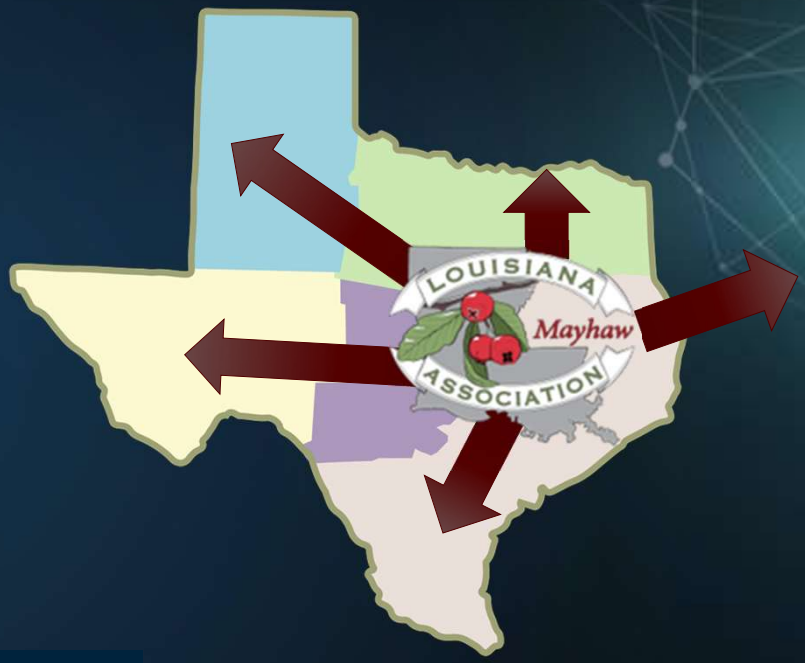
Hemmin' and May Haw-ing: Exploring New Innovations and Opportunities for Mayhaw Horticulture and Food Science



Louisiana Mayhaw Association Annual State Conference
September 26, 2026

TEXAS A&M AGRILIFE RESEARCH

Zhuoyu Wang
Research Assistant Professor
Food Science and Technology
zhuoyu.wang@ag.tamu.edu

Andrej Svyantek
Assistant Professor
Horticultural Crop Breeding
andrej.svyantek@ag.tamu.edu

Talk Targets

1. Introduction
2. Horticulture and Food Science
3. Needs- Speculate and Anticipate

TEXAS A&M AGRILIFE RESEARCH

Talk Targets

1. 1. Introduction
2. 2. Horticulture and Food Science
3. 3. Needs- Speculate and Anticipate

TEXAS A&M AGRILIFE RESEARCH

Introduction

1. Mayhaw Journey
2. Mayhaw Connection
3. Who We Are

Texas A&M AgriLife Research

Introduction

1. 1. Mayhaw Journey
2. 2. Mayhaw Connection
3. 3. Who We Are

Texas A&M AgriLife Research

My-haw Journey

Texas A&M AgriLife Research

My-haw Journey

Spring 2011

1

Introduced to Haw Flakes





Texas A&M AgriLife Research

My-haw Journey

Spring 2011

1

Introduced to Haw Flakes

Winter 2024-2025

2

Discovered Mexican Hawthorn



Texas A&M AgriLife Research

My-haw Journey

Spring 2011

1

Introduced to Haw Flakes

Winter 2024-2025

2

Discovered Mexican Hawthorn

Spring 2025

3

Observed First Mayhaw Fruit



TEXAS A&M AGRILIFE RESEARCH

My-haw Journey



Summer 2025

4

Transferred Louisiana Mayhaws for Evaluation

My-haw Journey

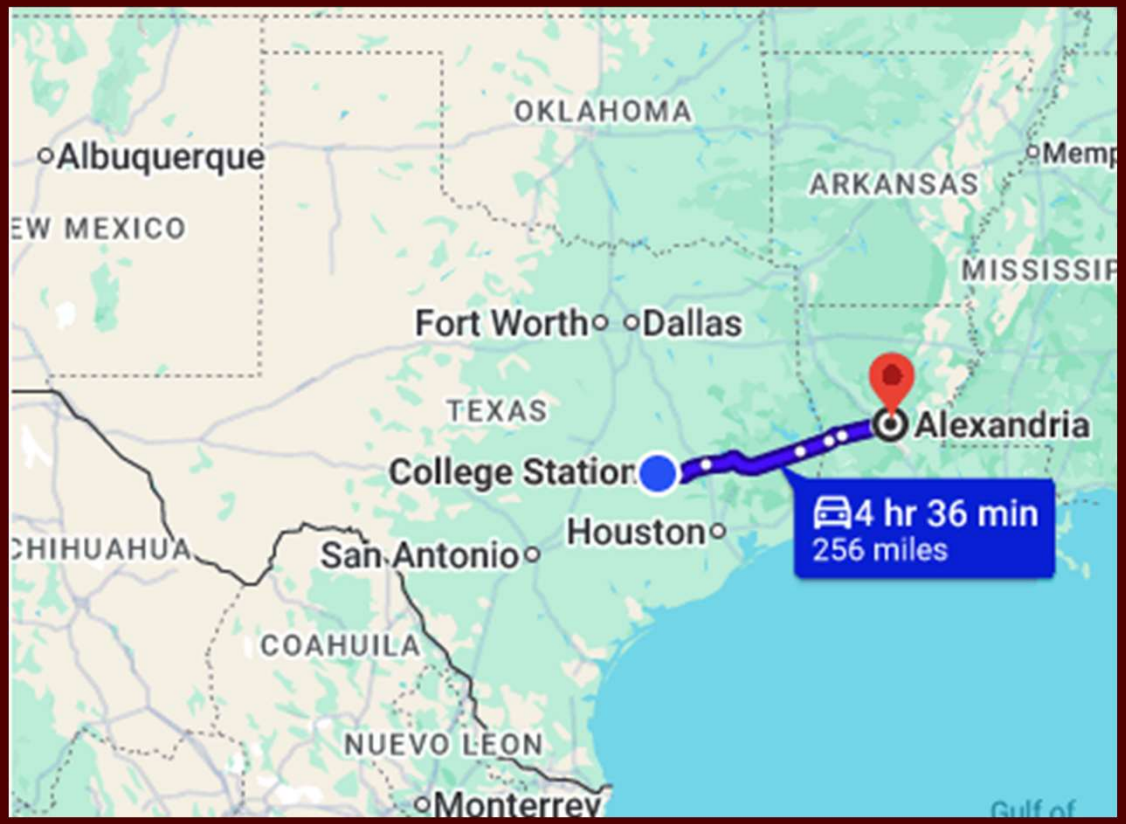


Summer 2026

5

Met a Louisiana Mayhaw Member in the Wild

My-haw Journey



Fall 2026

6

Journeyed East to the Official Mayhaw State

Things We Brought From Texas

1. Family

1.

TEXAS A&M AGRILIFE RESEARCH

Things We Brought From Texas

1. Family (Our Son)

Texas A&M AgriLife Research

Things We Brought From Texas

1. Family (Our Son)
2. Food

Texas A&M AgriLife Research

Things We Brought From Texas

1. Family (Our Son)
2. Food (Haw Flakes)

TEXAS A&M AGRILIFE RESEARCH

Things We Brought From Texas

1. Family (Our Son)
2. Food (Haw Flakes)
3. Fightin' Texas Aggies

TEXAS A&M AGRILIFE RESEARCH

Things We Brought From Texas

1. Family (Our Son)
2. Food (Haw Flakes)
3. Fightin' Texas Aggies (Football)

TEXAS A&M AGRILIFE RESEARCH

Pre-Season

NCAA Football (FBS I) · Sep 26, TBD



8 Texas A&M Aggies

at



11 LSU Tigers

Pre-Season

NCAA Football (FBS I) · Sep 26, TBD

8 Texas A&M Aggies at 11 LSU Tigers

Before Last Week

10 Texas A&M

8 LSU

Sat, Sep 26
TBD

Texas A&M AgriLife Research

Pre-Season

NCAA Football (FBS I) · Sep 26, TBD

8 Texas A&M Aggies at 11 LSU Tigers

Before Last Week

10 Texas A&M

8 LSU

Sat, Sep 26
TBD

Today

NCAA Football (FBS I) · Sat, Sep 26, 6:30 PM

23 Texas A&M Aggies at 10 LSU Tigers

Introduction

1. 1. Mayhaw Journey
2. 2. Mayhaw Connection
3. 3. Who We Are

Texas A&M AgriLife Research

Introduction

1. Mayhaw Journey
2. Mayhaw Connection
3. Who We Are

Texas A&M AgriLife Research

Mayhaw Connection- Texas Mayhaws

Louisiana Mayhaw Association
Newsletter August 2019

6

Region 6 Texas

Board of Directors:

Region 1
Lee Wise
Region 2
Reynold Minsky
Region 3
Skip Lavespere
Region 4
James Eaves
Region 5
Don Lord
Region 6 (TX)
George Bieber
Region 7 (AR)
Open
Region 8 (MS)
Willis Thames
Region 9 (AOS)
John Trawick



Mayhaw Connection- Texas Mayhaws

Mayhaws: Trees of Pomological and Ornamental Interest

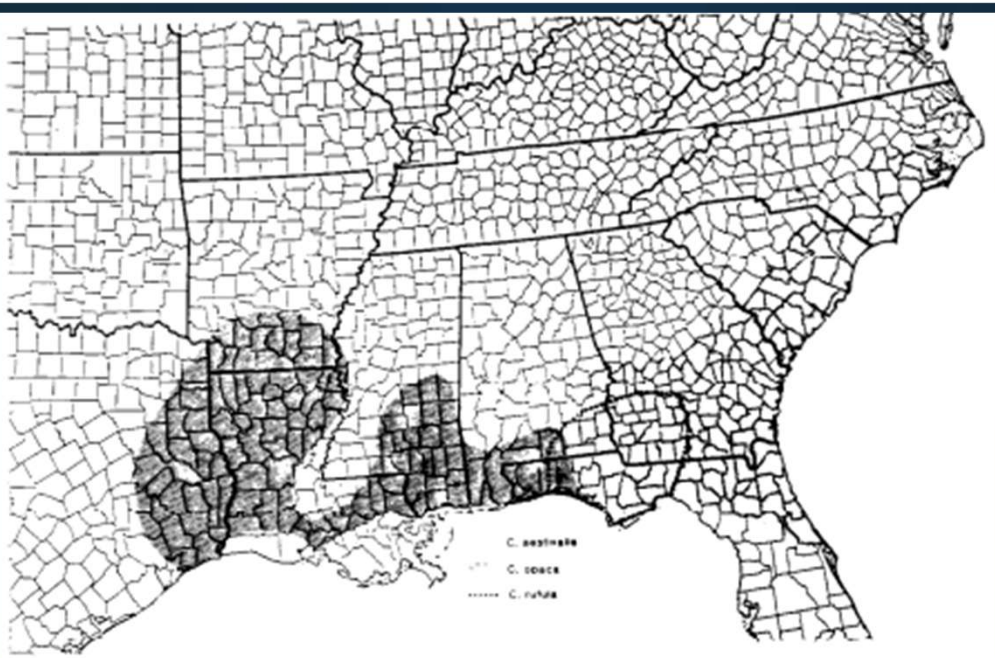


Fig. 1. Native range of mayhaw *(Crataegus aestivalis, C. opaca, C. rufula)* in North America.

