RosBREED

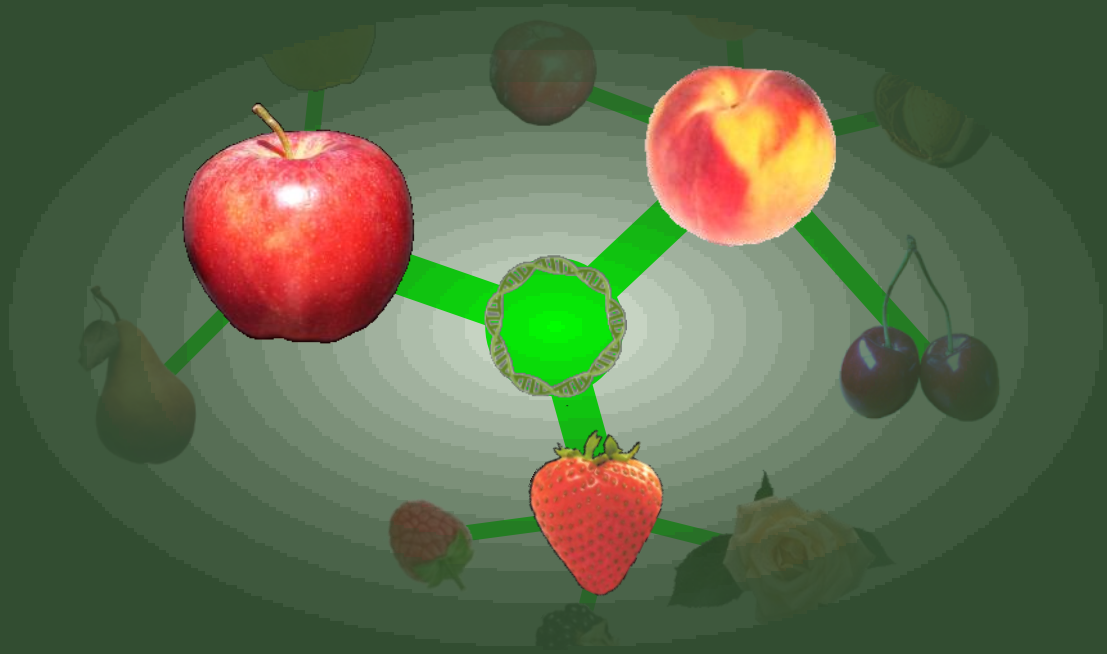
Enabling marker-assisted breeding in Rosaceae

Socio-Economic Team Goals and Activities

Chengyan Yue, Team Leader, Univ. of Minnesota
Karina Gallardo, Washington State Univ.
Raymond Jussaume, Washington State Univ.
Vicki McCracken, Washington State Univ.
Jim Luby, Univ. of Minnesota

