 weeks
- ▶ 6-8lbs of CaCl_2 per/A
- ▶ Watch for Stress
- ▶ 28.32lb/A per season of elemental

Honey Crisp Harvest

Five day window for optimal harvest.

****CROP LOAD****

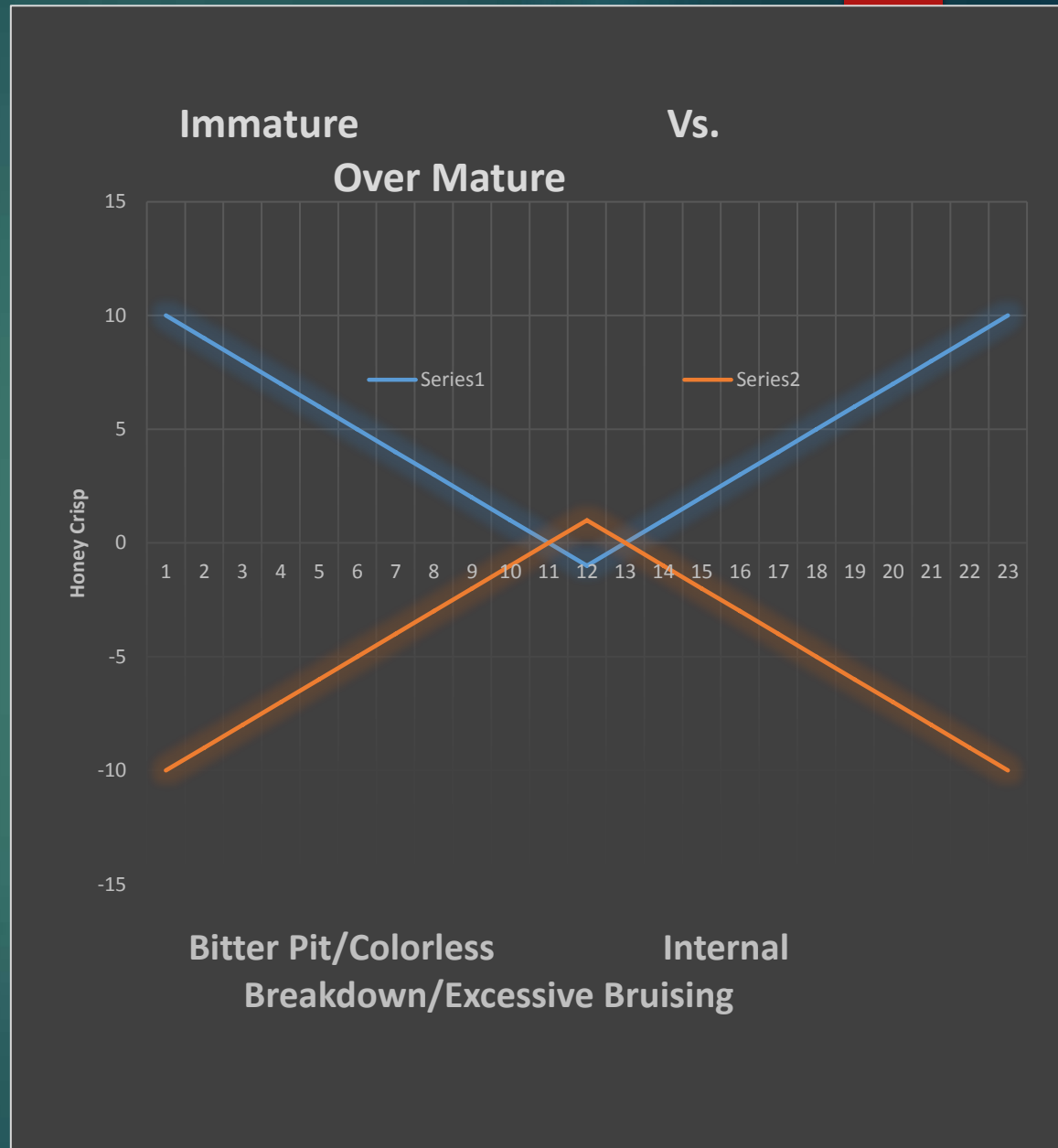
Immature = Bitter Pit (Background Color)

Immature = Off Taste

Over Mature = Internal Breakdown

Over Mature = Excessive Bruising/Handling

Harvest One Worker to One Bin.



What excites us?

Amid-Thin W (NAD)

Thin Earlier reduce biennial bearing.

Promote Return Bloom.

Thinning blocks that were biennial.

Hopes, to Hand thin later in spring to only remove the largest fruit. To help control size & bitter pit.

Newer Strains; "Royal Red" & Early "Premier"



What excites US?

