What Cultivars and Management Techniques Produce the Most Consistent and Highest Quality Pawpaw Fruit?

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Thank you!

Collaborating Farmers

- Ron Powell
- Gary Gottenbush
- Richard Glaser
- Russ Benz
- Marc Stadler
- Ted Beedy
- Lance Sinkowski

Funders

- The Ohio Department of Agriculture


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Background

- What is a pawpaw?
- Yield differences across Ohio
- What effects fruit quality in ten pawpaw cultivars from across Ohio?
- Conclusions

Pawpaw Trees

Pawpaw fruit

Patch of pawpaw trees

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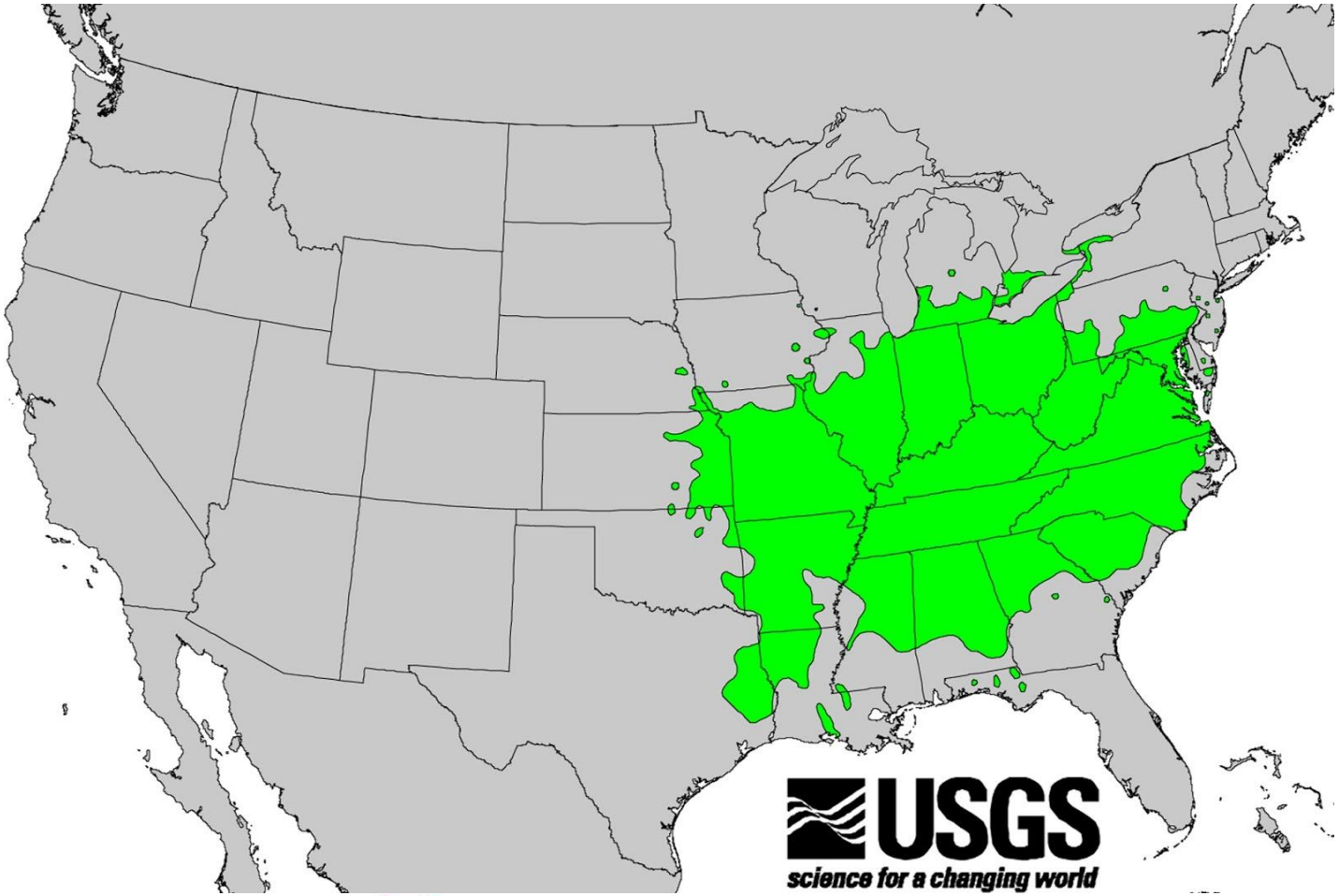
Natural range of pawpaw in North America