Texas A&M AgriLife Research

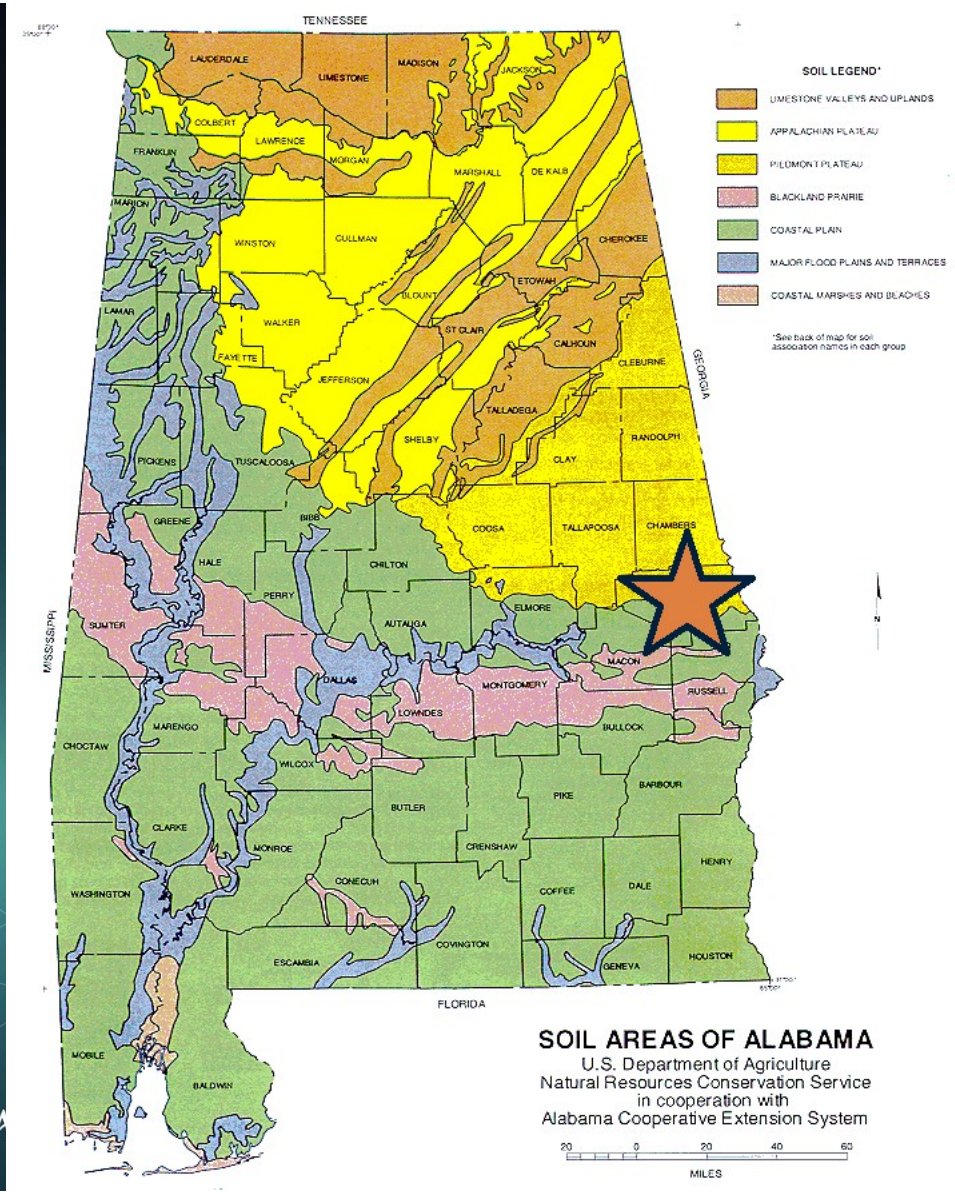
Mayhaw Connection- Michael Polozola

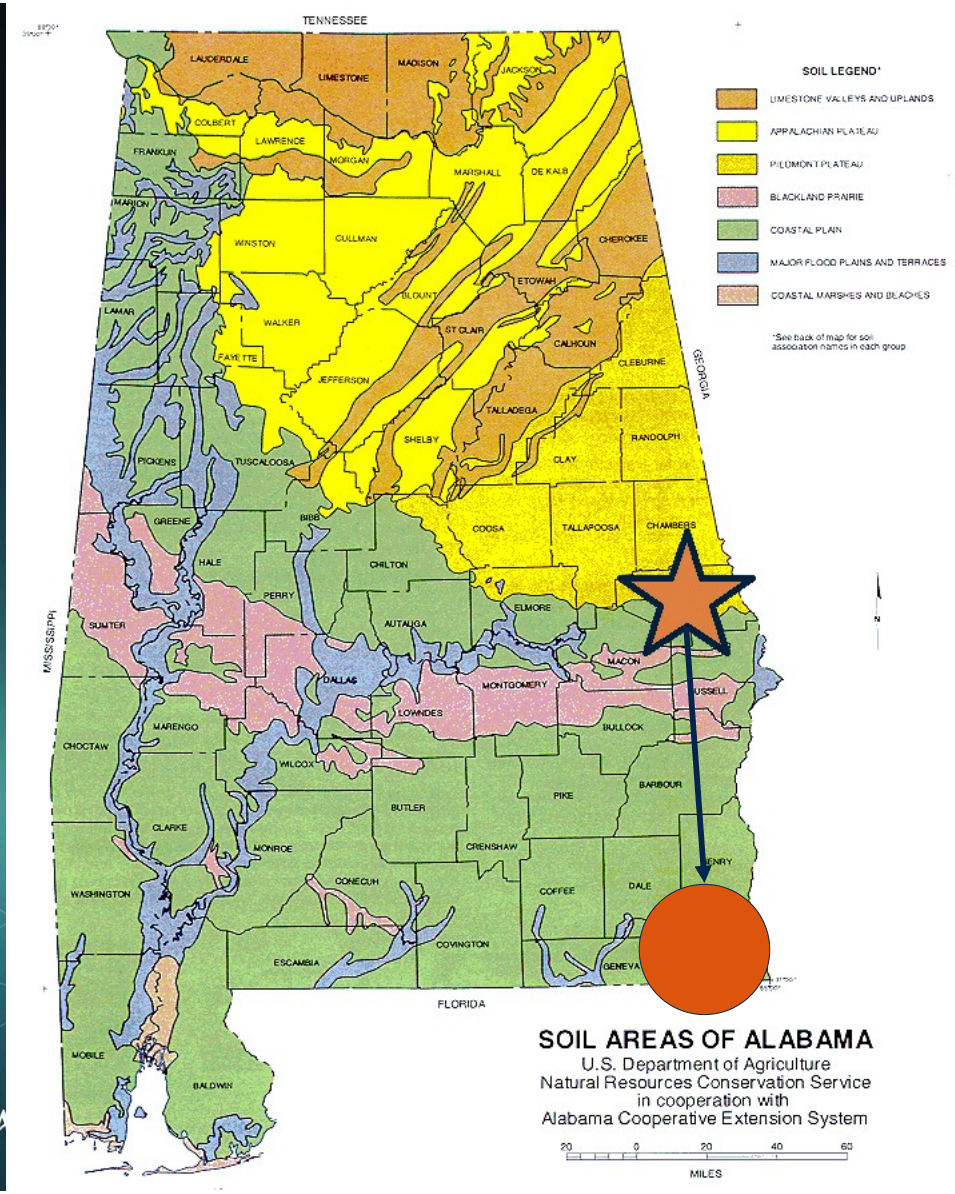


Texas A&M AgriLife Research

Tour de ‘bama




TENNESSEE
LAUDERDALE
LIMESTONE
MADISON
JACKSON
COLBERT
LAWRENCE
FRANKLIN
MORGAN
MARSHALL
DE KALB
MARION
WINSTON
CULLMAN
CHEROKEE
ETOWAH
BLOUNT
LAMAR
WALKER
ST CLAIR
CALHOUN
FAYETTE
CLEBURNE
JEFFERSON
GEORGIA
TALLADEGA
SHELBY
RANDOLPH
PICKENS
TUSCALOOSA
CLAY
GREENE
BIBB
COOSA
TALLAPOOSA
CHAMBERS
HALE
CHILTON
PERRY
ELMORE
SUMTER
AUTAUGA
MACON
DALLAS
MONTGOMERY
RUSSELL
LOWNDES
MARENGO
BULLOCK
CHOCTAW
WILCOX
BARBOUR
PIKE
BUTLER
CLARKE
MONROE
CRENSHAW
HENRY
WASHINGTON
CONECUH
COFFEE
DALE
COVINGTON
ESCAMBIA
GENEVA
HOUSTON
FLORIDA
MOBILE
BALDWIN
SOIL LEGEND*
LIMESTONE VALLEYS AND UPLANDS
APPALACHIAN PLATEAU
PIEDMONT PLATEAU
BLACKLAND PRAIRIE
COASTAL PLAIN
MAJOR FLOOD PLAINS AND TERRACES
COASTAL MARSHES AND BEACHES
*See back of map for soil association names in each group
SOIL AREAS OF ALABAMA
U.S. Department of Agriculture
Natural Resources Conservation Service
in cooperation with
Alabama Cooperative Extension System
20 0 20 40 60
MILES