Regular
HoneyCrisp



Royal Red HoneyCrisp



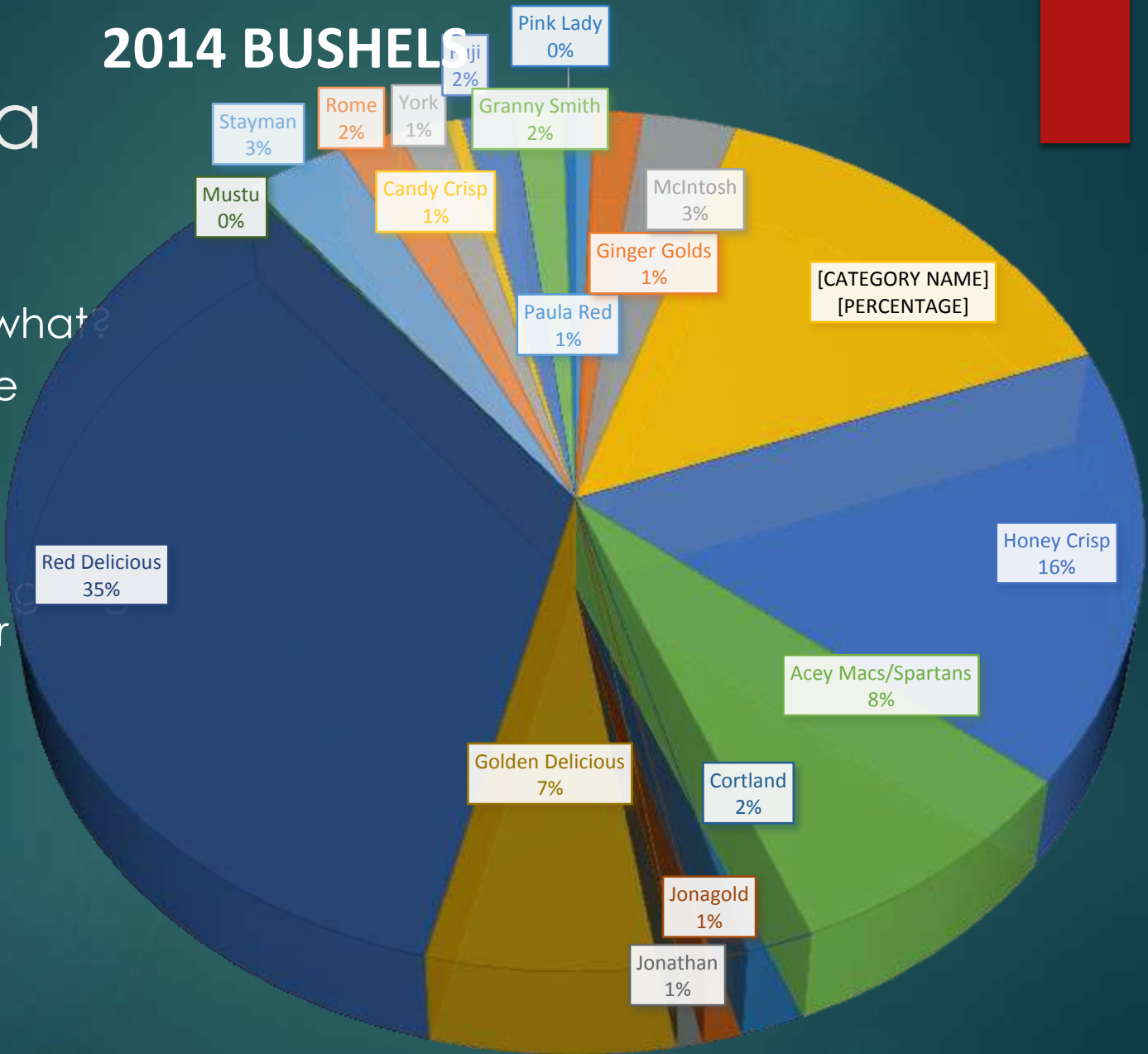
What Regular Vs. Royal Red excites us?

Premier Vs. Regular



Harvista

2014 BUSHEL



Who is buy what?

What are we growing?

Why are we growing it?

How we are to adjust our practices?

Return on Investment?

Best MGMT Practices?

Harvista

Allows us to increase Gala,
HoneyCrisp, Maslin Pink Lady,
Fuji.

Cannot keep growing 35%
total Crop Red Delicious.

Loss of Market w/ Acey
Macs, Cortland, Jonathan,
JonaGolds, Golden Delicious
& Stayman.

"Seasonal" to stores

Return on investment
because the future holds an
H2A work force that creates
higher wages.