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Methods-Site Selection

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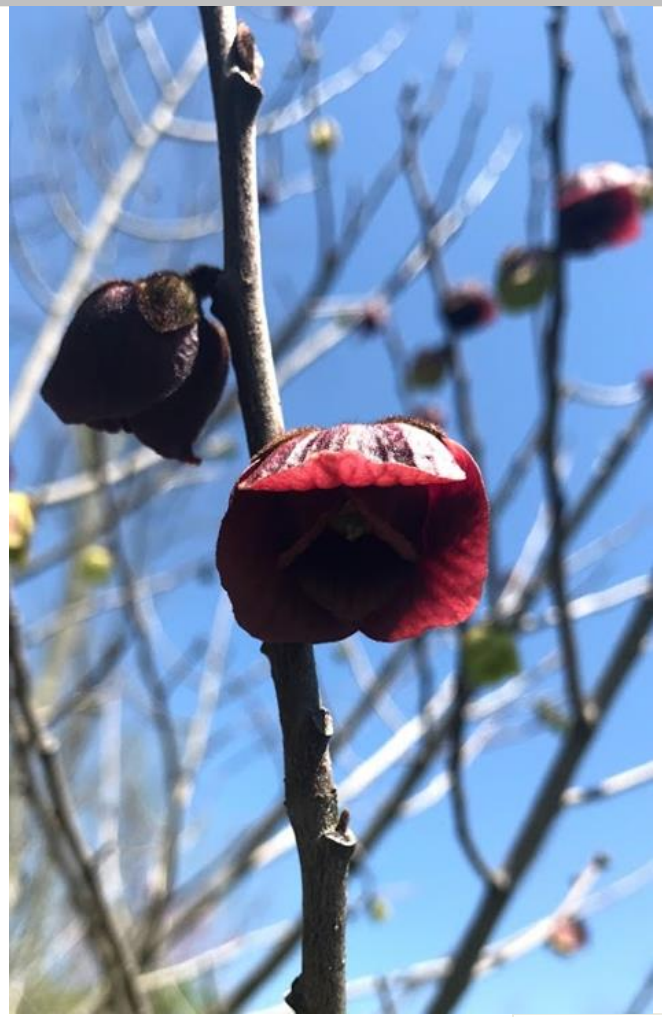
Methods-Field Monitoring