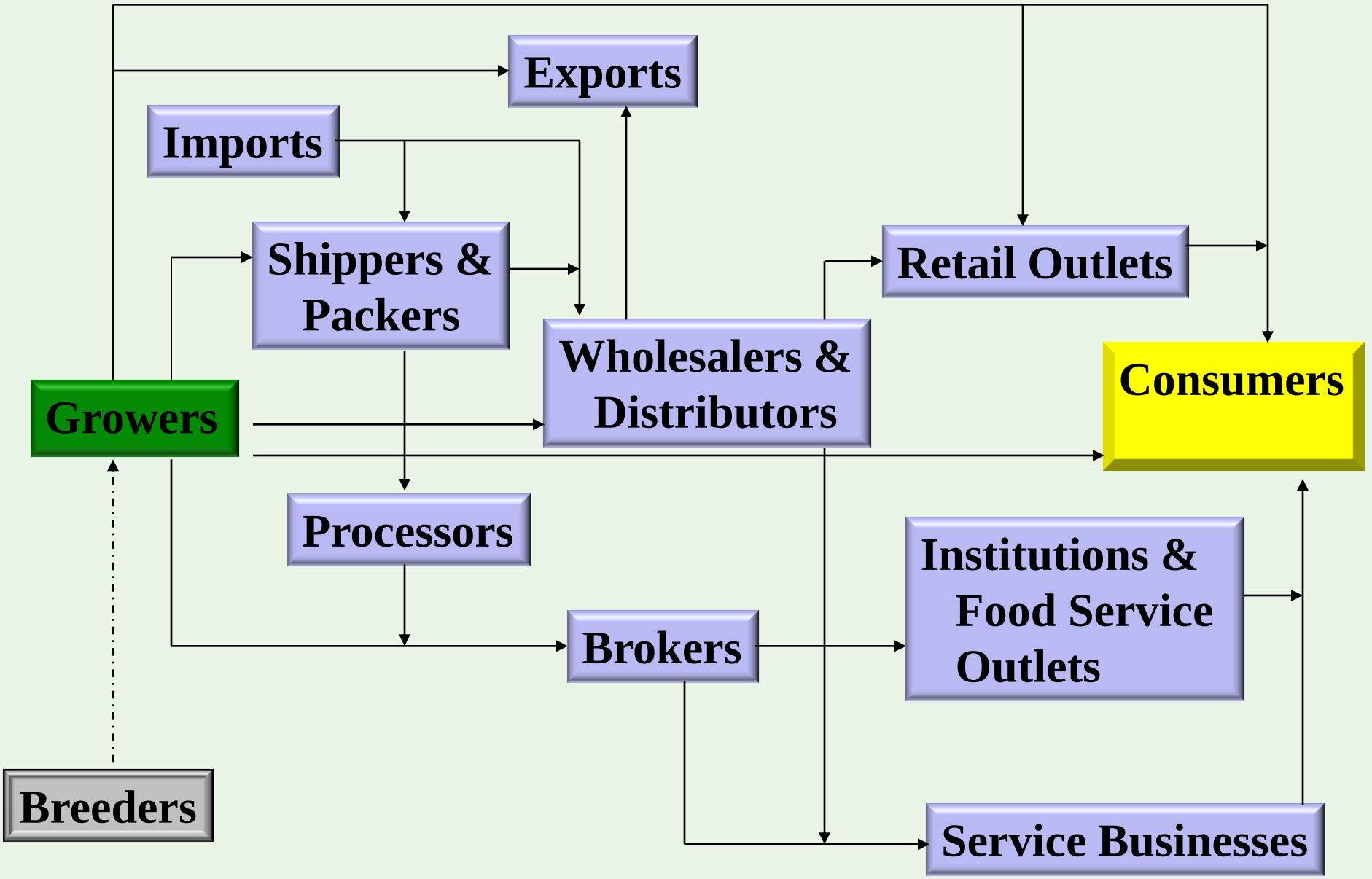
Outline of Presentation

- Production orientation versus Marketing orientation
- Socio-Economic Activities
- Socio-Economic Outcomes

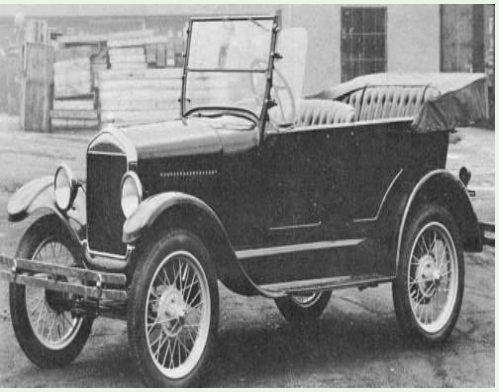


Production Orientation versus Marketing Orientation

Key Stakeholders for Fruit Cultivars



Production Orientation



- Focus on the most efficient ways to make and distribute products, …like Henry Ford's Model T & Ivory soap
- Produce a product and then try to sell it