We can not afford to
operate on Processing
Returns.

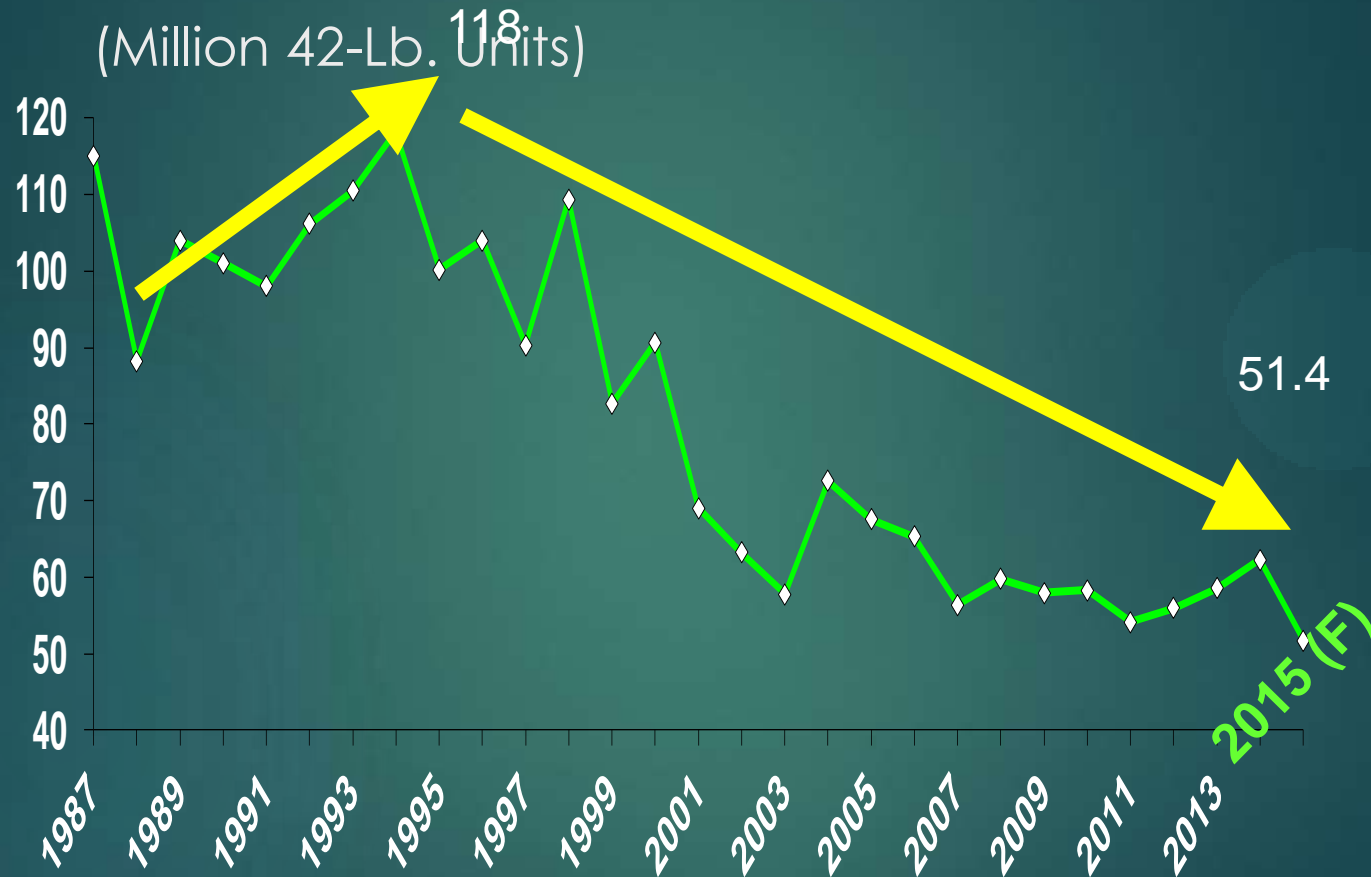
REI 12 hour & PHI 3 days =
Great for MGMT.

Allows for multiple spot picks.