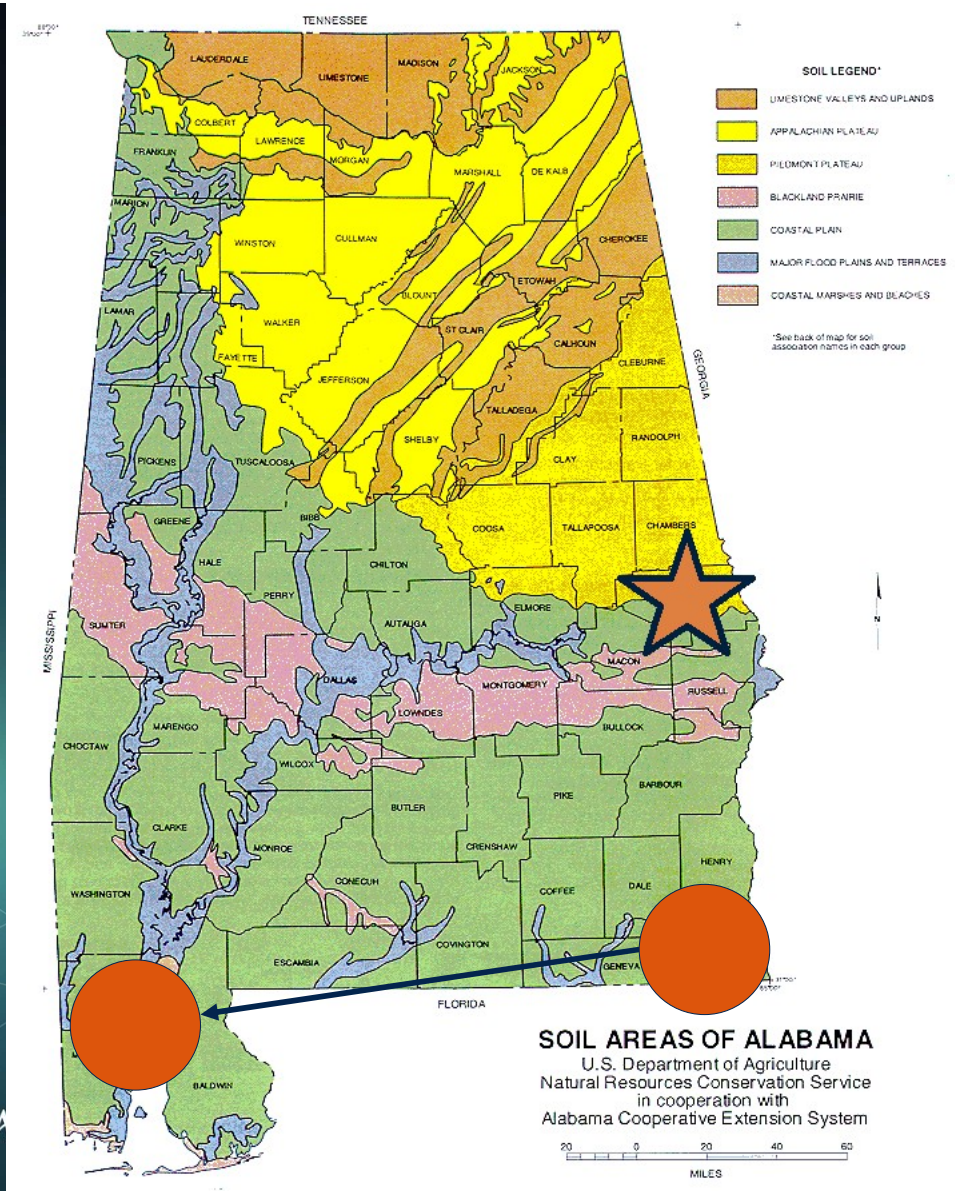


Wiregrass REC



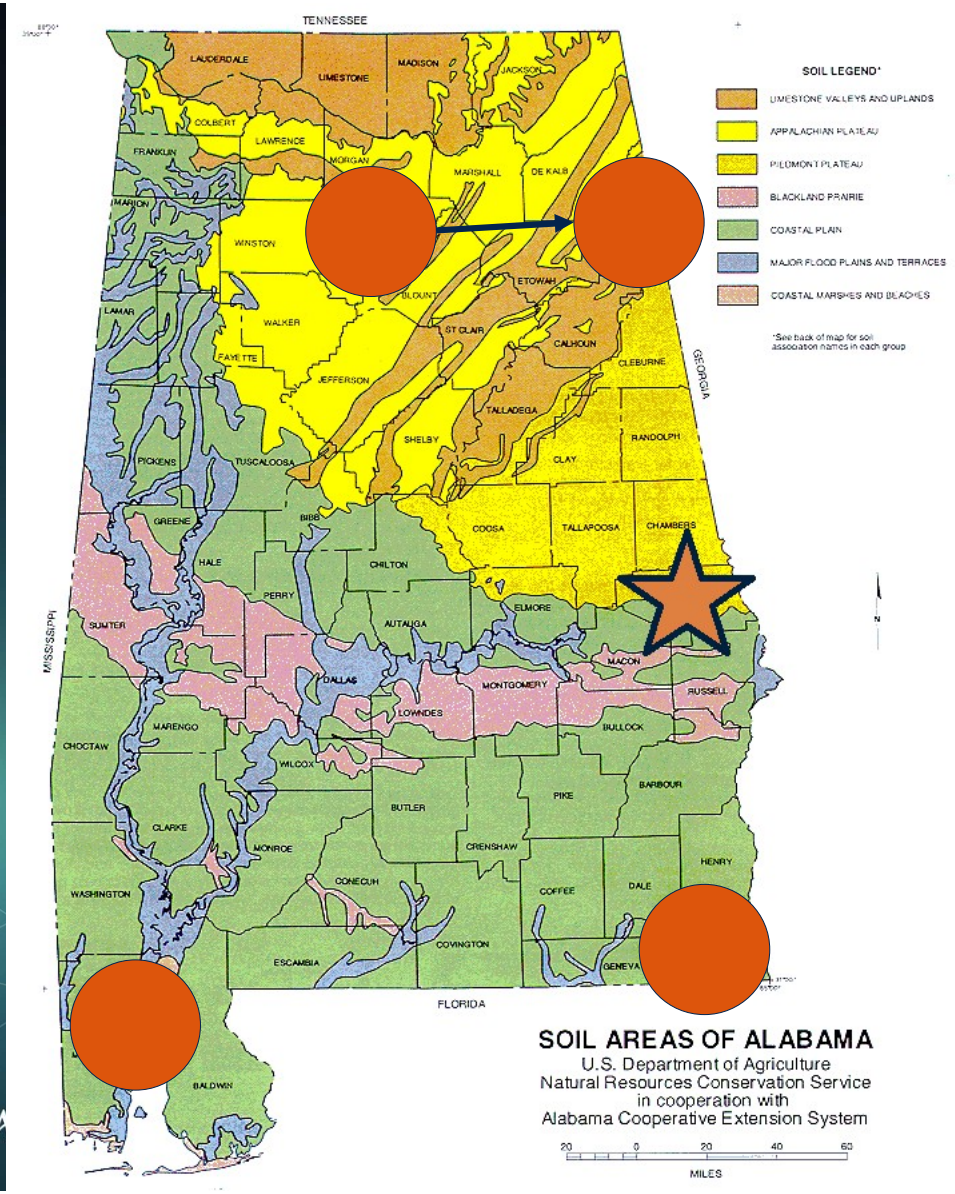


Gulf Coast REC





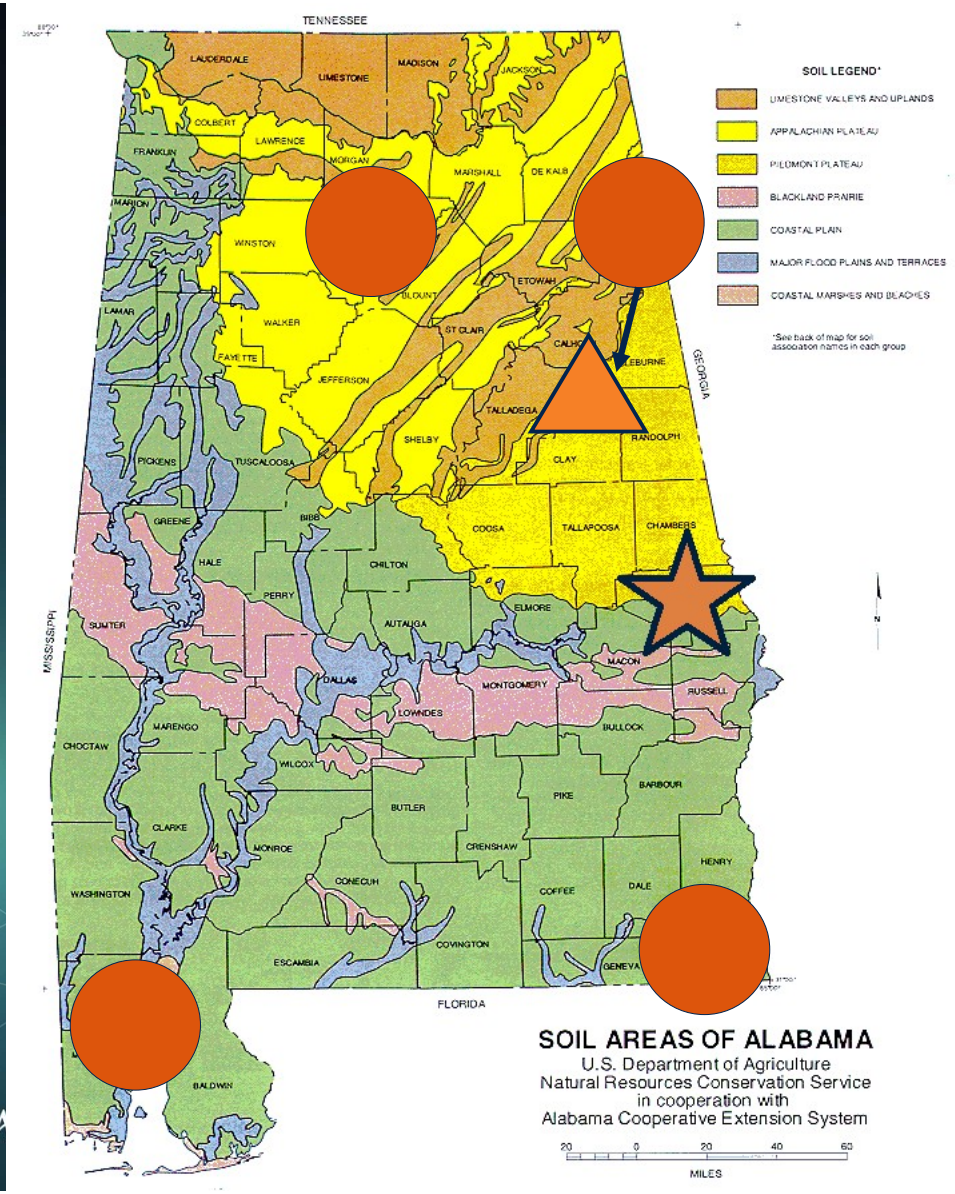

Ruled Pads
Bloques de papel con renglones
Blocs de papier réglé
8 1/2" x 11 3/4" (21.59 cm x 29.85 cm)
8 1/2" x 14" (21.59 cm x 35.56 cm)
Manufactured for/Hecho para/Fabriqué pour
Universal Brand/United Stationers Supply Co.,
Des Plaines, IL 60016 ©2006
Made in USA /Hecho en USA /Fabriqué aux USA