Marketing Orientation

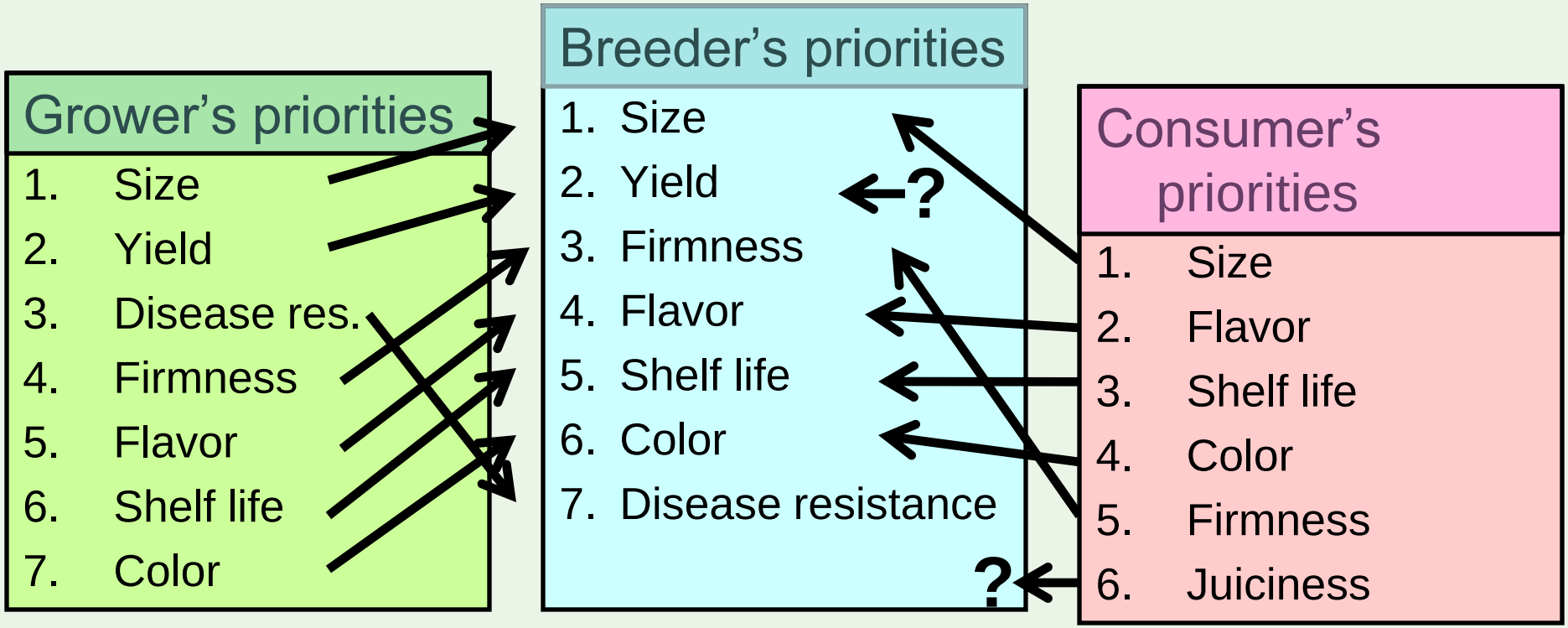
- Focus on satisfying customers' needs and wants
- Focus on building long-term bonds with customers.
- Social marketing concept: satisfy customers' needs and also benefit society
  - Sustainability: meeting present needs and ensure that future generations' needs are met

Photos courtesy of David Byrne, Kate Evans

Rosaceae Fruit Breeding

- Rosaceae fruit breeders lack empirical basis to assign relative importance to traits
- Breeding targets have been based largely upon a production-driven orientation
- Value has been considered primarily from the breeders' viewpoint - influenced by industry and market forces, but not transparently so