U.S. Red Delicious Production

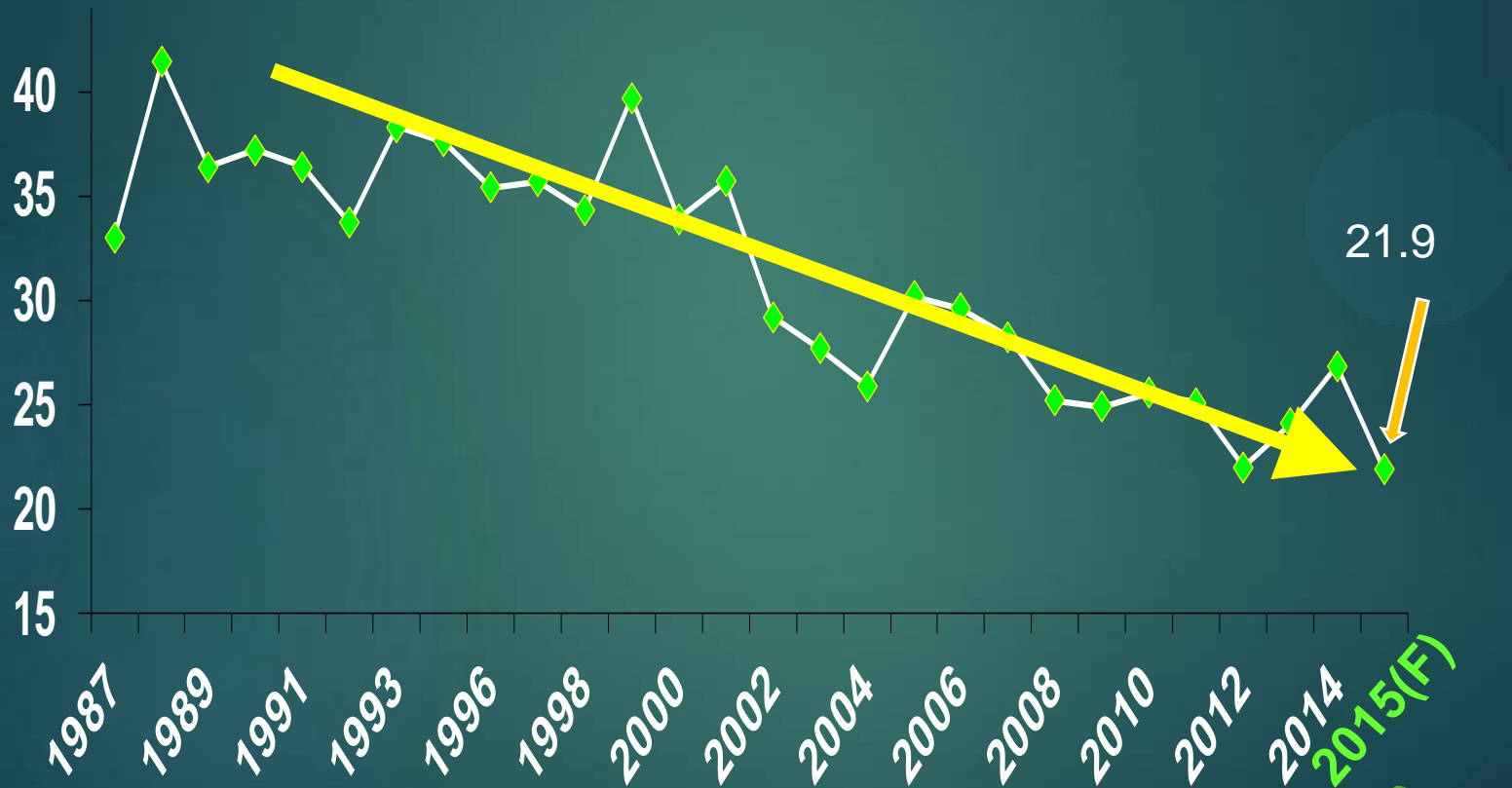
(Million 42-Lb. Units)