Pierce's Disease in *V. vinifera*




MISSISSIPPI
CHOCTAW
WASHIN



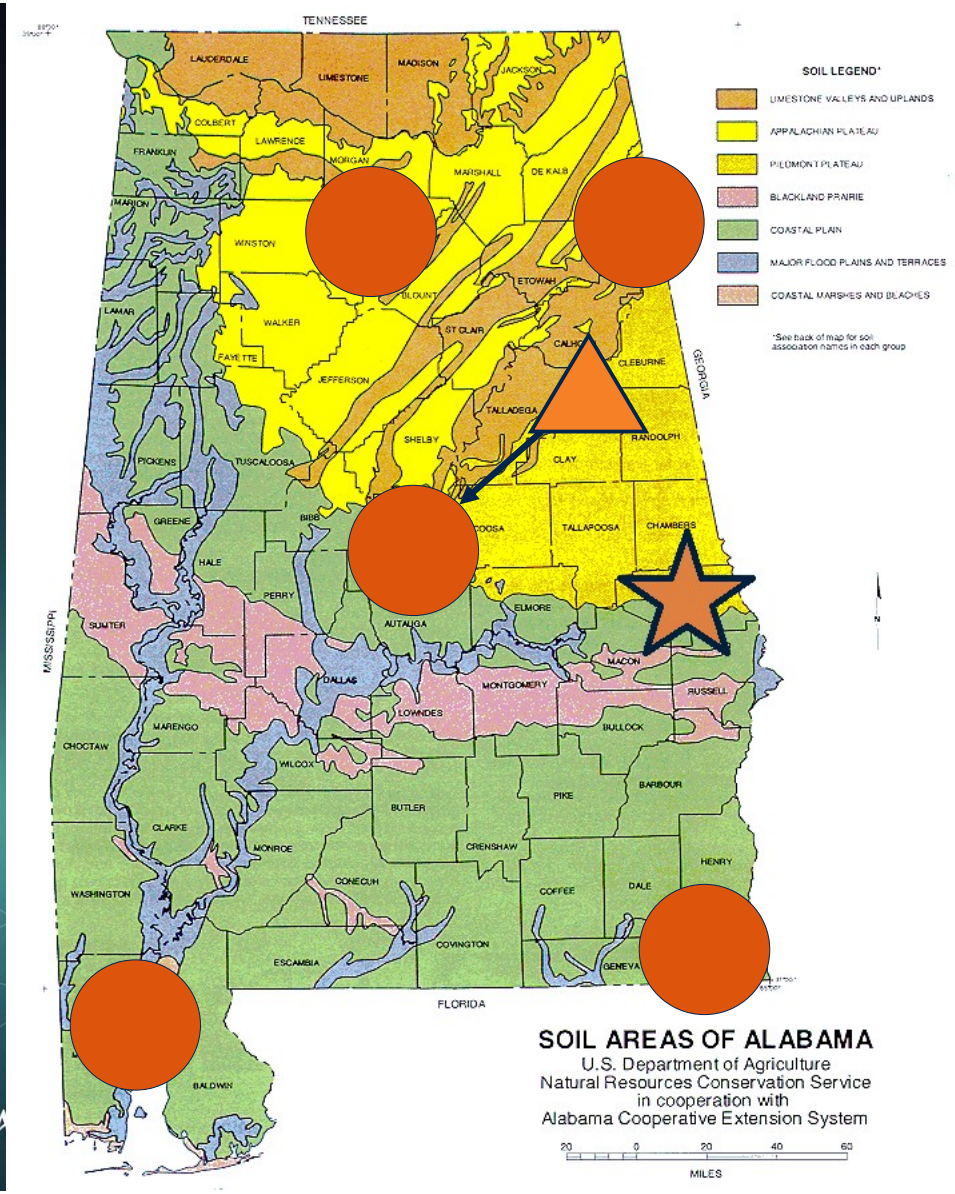
Vineyard Install and Wine Production





Chilton County Research Extension Center





Mayhaw Connection- Michael Polozola



Texas A&M AgriLife Research

Mayhaw Connection- Austin Fruge



TEXAS A&M AGRILIFE RESEARCH

Introduction

1. Mayhaw Journey
2. Mayhaw Connection
3. Who We Are

Texas A&M AgriLife Research

Introduction

1. Mayhaw Journey
2. Mayhaw Connection
3. Who We Are

Texas A&M AgriLife Research

Zhuoyu

Andrej

Texas A&M AgriLife Research

Zhuoyu

Texas A&M AgriLife Research

Zhuoyu

Jah

TEXAS A&M AGRILIFE RESEARCH

Zhuoyu

Jah-Woah

Texas A&M AgriLife Research

Zhuoyu

Jah-Woah-You

Texas A&M AgriLife Research

Andrej

Texas A&M AgriLife Research

Andrej

And

Texas A&M AgriLife Research

Andrej

And-Reige

TEXAS A&M AGRILIFE RESEARCH

Who We Are- Zhuoyu and Andrej



Food Science and Technology
Texas A&M University; Texas A&M AgriLife Research



Horticultural Sciences
Texas A&M University; Texas A&M AgriLife Research

TEXAS A&M AGRILIFE RESEARCH

Talk Targets

1. 1. Introduction
2. 2. Horticulture and Food Science
3. 3. Needs- Speculate and Anticipate

TEXAS A&M AGRILIFE RESEARCH

Talk Targets

1. Introduction
2. Horticulture and Food Science
3. Needs- Speculate and Anticipate

TEXAS A&M AGRILIFE RESEARCH

HORTICULTURE and FOOD

1. Plant Management
2. Plant Breeding
3. Product Optimization

TEXAS A&M AGRILIFE RESEARCH

HORTICULTURE and FOOD

1. Plant Management
2. Plant Breeding
3. Product Optimization

Texas A&M AgriLife Research

Management- Crop Inputs









TEXAS A&M AGRILIFE RESEARCH

Past Work- Included Organic Fertilizer for Small Fruits
Current Work- Includes Focus on Water (Quality/Quantity) Impacts

Management- Fruit Ripening



Haskap Fruit
Optimal Harvest Chemistry Unknown

Years: 2

Cultivars: 15

Total Sample Number: 4017

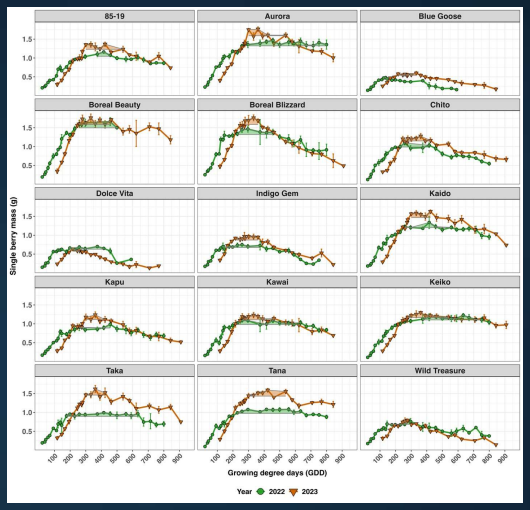
Total Berry Number: 110,876

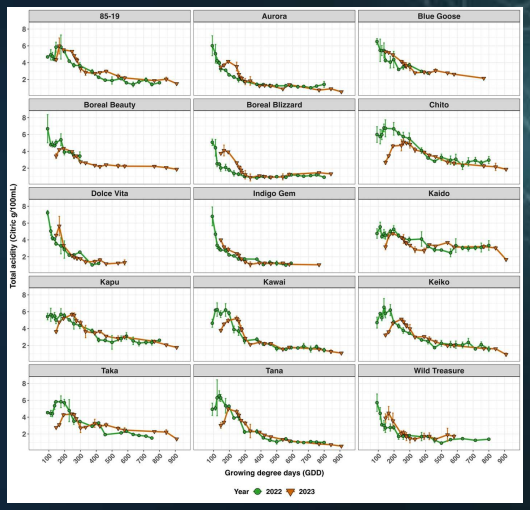
Total Mass of Samples: 213 Pounds

Texas A&M AgriLife Research

Management- Fruit Ripening





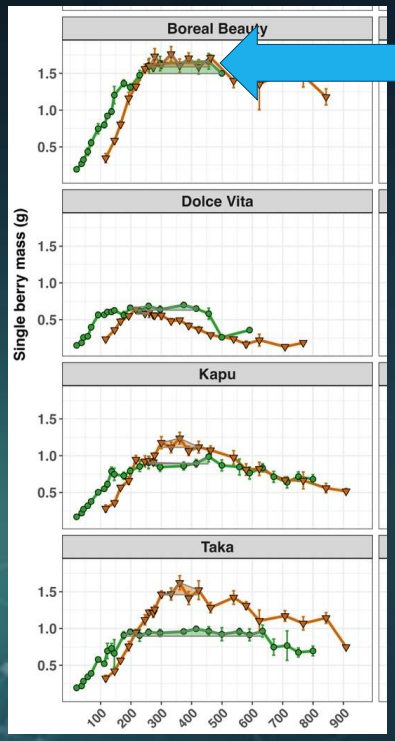


Haskap Fruit
Optimal Harvest Chemistry Unknown

From this Data, We Created Endless Tables, Charts and Graphs….