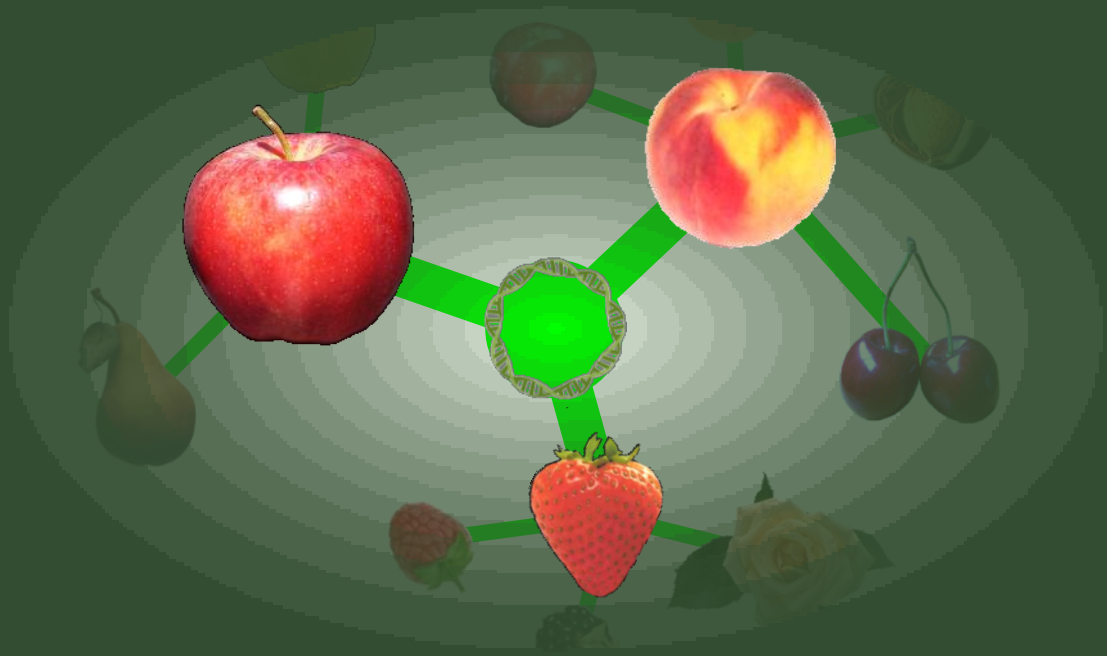
Do Breeders' Trait Priorities Match Those of Stakeholders?