Source: USApple F = Forecast

U.S. Golden Delicious Production

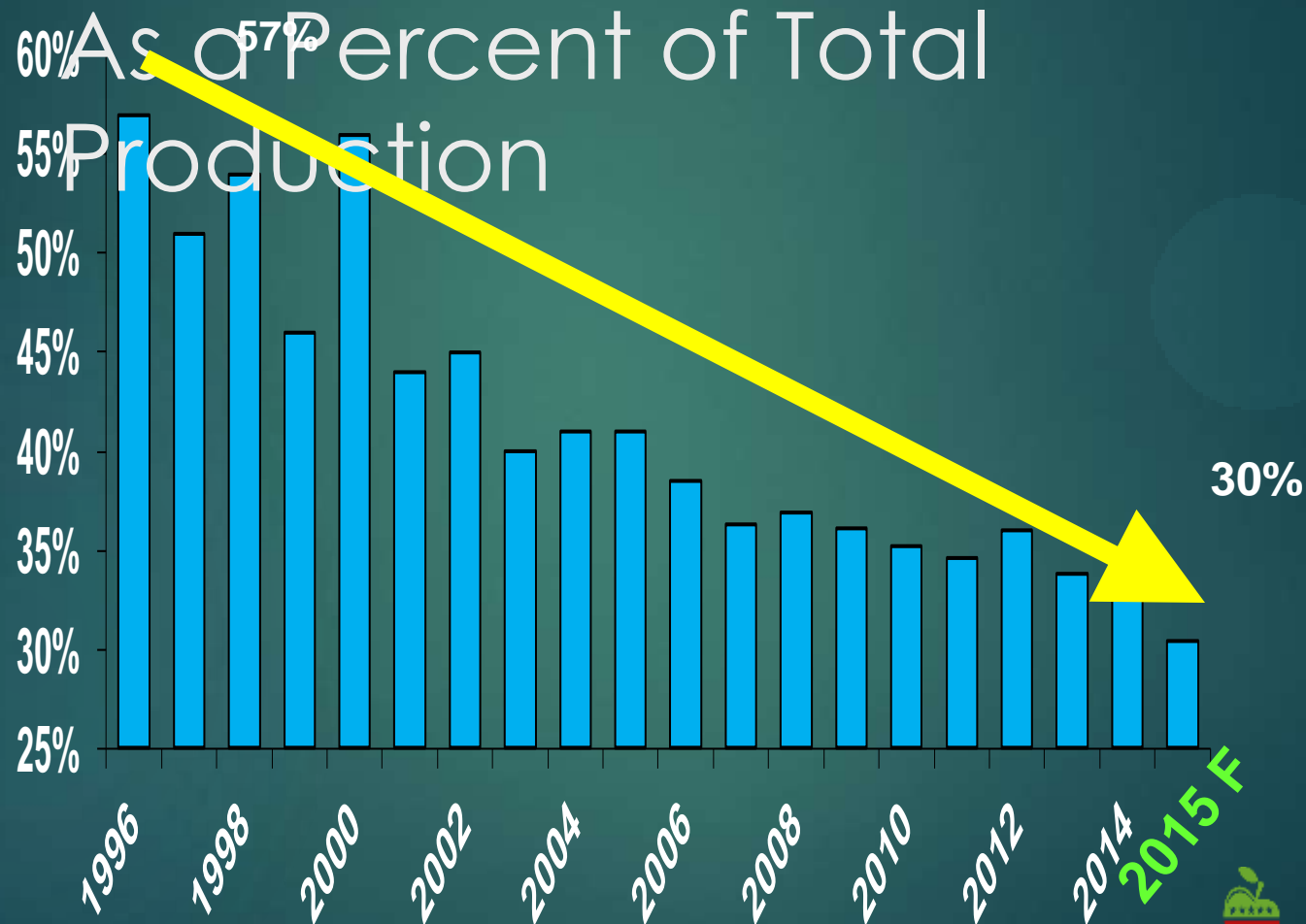
(Million 42-Lb. Units)



Source: USApple F = Forecast

Red and Golden Delicious

As a Percent of Total Production



Source:
USApple

Harvista

Varieties applied:

McIntosh

Gala

HoneyCrisp

Acey Macs

Red's

Stayman

Fuji



Harvista

**Do Not Use West Coast Guidelines.

Solved the Captan incompatibility issues.

Amazing Stop Drop product.

Shouldn't affect color be cognizant of crop load. Could notice off color but not like Retain but can be similar.

Way more Versatile because of its PHI which allows more Real time decisions.

Allows you to work in conjunction with your size of harvest crew or Crop size or Weather Events. (Heat or Rain)

Different than ReTain don't have to apply weeks ahead. Your not set in Stone.

Year	McIntosh	Gala	Honey Crisp	Acey Macs	Red Delicious	Stayman	Fuji
2013	.75A	5.86A	1.96A	1.58A	-	-	-
2014	-	17.6A	21.8A	9.6A	13.5A	7A	2A
2015	-	17.05A	-	-	-	-	-
2016							

Harvista

Gala.

Increase production 10-15% total volume.

Less Stem Cracking than ReTain.

Less Color loss than ReTain.

Keeps more firm.

Closer to Anticipated Harvest

Good Return on investment.