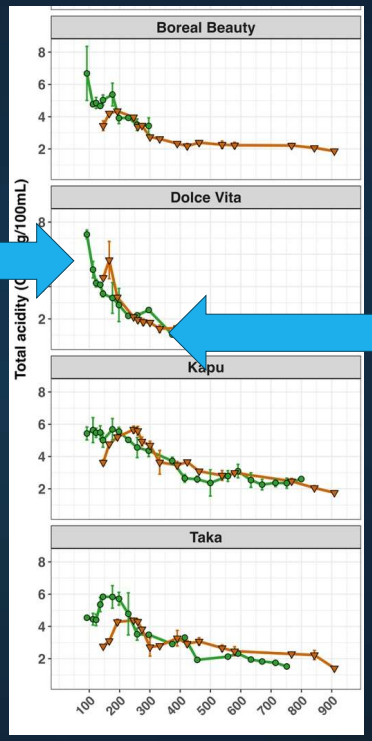
TEXAS A&M AGRILIFE RESEARCH

Management- Fruit Ripening



Big Berry

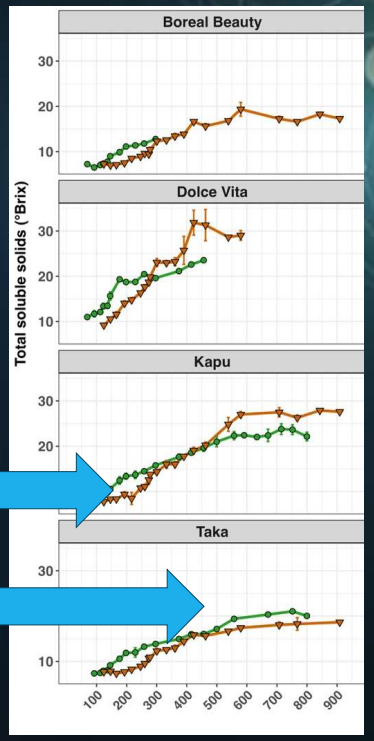
Sour Berry



Not Sour Berry

No Sugar Berry

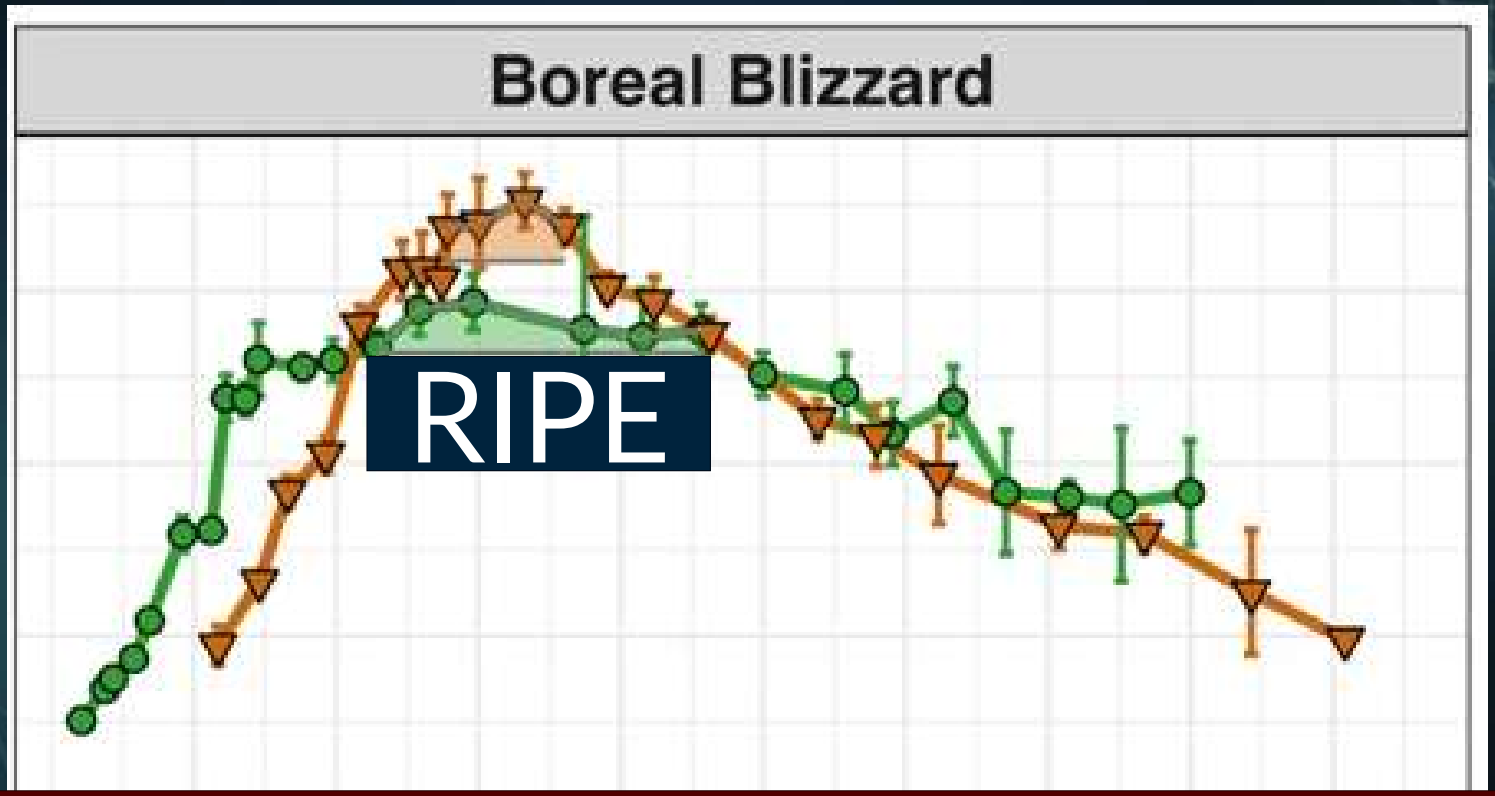
Sugar Berry



TEXAS A&M AGRILIFE RESEARCH

This Allowed Us to Communicate Environmental Ranges (GDD) for Optimal Chemistry to Growers

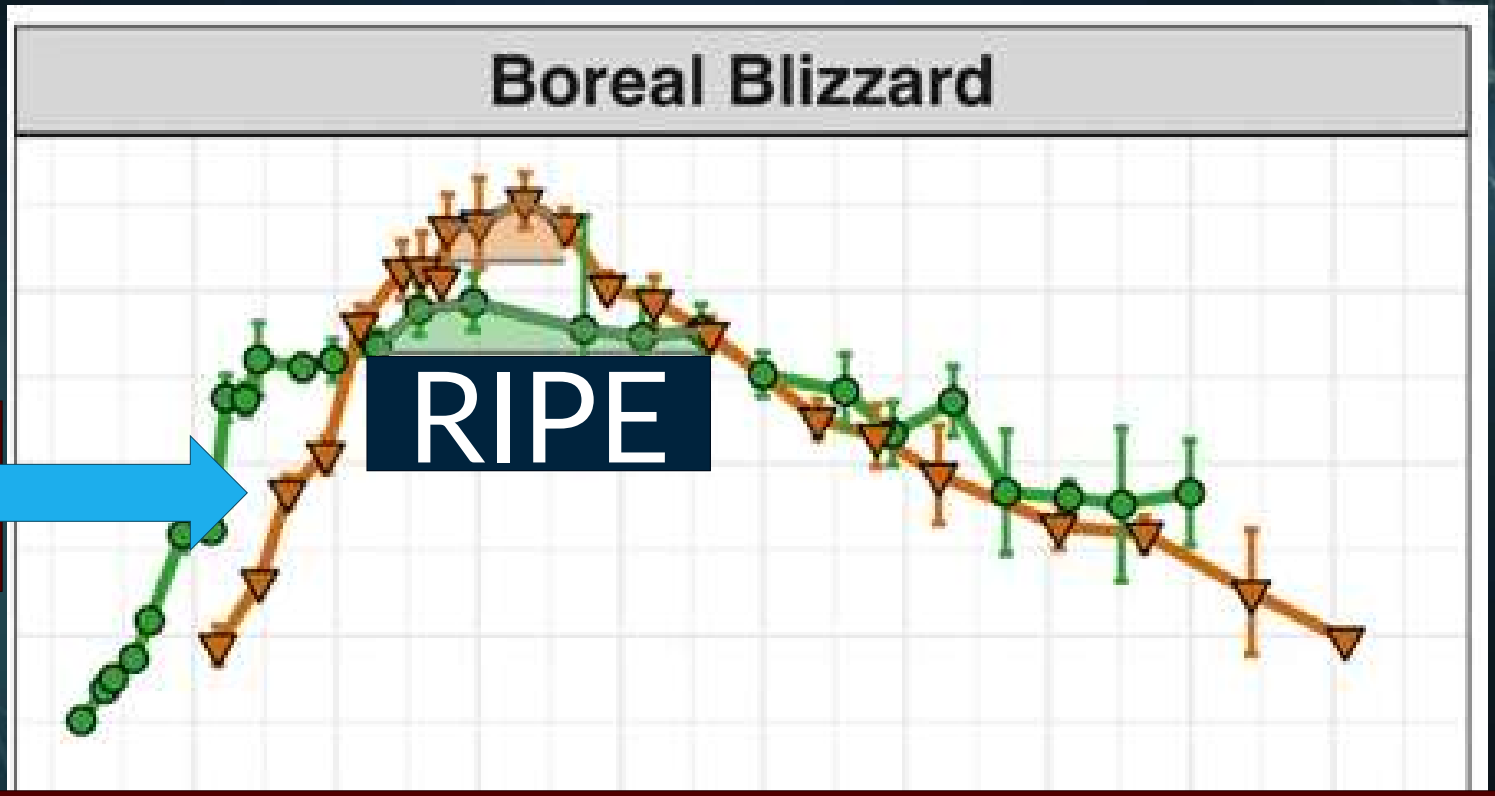
Management- Fruit Ripening



TEXAS A&M AGRILIFE RESEARCH

This Allowed Us to Communicate Environmental Ranges (GDD) for Optimal Chemistry to Growers

