Market Outlook for Blackberry Production in the Southeast

Blackberry Conference
2009 SE Regional Fruit & Vegetable Conference

Charles D. Safley
North Carolina State University
### Projected Increases in Blackberry Acreage by 2015 for Selected Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage Increase</th>
<th>2005 Area Planted (Acres)</th>
<th>Projected Increase (Acres)</th>
<th>Projected Area in 2015 (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>20 %</td>
<td>11,905</td>
<td>2,381</td>
<td>14,286</td>
</tr>
<tr>
<td>Mexico</td>
<td>117 %</td>
<td>5,683</td>
<td>6,649</td>
<td>12,332</td>
</tr>
<tr>
<td>Chile</td>
<td>76 %</td>
<td>1,111</td>
<td>844</td>
<td>1,955</td>
</tr>
<tr>
<td>Guatemala</td>
<td>33 %</td>
<td>222</td>
<td>73</td>
<td>295</td>
</tr>
</tbody>
</table>

Source: Bernadine Strik, Dept. of Horticulture, OSU
Total US Monthly Blackberry Imports from Mexico & Guatemala: 2005 - 2008 Marketing Season (10,000 pound units)

Source: Agricultural Marketing Service, USDA
Total US Monthly Blackberry Shipments from Central California & Oregon: 2005 - 2008 Marketing Seasons (10,000 pound units)

Source: Agricultural Marketing Service, USDA
Total US Monthly Blackberry Movement, 2005 – 2008 Marketing Seasons (Imports & Domestic Shipments) (10,000 pound units)

Source: Agricultural Marketing Service, USDA

"Imports" "Domestic"
Total US Monthly Blackberry Shipments
(Imports & Domestic Shipments)
(10,000 pound units)

Source: Agricultural Marketing Service, USDA
Blackberry Consumption

- "There's room for growth!"

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Strawberries</td>
<td>21.7%</td>
<td>1.84</td>
</tr>
<tr>
<td>Raspberries</td>
<td>3.8%</td>
<td>0.29</td>
</tr>
<tr>
<td>Blackberries</td>
<td>&lt;2.0%</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Source: USDA and The Packer Consumer Surveys
Consumer Expenditures for Selected Berries as a Percentage of Total Berry Sales

Source: Perishables Group, Inc.; published in *Produce Merchandising*, April 2008
### Customers who Purchased within Last 12 Months

<table>
<thead>
<tr>
<th>Fruit</th>
<th>Percentage Who Purchased in 2008</th>
<th>Percentage Change over 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grapes</td>
<td>76%</td>
<td>0%</td>
</tr>
<tr>
<td>Strawberries</td>
<td>71%</td>
<td>+ 2%</td>
</tr>
<tr>
<td>Cherries</td>
<td>48%</td>
<td>+ 7%</td>
</tr>
<tr>
<td>Blueberries</td>
<td>44%</td>
<td>+ 1%</td>
</tr>
<tr>
<td>Raspberries</td>
<td>25%</td>
<td>- 1%</td>
</tr>
<tr>
<td>Blackberries</td>
<td>21%</td>
<td>+ 3%</td>
</tr>
<tr>
<td>Cranberries</td>
<td>14%</td>
<td>+ 1%</td>
</tr>
<tr>
<td>Pomegranates</td>
<td>11%</td>
<td>+ 5%</td>
</tr>
</tbody>
</table>

*Source: Fresh Trends – 2008, The Packer*
### Likelihood of Purchasing based on Household Income

<table>
<thead>
<tr>
<th>Fruit</th>
<th>&gt; $100,000</th>
<th>$50 – 99,999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strawberries</td>
<td>88%</td>
<td>77%</td>
</tr>
<tr>
<td>Grapes</td>
<td>84%</td>
<td>80%</td>
</tr>
<tr>
<td>Cherries</td>
<td>68%</td>
<td>51%</td>
</tr>
<tr>
<td>Blueberries</td>
<td>66%</td>
<td>51%</td>
</tr>
<tr>
<td>Raspberries</td>
<td>33%</td>
<td>33%</td>
</tr>
<tr>
<td>Blackberries</td>
<td>31%</td>
<td>26%</td>
</tr>
<tr>
<td>Cranberries</td>
<td>22%</td>
<td>22%</td>
</tr>
<tr>
<td>Pomegranates</td>
<td>16%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Source: *Fresh Trends – 2008, The Packer*
Most Popular Organic Fruits Purchased in 2008