***New Export Markets opportunity.

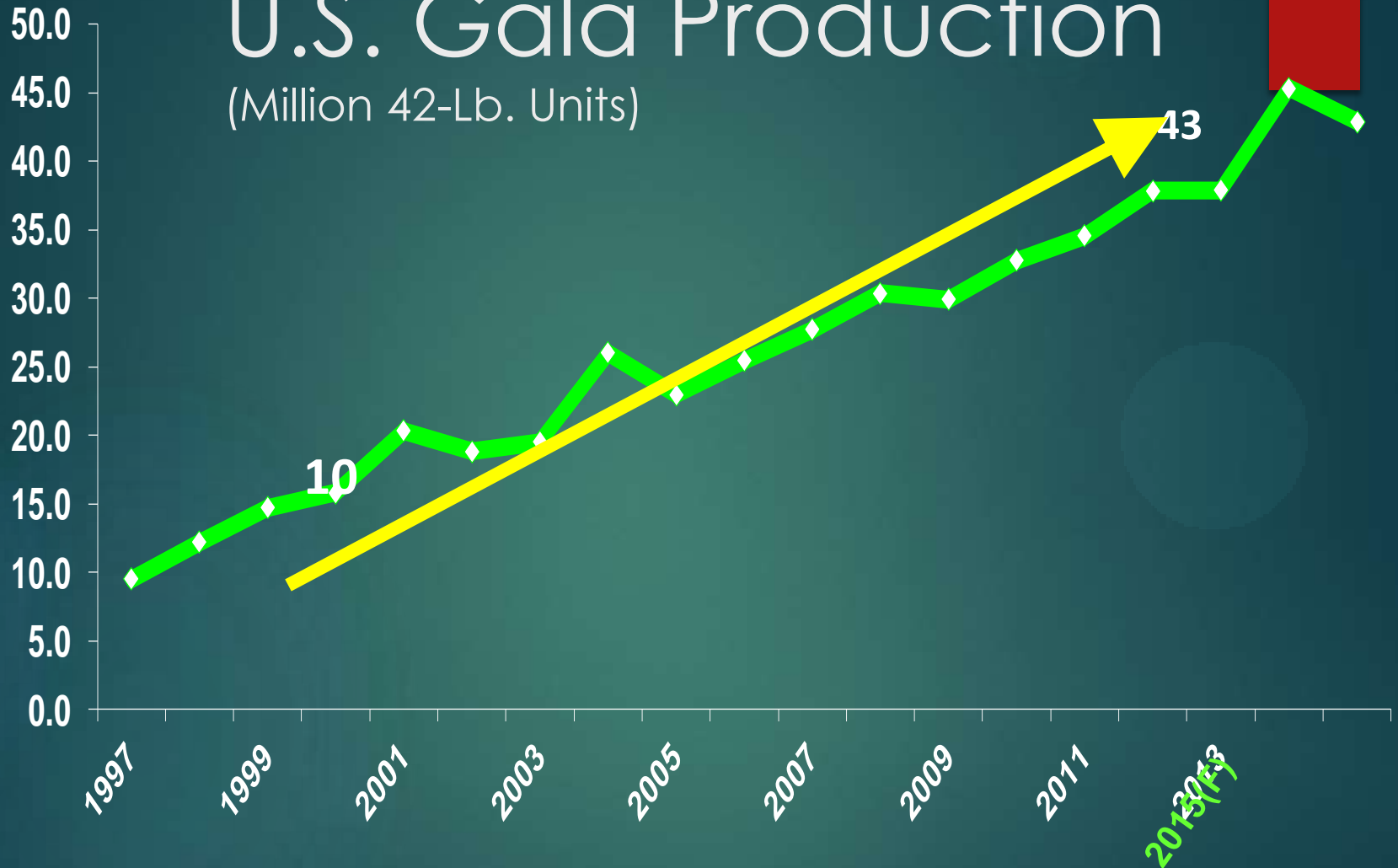
Tropical Storm?

9/5/2011 Tropical Storm Lee brought 6-10 inches of rain in PA.



U.S. Gala Production

(Million 42-Lb. Units)



Source: USApple F = Forecast

Harvista

Acey Macs

Allows minimal drops w/ full Color.

Push the harvest window back to allow more attention to HoneyCrisp Harvest.

Return on Investment Maybe???



Harvista

HoneyCrisp

60 Acres in production that require a 5 day window for optimal harvest.

800-900 bushel per/A.

Increase 5-10% total volume. Due to biennial bearing susceptibility.

Great Stop Drop.

Apply only when needed NOT up front. Concentrate solely on this cultivar during harvest.

Watch crop load when use of Harvista can cause off color.

Longer H.C. is hung on tree the increase susceptibility to Internal Breakdown such as; Soggy Breakdown, Soft Scald due to chilling injury in orchard.