Management- Fruit Ripening

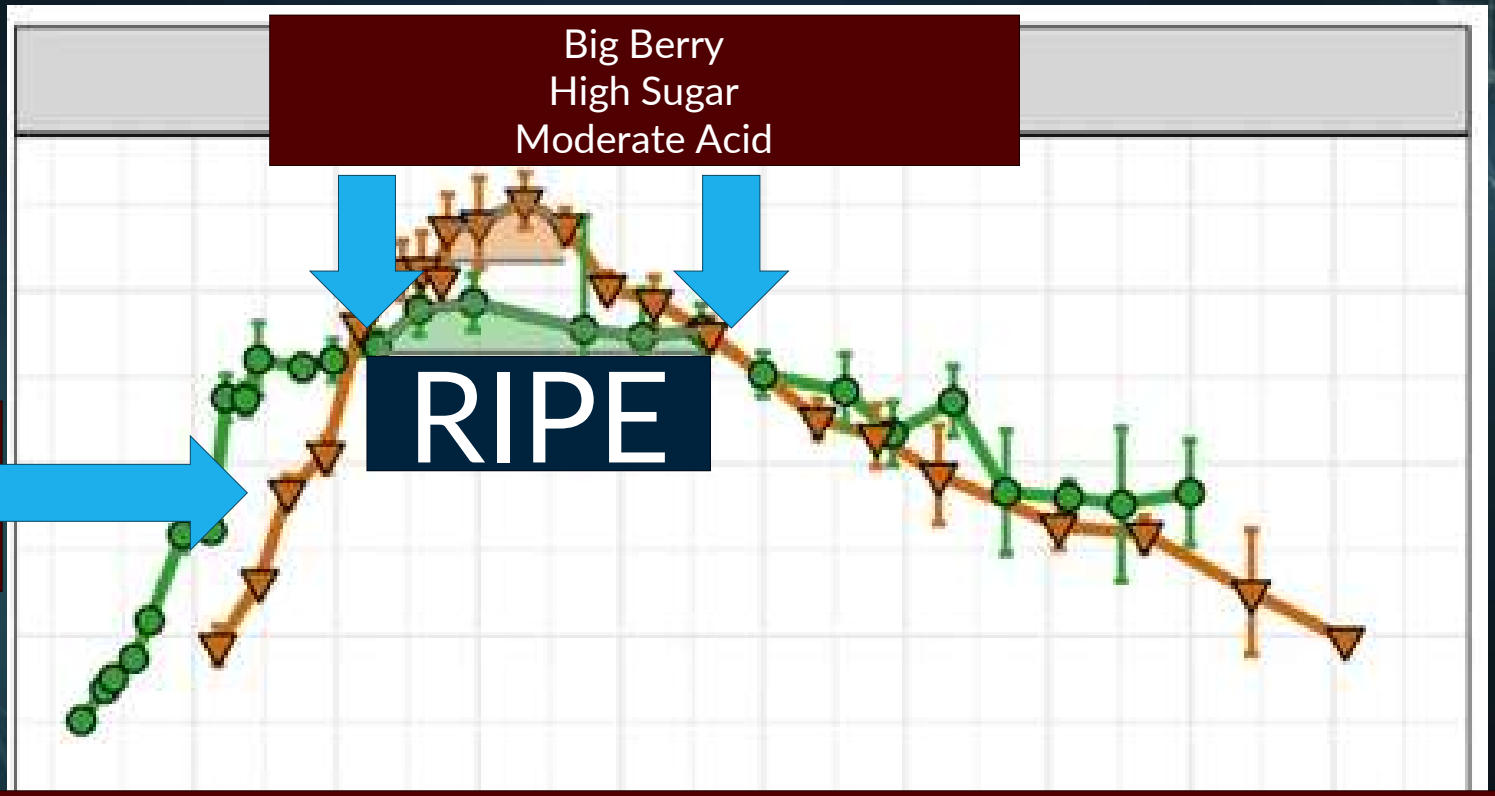


Small
No Sugar
High Acid

This Allowed Us to Communicate Environmental Ranges (GDD) for Optimal Chemistry to Growers

TEXAS A&M AGRILIFE RESEARCH

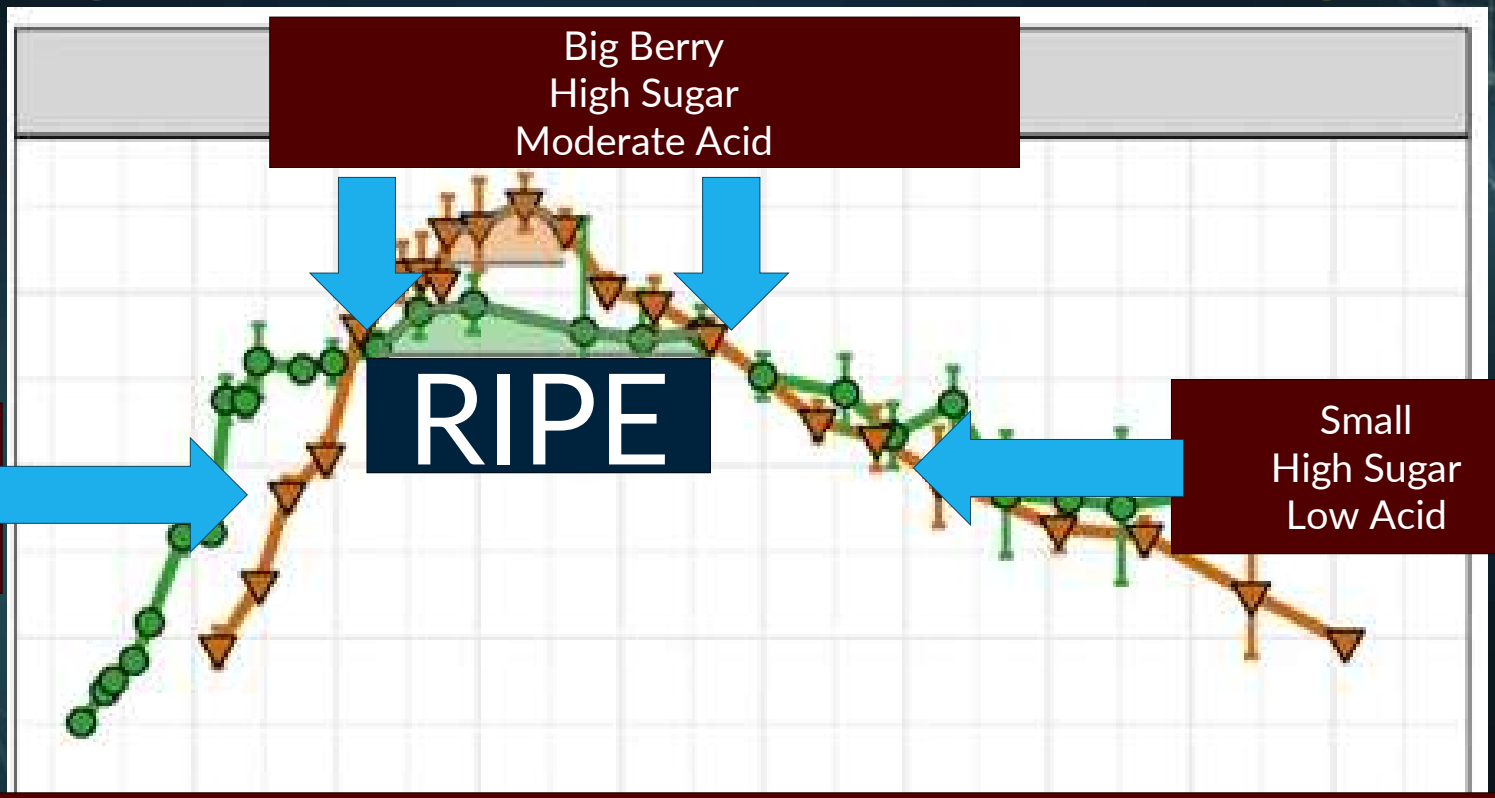
Management- Fruit Ripening



This Allowed Us to Communicate Environmental Ranges (GDD) for Optimal Chemistry to Growers

TEXAS A&M AGRILIFE RESEARCH

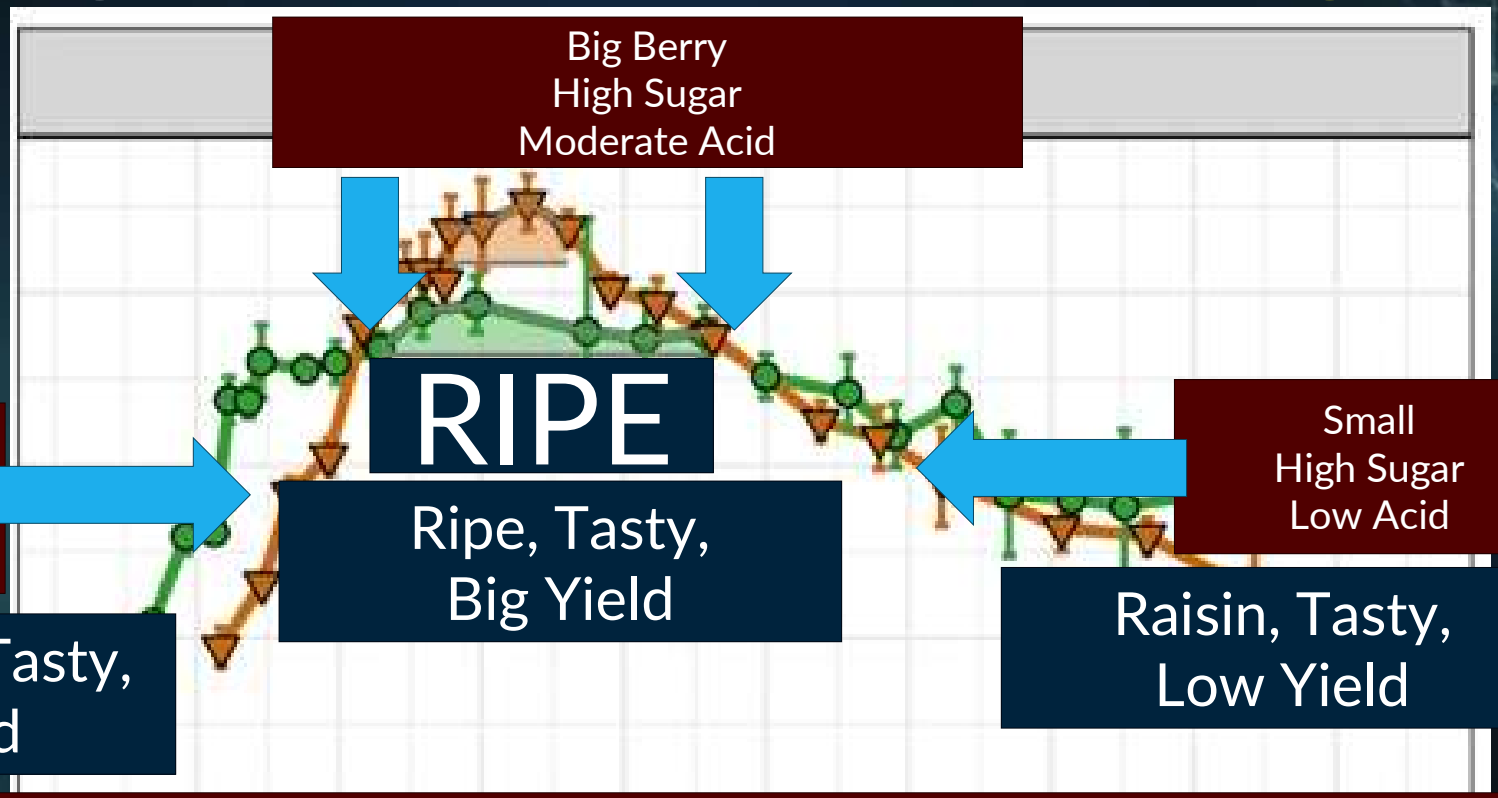
Management- Fruit Ripening



This Allowed Us to Communicate Environmental Ranges (GDD) for Optimal Chemistry to Growers