$$ What is the Marginal Value of Trait to Stakeholder? $$

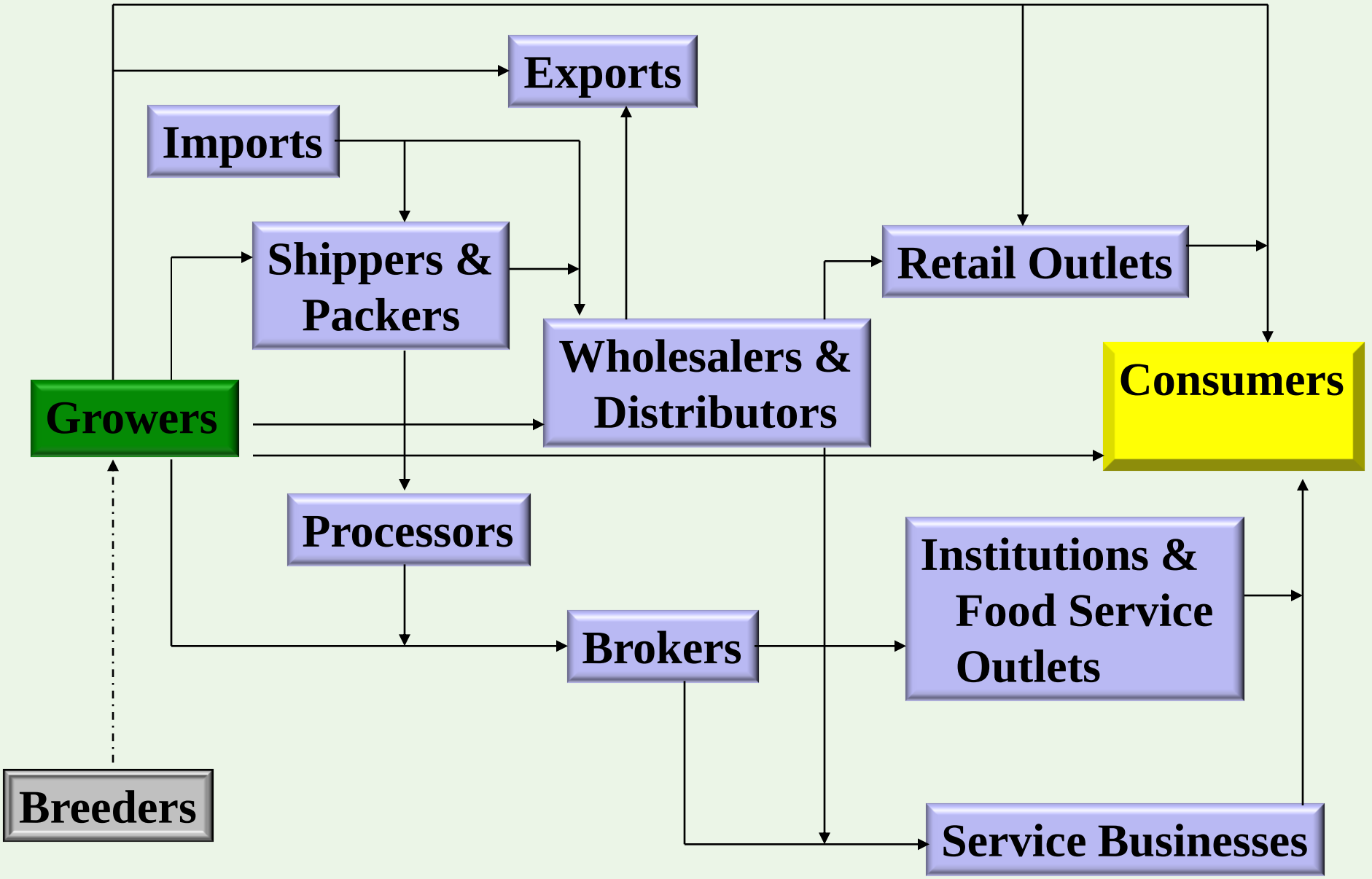
Rosaceae Fruit Breeding

- Breeder's decision-making process will benefit from a science-based understanding of stakeholder
  - Preferences
  - Purchasing motives
  - Attitudes, beliefs, concerns, constraints
  - Willingness to pay



RosBREED Socio-Economic Activities

Surveys and interviews of stakeholders



1. Determine breeders' current target trait selection priorities

- Breeder interviews (conducted 2010)
- U.S. and Canadian Breeders Surveyed
  - Determine specific traits under selection
  - Current relative weights placed on those traits
  - Traits ignored due to limited staffing, technology, or knowledge