Grafting to catch u



Western U.S. Fuji Production

(000 42 Lb. Units)



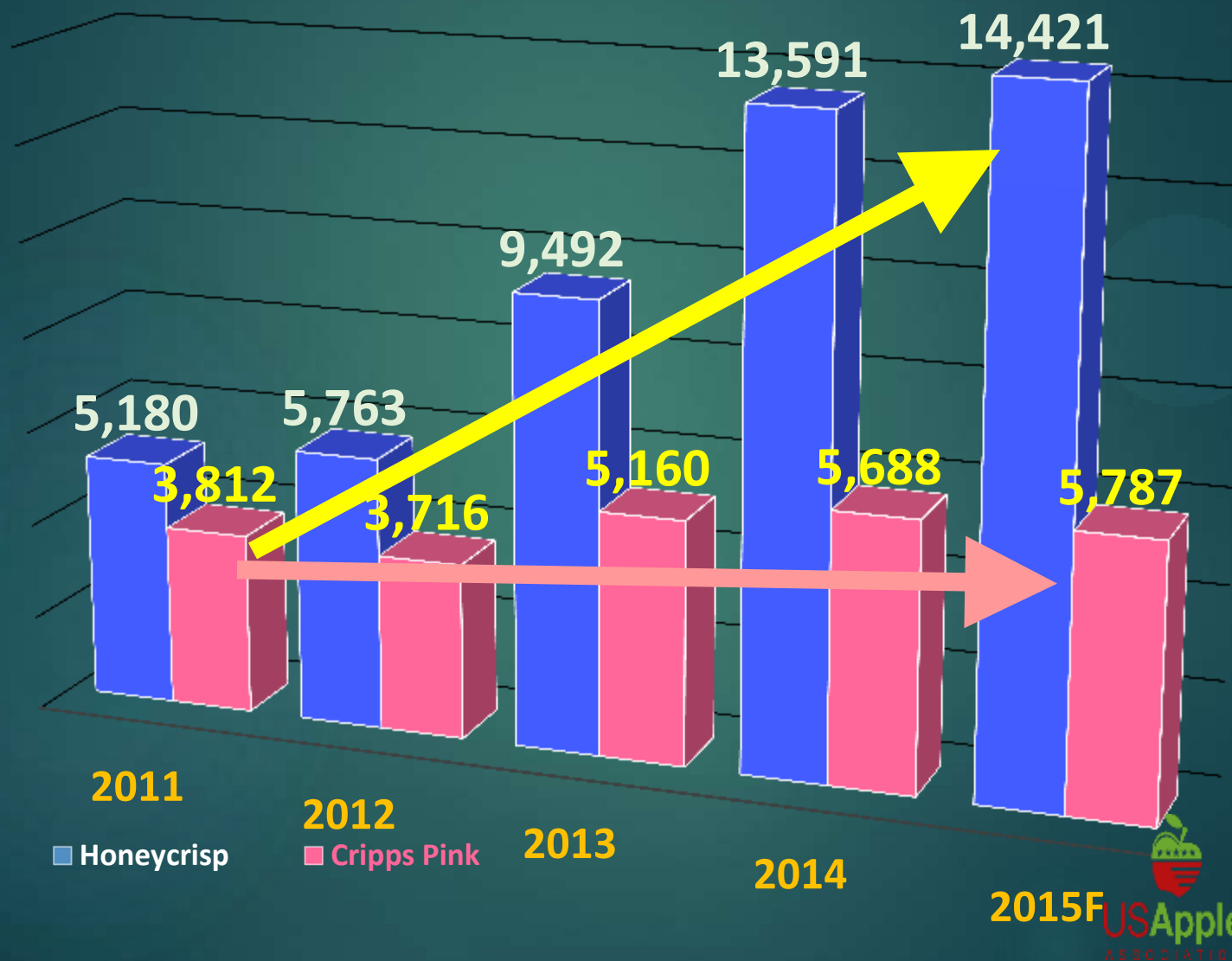
Source: USApple F = Forecast



Next up Maslin Pink Lady

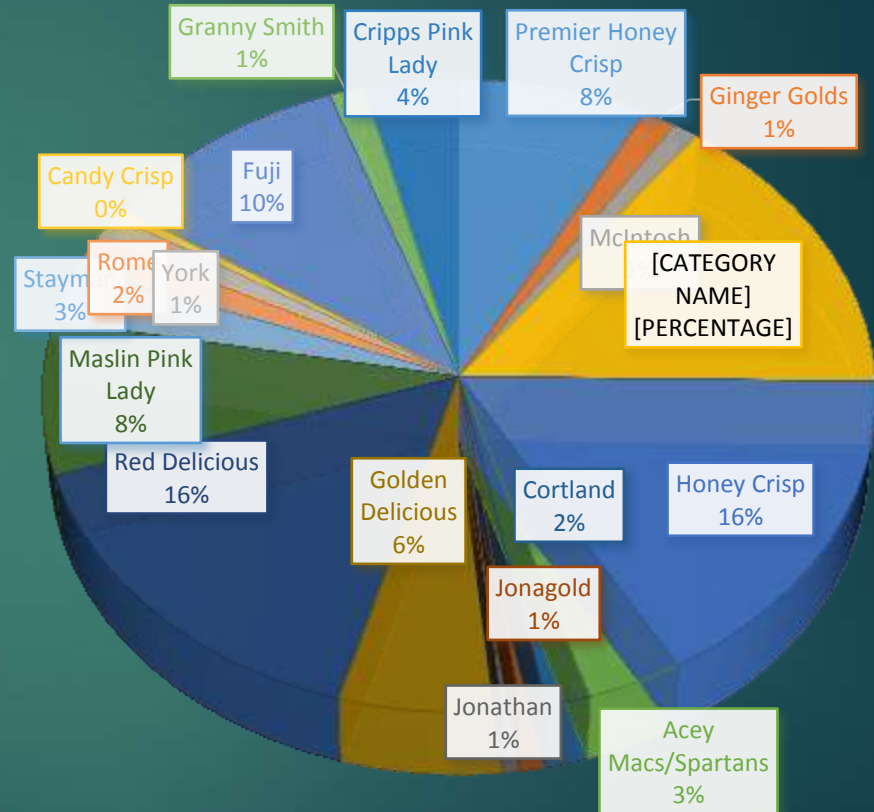
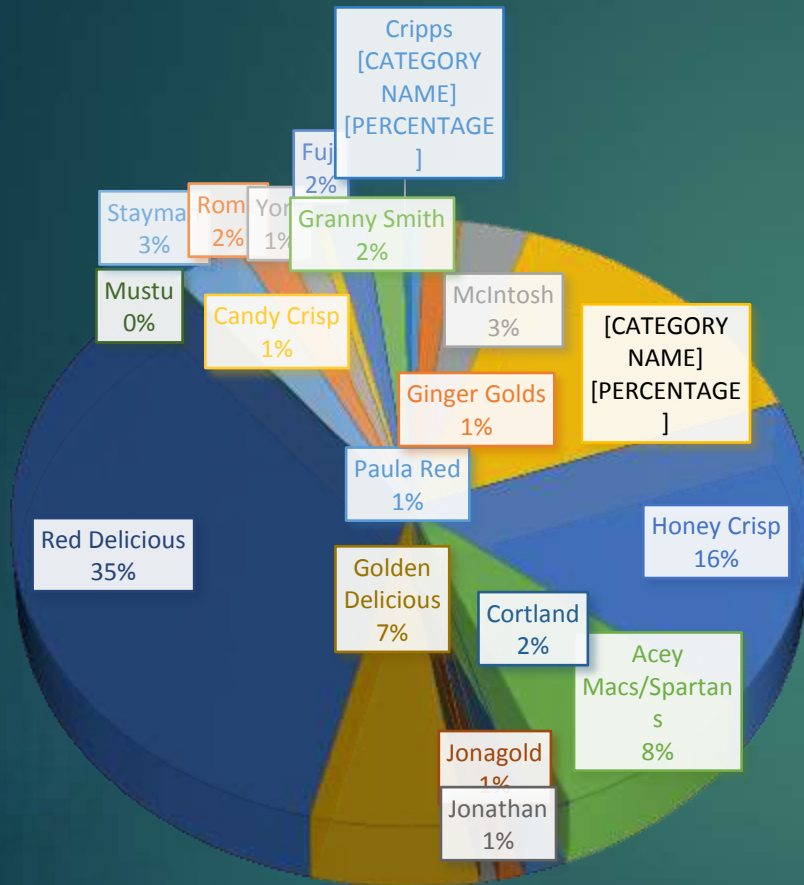


Honeycrisp and Cripps Pink (Pink Lady™) (Million 42-Lb. Units)



Our Mission.

2020



Purchasing and Using Our Orchard Pruning and Harvest Platform

Russell Holmberg
Holmberg Orchards
Gales Ferry, CT

CT Farm Transition Grant

- Program of the Connecticut Dept of Agriculture
- 50% matching fund grant
- New equipment, streamline or expansion
- Awarded \$38,379 in 2014
- Supporting Documents from Penn State, Cornell, others
- Other grants available: USDA, OSHA?



Big step forward for our orchard:

- Auto steer
- Auto level
- Four wheel steer
- On board air
- Harvest equipment
- One person can access all four corners of the machine

“Crab” steer in wide plantings



A more ideal situation



















Observations

- Not only about payback – its timeliness, comfort, etc.
- Over-estimate potential use before purchasing
- Snow is very difficult
- Still not using it to full capacity (auto steer, bins handling, orchard system)
- Electric? Higher clearance or tracks? More leveling?
- Staff still needs to get in the mindset of constant motion
- Euro exchange rate is really good right now – prices are low even without a grant