TEXAS A&M AGRILIFE RESEARCH

Management- Fruit Ripening



Texas A&M AgriLife Research

This Allowed Us to Communicate Environmental Ranges (GDD) for Optimal Chemistry to Growers

Management- Fruit Harvest



Texas A&M AgriLife Research

Tool Comparison

Sawzall

- ~$100-200 + Battery + Minor End Adjustments



Olive Rake

- ~$2,750 w/ Battery



Hands

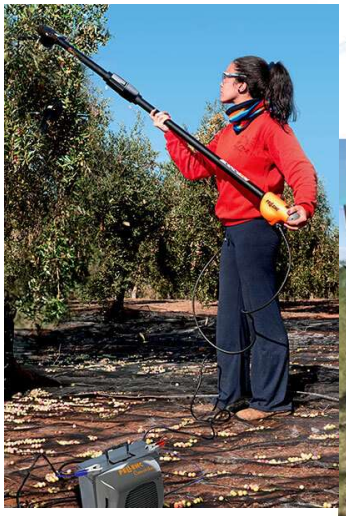
- ~Priceless



TEXAS A&M AGRILIFE RESEARCH

Pick and Choose

Treatment	Harvest time (s/plant)	Harvest rate (g/s)	Berry damage (%)	SSC (Brix)
Hand	639±66^{b}	0.8±0.1^{c}	1.8±0.5^{b}	14.3±0.1^{b}
Olive rake	14±1^{a}	35.0±2.8^{a}	5.1±1.0^{a}	14.7±0.1^{a}
Recip. Saw	27±2^{a}	17.2±1.4^{b}	3.0±0.5^{ab}	14.6±0.1^{a}



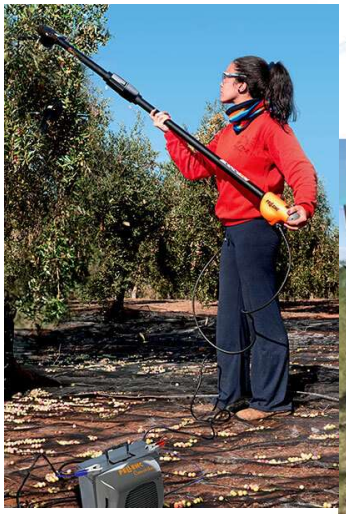




Texas A&M AgriLife Research

Pick and Choose

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Hand	639±66[b]	0.8±0.1[c]	1.8±0.5[b]	14.3±0.1[b]
Olive rak	14±1[a]	35.0±2.8[a]	5.1±1.0[a]	14.7±0.1[a]
Recip. Sa	27±2[a]	17.2±1.4[b]	3.0±0.5[ab]	14.6±0.1[a]



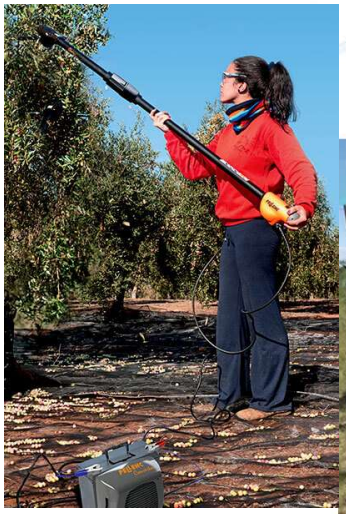




Texas A&M AgriLife Research

Pick and Choose

Treatment	Harvest time (s/plant)	Harvest rate (g/s)	Berry damage (%)	SSC (Brix)
Hand	639±66[b]	0.8±0.1	1.8±0.5[b]	14.3±0.1[b]
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Recip. Saw	27±2[a]	17.2±1.4	3.0±0.5[ab]	14.6±0.1[a]



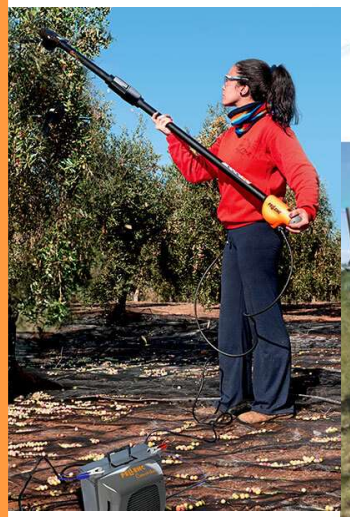




Texas A&M AgriLife Research

Pick and Choose

Treatment	Harvest time (s/plant)	Harvest rate (g/s)	Berry damage (%)	SSC (Brix)
Hand	639±66^{b}	0.8±0.1^{c}	1.8±0.5^{b}	14.3±0.1^{b}
Olive rake	14±1^{a}	35.0±2.8^{a}	5.1±1.0^{a}	14.7±0.1^{a}
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Texas A&M AgriLife Research




Western Agricultural Research Center
MONTANA STATE UNIVERSITY
Agricultural Experiment Station

Tool Comparison

Sawzall

- Taxing on wrist, shoulder, back



Olive Rake

- Taxing on shoulder



Hands

- Taxing on Spirit



TEXAS A&M AGRILIFE RESEARCH

HORTICULTURE and FOOD

1. Plant Management
2. Plant Breeding
3. Product and Process Optimization

TEXAS A&M AGRILIFE RESEARCH

HORTICULTURE and FOOD

1. Plant Management
2. Plant Breeding
3. Product and Process Optimization

Texas A&M AgriLife Research

Plant Breeding- Fruit Chemistry



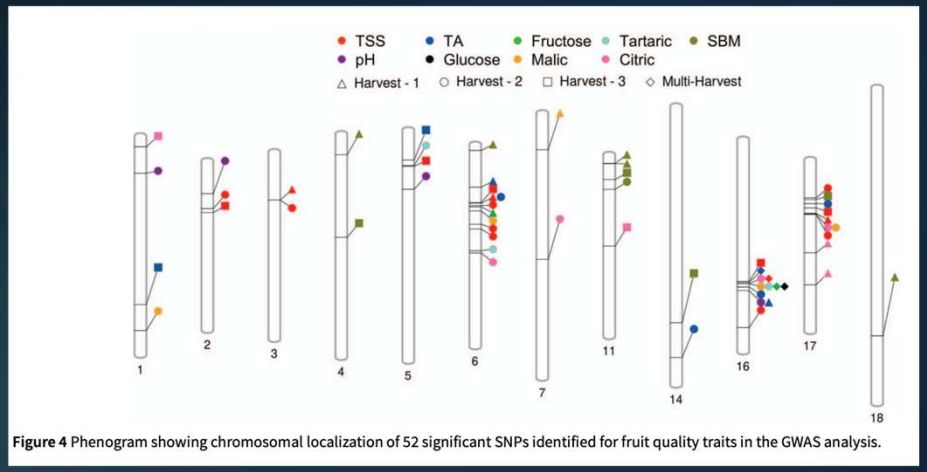


Figure 4 Phenogram showing chromosomal localization of 52 significant SNPs identified for fruit quality traits in the GWAS analysis.



From Plant-to-Product

Development of Genomic, Phenomic, and Selection Strategies for Fruit Chemistry

TEXAS A&M AGRILIFE RESEARCH

TEXAS A&M AGRILIFE RESEARCH | SNP to Sip

Plant Breeding- Fruit Chemistry





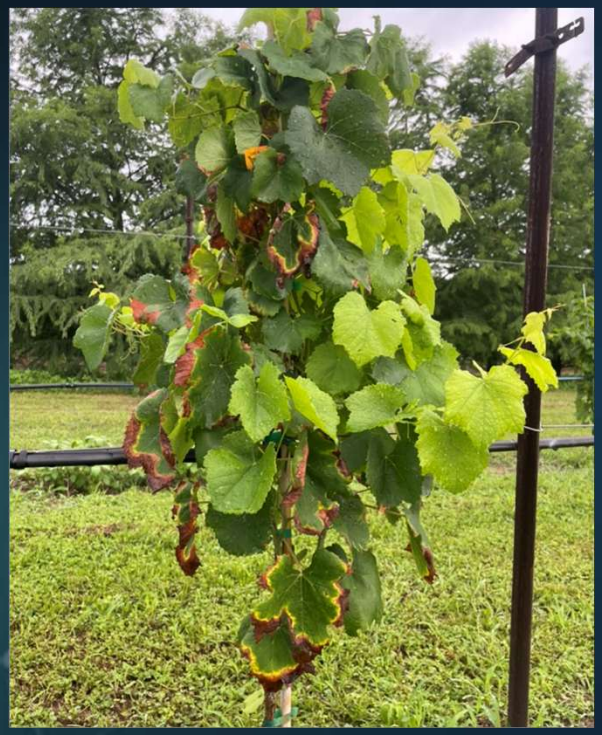
From Plant-to-Product

Development of Genomic, Phenomic, and Selection Strategies for Fruit Chemistry

TEXAS A&M AGRILIFE RESEARCH

TEXAS A&M AGRILIFE RESEARCH | SNP to Sip

Plant Breeding- Stress Resistance



Disease Resistance Breeding
(Pierce's disease-
Breeding Objective)