2. Determine producers' preference and willingness to adopt new cultivars

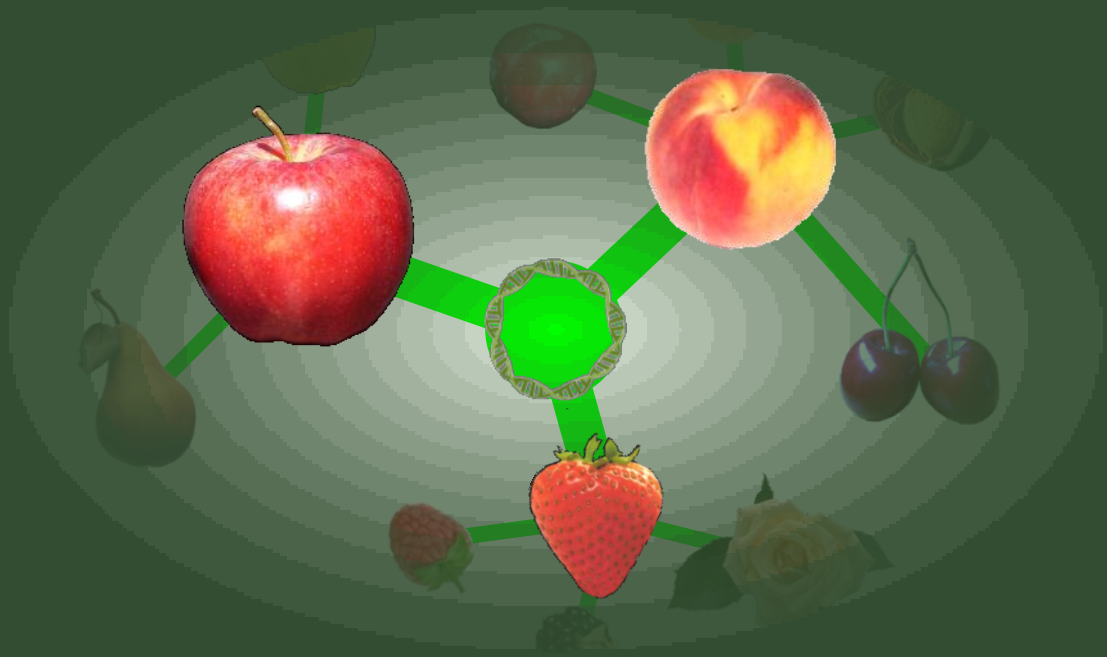
- Survey administered in 2011-12
  - Sample top-producing three states for each crop with combination of mail and internet survey, supported by in-person interviews
  - Determine priorities for fruit traits and production traits
  - Model the likelihood of new cultivar adoption based on producer attributes

3. Determine market intermediaries' preference and values for fruit traits

- Survey and interviews with market intermediaries in 2010-11
  - Suppliers, retailers and wholesalers
  - Preferences and values for different fruit quality attributes
  - Marketing constraints
  - Target markets
  - Size of operation

4. Determine consumer preference and willingness to pay for fruit traits and consumer market segments

- A national survey of consumers in 2011-12
  - Combination of mail and internet survey methods with a randomly selected national sample of consumers
  - Consumers' fruit selection and purchase decisions
  - Relative importance of different attributes
  - Their stated willingness to pay for attributes
- A grocery based auction/experiment
  - Place a value on an attribute by bidding on fruits with different attributes
  - Test of willingness-to-pay



RosBREED Socio-Economic Outcomes

Expected Outcomes

- Routine use of economic weighting in marker-assisted breeding for fruit traits and production traits in Rosaceae
- Increased awareness and support of breeding and marker-assisted breeding (MAB) among stakeholders
- Improved profitability and sustainability of US rosaceous fruit, nut, and floral crops with increased consumption and enjoyment

Acknowledgements

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Questions?

Determine producer/processors' preference and willingness to adopt new cultivars

- A model will be developed to measure the likelihood of adoption
  - Size of operation
  - Diversification of products
  - Credit availability
  - Degree of risk aversion
  - Synergies with other technologies
  - Input and output price uncertainty

Determine Producer/processors' preference and willingness to adopt new cultivars

- Conduct in-person interviews with producers/processors at industry gatherings
- Preferences for fruit traits (color, size, texture, etc.) and production traits (flowering, growth habit, annual bearing, postharvest drop, etc.).

Determine consumer preference and willingness to pay for fruit traits and market segments

- These two components will allow us to
  - Investigate how much consumers are willing to pay for fruits with different attributes
  - Assess different market segments
  - Determine the degree of heterogeneity in fruit crop preferences
  - Analyze consumer attitudes and demographics

Determine consumer preference and willingness to pay for fruit traits and market segments

- Consumers typically overestimate their willingness-to-pay in stated preference studies
- A grocery based auction/experiment
  - Show randomly selected shoppers real fruits
  - Ask them to sample
  - Place a value on an attribute by bidding on fruits with different attributes
  - Participants will pay real money for the product