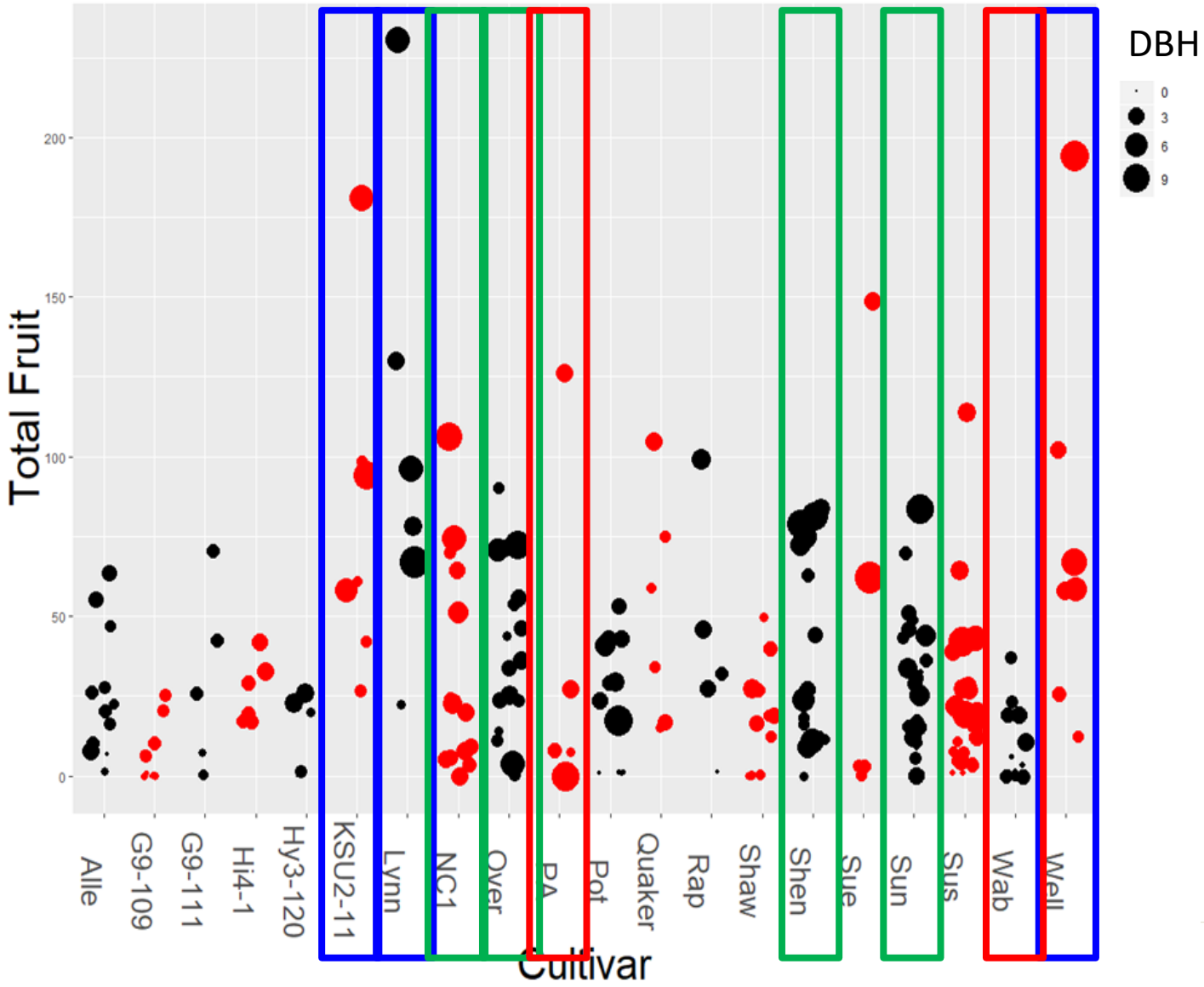
Which Cultivars Produce Most Fruit

- Objectives
  - Field Estimation of Yield
  - Cultivar vs. Genetic Group
  - Best yielding trees

Estimating Yield

1. Tallied fruit by size class for each tree
2. Equation based on size
   - Total weight
   - Pulp weight
3. Estimated yield of each tree

Total number produced by 20 cultivars



Different types of Yield models

	Cultivar	Group	DBH (cm)	Flower Count	Rank
# of Fruit	*		*	*	5
		*	*	*	4

Within a row darker colors are larger effect sizes and asterisk in block indicates significant

Conclusions

- Number of fruit affected by tree size
- Trees last about 20 years
- Lots of fruit v. bigger fruit
- Know your market

Objectives

- Objectives
  - What effects the measurable attributes of pawpaw fruit
    - Site
    - Cultivar
    - Ripeness

What is a Pawpaw?

- Best Fruit
- Biggest Fruit
- Sweetest Fruit

- Differs for each specific market
- Quality vs. Homogeneity

Methods-Ripeness

- OPGA ripeness chart developed by Terry Powell
- Score 1 least ripe
- Score 5 most ripe