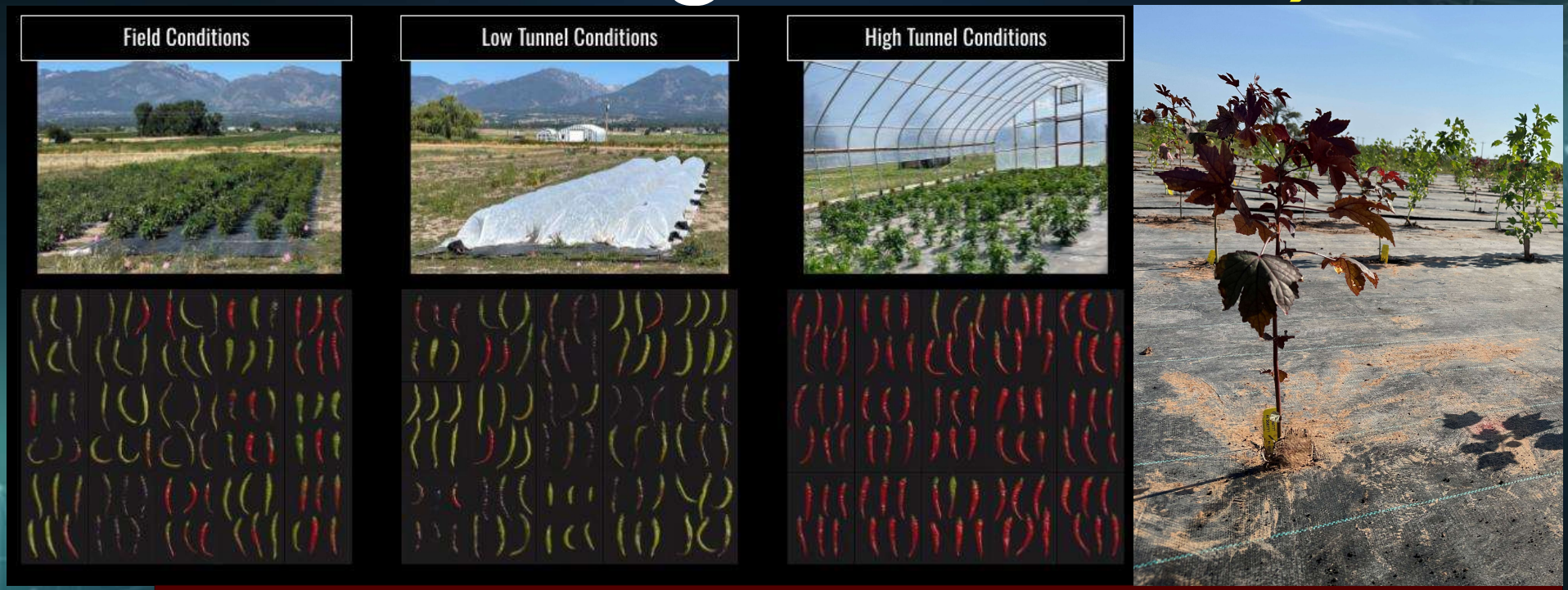


Abiotic Resistance Breeding
(Frost Avoidance Budburst Timing-
Breeding Objective)

TEXAS A&M AGRILIFE RESEARCH

Plant Breeding- Production System

MANAGEMENT INFORMED BREEDING



Management Informed Breeding

Example (Left)- Screening Pepper Populations to Identify Plants for Different Production Systems
On-going (Right)- Grapes and Hibiscus Screening with Varied Irrigation for Drought Tolerance

TEXAS A&M AGRILIFE RESEARCH

HORTICULTURE and FOOD

1. Plant Management
2. Plant Breeding
3. Product and Process Optimization

Texas A&M AgriLife Research

HORTICULTURE and FOOD

1. Plant Management
2. Plant Breeding
3. Product and Process Optimization

Texas A&M AgriLife Research

Food- Extending Shelf Life





Texas A&M AgriLife Research

Use of Natural Coatings, Lights, and Altered Storage Conditions to Extended Small Fruit Shelf-life

Food- Fermentation Processing



TEXAS A&M AGRILIFE RESEARCH

Optimizing ‘Kerr’ Apple Fermentation for Pigment Extraction in Cider and Waste-Stream Product (Ciderkin)

Food- Multi-plant Harmonization in Products



Apples
Low Acid
Light Flavor
Abundant



Hask-apple Cider



Haskaps
High Acid
Heavy Flavor
Rare

TEXAS A&M AGRILIFE RESEARCH

Food- Food for Health

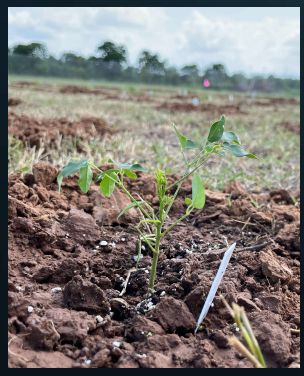












TEXAS A&M AGRILIFE RESEARCH

Identifying Plants with Bioactive Properties for Human Health

Fermentation of ‘Dolgo’ Crabapples with Different Yeasts to Improve Color Retention



TEXAS A&M AGRILIFE RESEARCH

Talk Targets

1. Introduction
2. Horticulture and Food Science
3. Needs- Speculate and Anticipate

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Opportunities to Mayhaw More

1. Opportunities in Product Quality?
2. Opportunities in New Techniques?
3. Opportunities in New Plants?

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Opportunities- Product Chemistry

Is there a Need to Profile the Current State of Chemistry and Color of Mayhaw Jams, Jellies, Wines?

-Identify Signature Chemistries and Colors

-Learn Health Properties of Products (Antioxidants, Vitamin C)



https://southernseason.com/products/southern-season-mayhaw-jelly-20-oz?srsltid=AU7gw4UWIHHseuHLpAbwEZvEafHAtpixl75Ig1WHIAo-XR1kmDRBkHWq

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Opportunities- Product Chemistry

Is there a Need to Develop Processing Recommendations for Extraction for Different Goals?

-Identify Chemical Consequences of Enzymes, Tannins, Temperature, Maceration



https://www.ebay.com/itm/233159648495

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Opportunities- Product Chemistry

Is there a Need to Identify New Products for Development?

-Expand Market
-Employ By-Products for Added Value
-Merge Mayhaw with Other Local Fruits and Vegetables



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Opportunities- Management

Is there a Need to Develop Ripening Profiles and Harvest Recommendations?

-Identify sizing and chemistry trends in different cultivars

-Identify cultivar or region impact on fruit chemistry



https://www.tytyga.com/Wildlife-Mayhaw-p/frumay-wildlife.htm

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Opportunities- Management

Is there a Need to Develop Input Recommendations?

-Identify Fertility or Weed Control Impact on New or Existing Orchards

-Understand Irrigation Effects on Fruit and Tree Development

-Identify Local Organic Fertilizer Sources?



https://www.wilsonbrosgardens.com/crataegus-opaca-western-mayhaw-tree-3g.html

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Opportunities- Management

Is there a Need to Develop Novel Techniques?

-Assess Frost Protection Strategies (Wind Machines, Helicopters, Frost Irrigation, Physical and Chemical Budburst Delays)
-Machine Harvest Processes
-Improve Propagation Methods



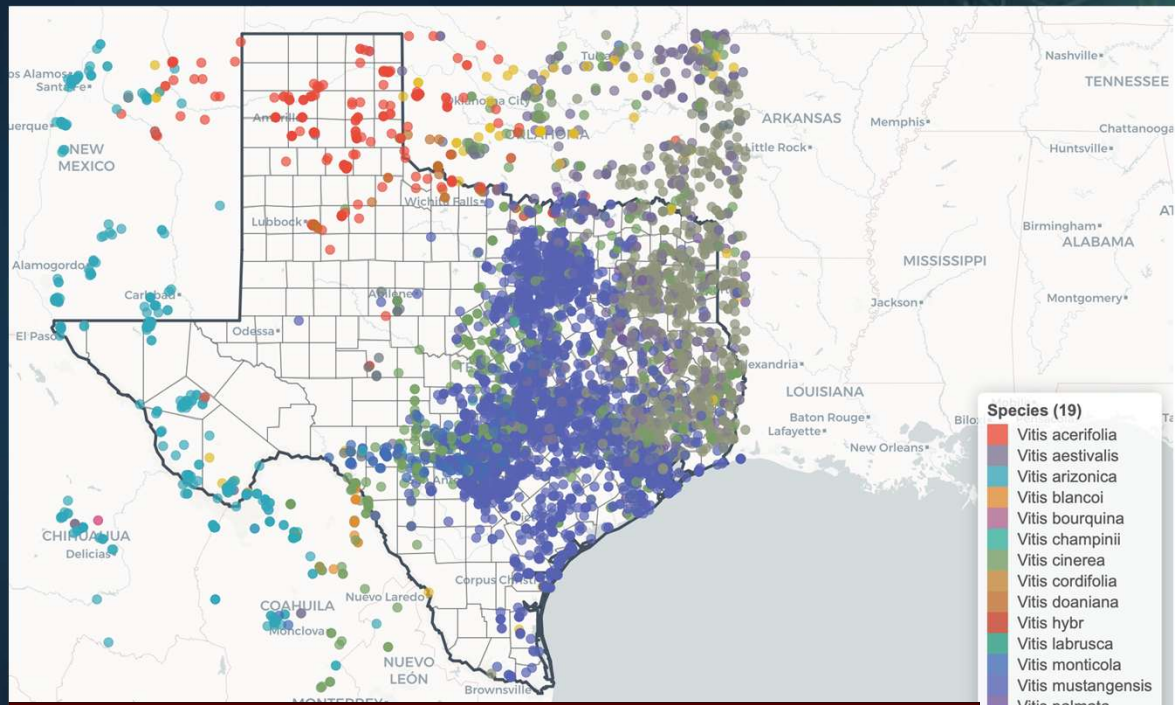
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Opportunities- New Plants

Is there a Need to Develop New Mayhaws and/or Explore other Haws?

-Rootstock Needs?

-Scion Needs?



These are Wild Grapes Across Texas, not Mayhaws. But.. Do We Need an Expedition Mission Across the Southeast to Collect, Catalogue, and Characterize Wild Haws?

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Opportunities to Mayhaw More

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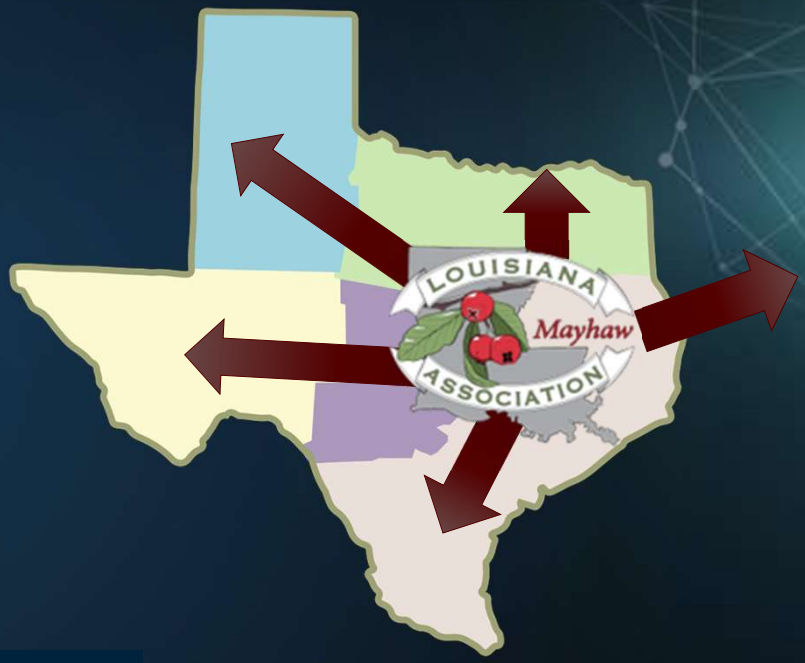
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Hemmin' and May Haw-ing: Exploring New Innovations and Opportunities for Mayhaw Horticulture and Food Science



Louisiana Mayhaw Association Annual State Conference
September 26, 2026

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