

Progression of Flavor Development in Caneberries: My Experiences



North American
Raspberry & Blackberry
Association

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Why Focus On Flavor?

- Consumers have lots of options these days in fruits/products
- Consumers are spending more for flavor and quality (partly cause they have more money)
- Increasingly, consumers are not putting up with poor-flavored products



Flavor: A Berry Advantage

- Berries are really popular now
 - Convenient
 - Available
 - Healthy
 - Other advantages?
- We have the basis to make flavor along with other positive characteristics better thru improved technologies and opportunities



A Non-Berry Flavor Story: Cotton Candy Grape

- Everybody in the world eats grapes – of some sort.....
- Most people only know about *Vitis vinifera* (European or California grape)
 - Firm texture/non slipskin
 - Most now seedless (in the US)
 - Neutral flavor usually
 - Grown in a dry climate preferably– California (San Joaquin Valley)
 - Not adapted to wet, cold environments

Two Unique Grapes – First Marketed About 2012

- One looks like “grapes”
- One looks like....peppers? Some wild GMO organism? Intriguing....
- Both first put on the US market about 2012
- Which one is MAKING THE MOST MARKET IMPACT?



Cotton Candy
(above)



Witch
Fingers/Funny
Fingers (left)

Two Unique Grapes – Their Origins

- Both bred by International Fruit Genetics, private breeding company, Bakersfield, CA
- Both have one parent from Arkansas...
- Someone was thinking way outside the box.... Was about 2001 when germplasm acquisition for breeding was undertaken



Dr. David Cain,
founder of International
Fruit Genetics

Two Unique Grapes – Their Origins

- And thinking further outside the box for marketing



Mr. Jack Pandol Jr, Founder of Grapery, grape production and marketing company, Shafter/Bakersfield, CA... And an owner of IFG.....

TALKING ABOUT COMMITMENT!

Grapery Discovery

- When the selection that became Cotton Candy was cold stored at Grapery, the day after placing in storage the flavor and texture were noted to be really good
- A decision was made to try to commercialize
- Rights attained for US by Grapery



Jack Pandol,
without the
grape suit...



Asking for Comments- What Did Folks Say?

- Jack says: “Consumers don’t care about varieties (of grapes).”
- In thousands of messages of consumer feedback, Jack says “I have yet to have a comment on berry size (positive or negative) and no one has commented on the shade or color; they always comment on flavor and texture (crunchy). It is ALL ABOUT EATING EXPERIENCE”



What Has Been Learned...

- Jack's family has been in the table grape business for three generations
- Jack distinctly remembers 20 years ago telling people that consumers don't care about taste and it is all about appearance; this point pounded in by retailers
- Wow was he ever wrong!
- He had to re-program himself and business to think in a radically different way. Appearance needs to look decent, but will not alone get the premium price; consistently needs to taste good
- This meant he had to develop a whole new system of harvesting and management to pull off this quality level of a NEW product



Jack's Four Pillars of Success

- First is the genotype, some varieties will never have great flavor; some just a bag of water; have to have potential
- Second is how to grow the variety; culture, nutrition, crop load
- Third is harvest for flavor, harvest what is ripe
- Fourth is go to market for flavor, have to tell the story; otherwise the consumer will not know; so how will they know? Have to tell the story!



Comments on Breeding Experiences – A Range of Crops



Comments on Breeding Experiences

- Blackberries, the worst and the best possible!
- The mouth gets tired...
- From many to a few in breeding, major decisions
- Year-to-year influences
- Need to know the material, parents, used in crossing for the future
- What do folks want?



Back to Berry Flavor; What Is It?

- Sweet and Tart
 - Sweetness – most prefer
 - Tart/sour – the most common complaint
 - Consumer preferences
- Aromatics
 - What some call “flavor”
 - Big interaction of sweet/tart on impacts
- Bitterness
 - Blackberry – can be very strong
 - Raspberry – not a concern usually

Impacts on Flavor

- Genetics/Variety
 - If genes for flavor are not present, no amount of management will make a variety good
 - Do your homework in variety choices
 - Complex inheritance, lots of genes can be involved
 - Potential of genetics
 - Variation for a trait – ex east vs west blackberries
 - Location effects
 - Breeder focus – preferences, taste panels, etc

Impacts on Flavor

- Environment
 - Temperatures – day and night
 - Rainfall – dry climates more stable
 - Sunshine – very beneficial
 - Altering the environment...
 - Tunnels
 - Substrate production



Impacts on Flavor

- Plant Management and Care

- Healthy plants make good-tasting berries
- Best management methods
 - Irrigation
 - Fertility
 - pruning
 - Pest control
- Crop load



Impacts on Flavor

- Maturity
 - The ripest are the best!
 - The key local-market advantage
 - The fine line of maturity and storage



Impacts on Flavor

- Postharvest
 - Storage temperature
 - Storage time
 - Maintaining cold chain
 - Storage container off flavors...



Is Flavor All The Only Secret to Success?

- NO!
 - Texture
 - Color
 - Freedom from defects
 - Other factors



**AND SOMEWHERE AND
SOMEHOW, SOMEBODY HAS GOT
TO MAKE SOME MONEY!!**

Our Opportunities Abound

- The best genetic combinations, ever; getting better
- Management and production tools and techniques, the best; getting better
- Postharvest handling capabilities the best ever
- Markets – the broadest and widest ever, and berries are a product folks are liking more every day!

To Success, and to Chad!!!!