Methods- Laboratory Assessments

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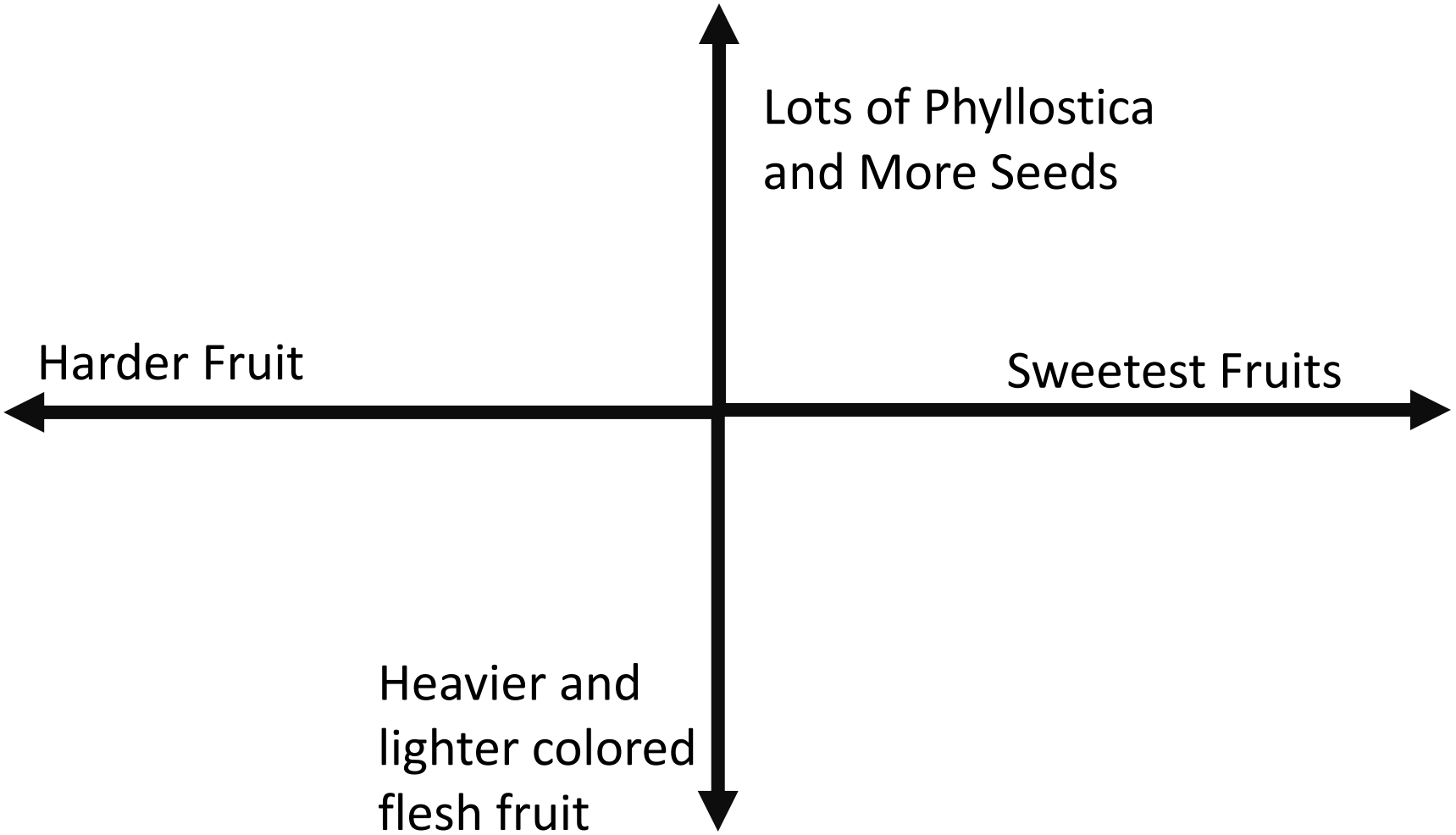
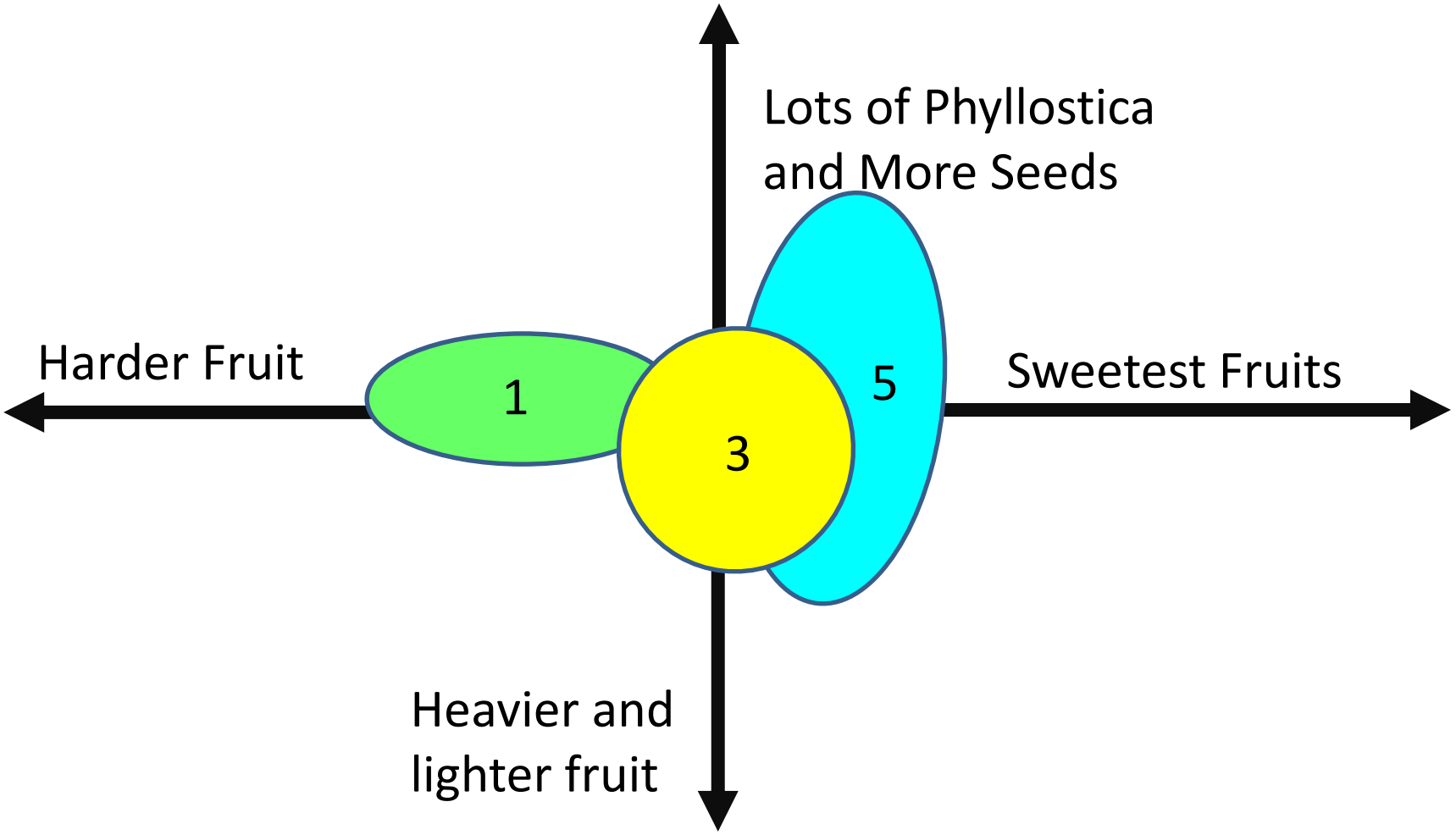
Fruit Quality Metrics Definitions

Quality Metric	Description	Method
Fruit Moisture	% of water in pulp	Oven Drying
Length to Width ratio	Measurement of size (%)	Measured
Weight of Pulp	Pulp weighed after skin and seeds removed	Measured
Seed to Pulp ratio	Weight of seed to weight of pulp (%)	Measured
Fruit *Phyllostica* Abundance	% of skin covered	Photographic
Skin Hardness	Force to break skin (N)	Force gauge
Flesh Hardness	Resistance to flesh puncture (N)	Force gauge
Brix	Sugar Content (^{O})	Refractometer
L Average Flesh	Light to dark for flesh	Colorimeter
L Average Skin	Light to dark for skin	Colorimeter
pH	Acidity level	Meter
DeltaE	Browning potential	Colorimeter

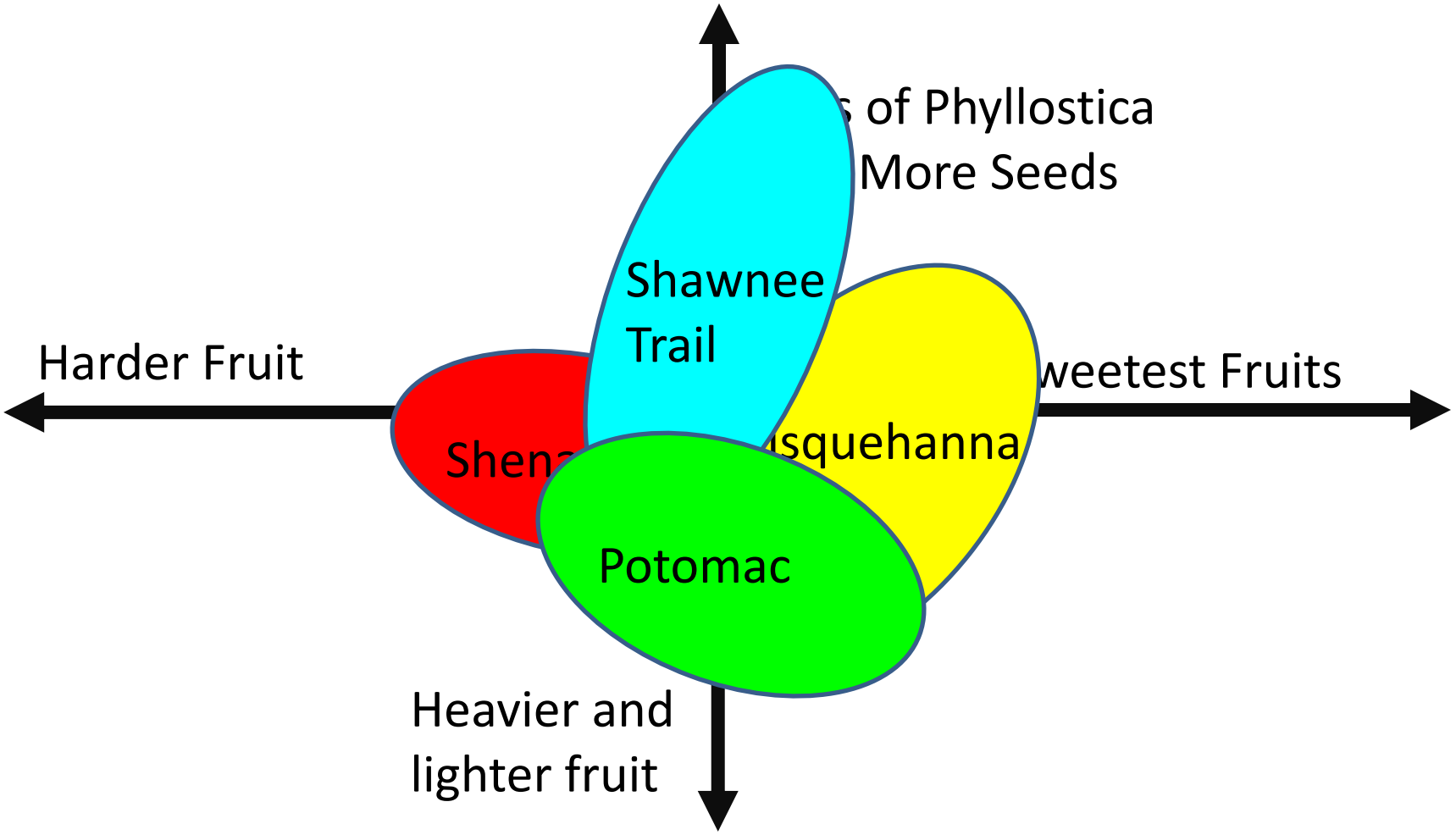
Pawpaw Quality



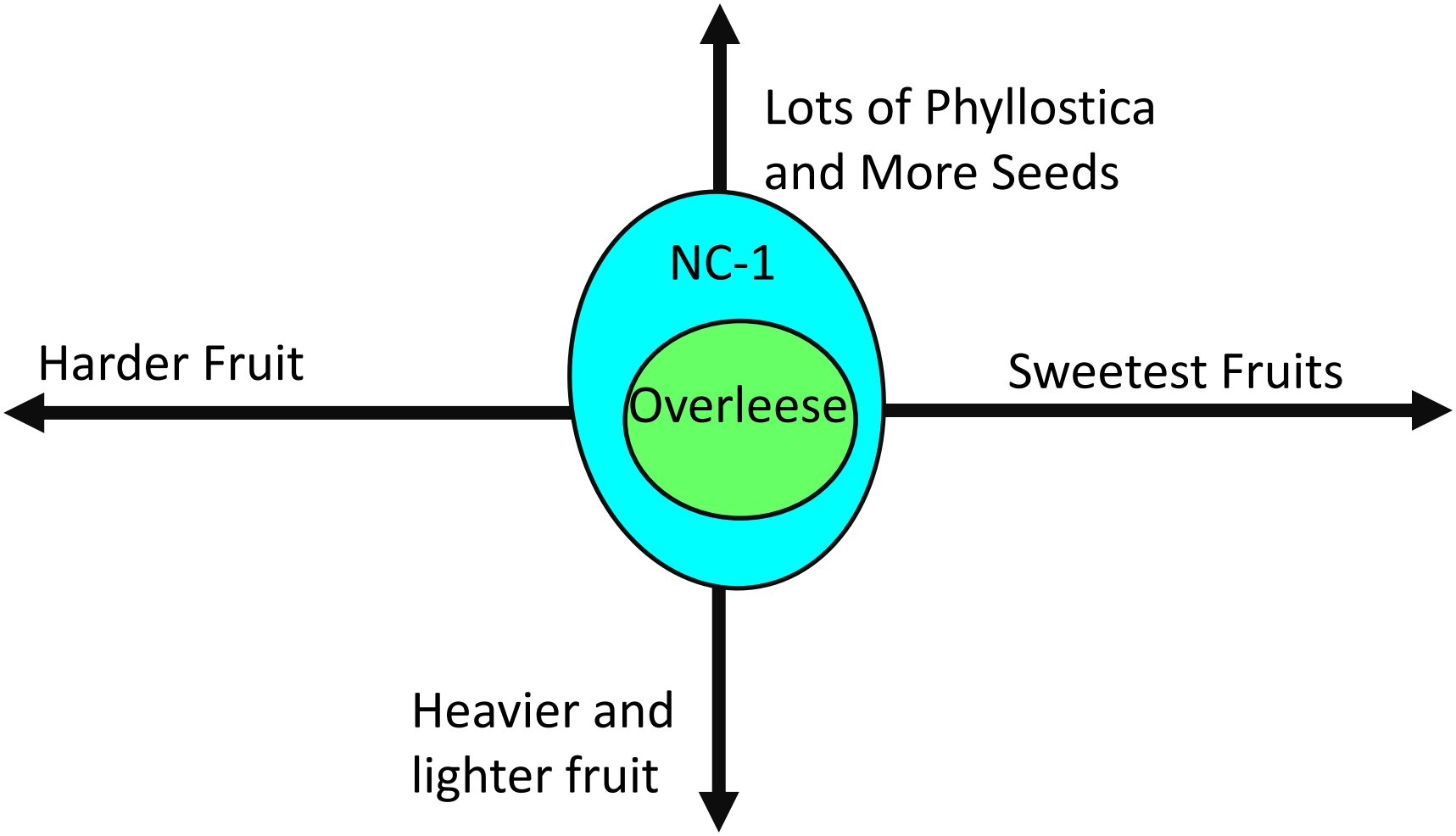
Pawpaw Quality



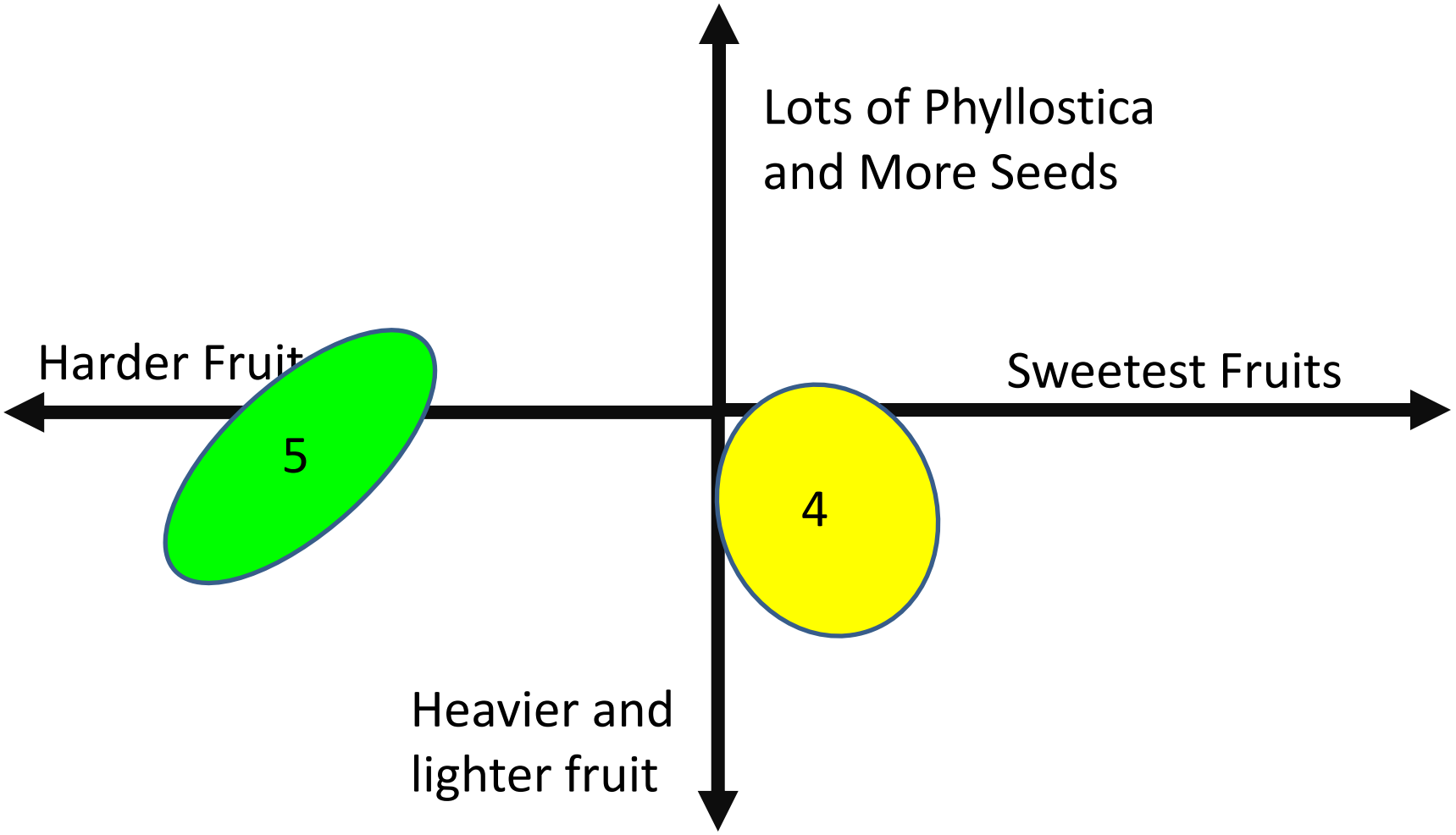
Pawpaw Quality



Pawpaw Quality



Pawpaw Quality



What is most important

Conclusions

- Ripening Chart Works!
- Site and Cultivar
- Cultivar dependent on market
- Quality v. Homogenous