1. Raspberries
2. Blackberries
3. Pomegranates

What is the potential demand for blackberries?
U. S. Demand for Blackberries

“Blackberry demand has an immense amount of potential to expand in the future.”

“... consumption of blackberries (could) someday equal that of blueberries or raspberries, given consumers’ growing taste for, and recognition of, the healthful benefits.”

- Janice Honigberg, President, Sun-Belle, Inc.

Demand for blackberries is strong and growing (Demand > Supply)

- Consensus of produce buyers and managers interviewed for this report
Market Trends – Why has Demand Increased?

1. Health
2. Convenience:
   ✓ Year-round availability
   ✓ More supermarkets carrying berries
3. Globalization
4. “Faster” and More Reliable Refrigerated Transportation – maintaining the cold chain better from supply point to retail

Source: Various Articles and Interviews
Health

❖ 57% of the shoppers are making an effort to eat healthier

❖ Consumers Concerns:

✓ Weight 61 %
✓ Cholesterol 36 %
✓ Blood Sugar 22 %
✓ High Blood Pressure 18 %
✓ Diabetes 14 %

Source: Food Trends, International Dairy-Deli-Bakery Association, June 2008
Health

❖ Berry consumption has steadily increased during the past two years as consumers have become more aware of the health benefits:
  ✓ Fighting cancer
  ✓ Reducing risk of heart disease
  ✓ Reducing signs of aging

Source: Produce Merchandizing, Chris Crawford, April 2008
Telling the Blackberry’s Story to American Consumers

- Blackberries are the least known (berry) w/ consumers; they need more visibility
- The blackberry industry is at the “bottom of the list” in promoting their berry
- Future demand will depend on consumers knowing the health benefits of the berry. If consumers:
  - Are educated; demand will increase
  - Are not educated; demand will be stagnant

Source: Comments of Produce Buyers/Managers
Telling the Blackberry’s Story to American Consumers

- Blackberries have less recognition relative to strawberries, blueberries, raspberries and pomegranates
  - Few consumers talk about the blackberry’s nutritional value and/or as a source of antioxidants
- The Industry needs to do a better job in getting their (health) message out

Source: Comments of Produce Buyers/Managers
Alternative Methods of Measuring Antioxidant Capacity

1. ORAC: Oxygen Radical Absorbance Capacity
2. FRAP: Ferric Ion Reducing Antioxidant Power
3. TRAP: Total Radical-Trapping Antioxidant Parameter
4. TEAC: Trolox Equivalence Antioxidant Capacity
<table>
<thead>
<tr>
<th>Antioxidant Source</th>
<th>Total ORAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cranberries, raw</td>
<td>9,584</td>
</tr>
<tr>
<td>Currant, Black, raw</td>
<td>7,960</td>
</tr>
<tr>
<td>Blueberries, raw</td>
<td>6,552</td>
</tr>
<tr>
<td>Plums, raw</td>
<td>6,295</td>
</tr>
<tr>
<td>Blackberries, raw</td>
<td>5,347</td>
</tr>
<tr>
<td>Raspberries, raw</td>
<td>4,862</td>
</tr>
<tr>
<td>Strawberries, cultivated, raw</td>
<td>3,577</td>
</tr>
<tr>
<td>Cherries, raw</td>
<td>3,365</td>
</tr>
<tr>
<td>Grape, red, raw</td>
<td>1,260</td>
</tr>
</tbody>
</table>

Source: *Oxygen Radical Absorbance Capacity of Selected Foods, Nutrient Data Laboratory, ARS, USDA, November 2007*
List of Fruits High in Antioxidants Content
FRAP Estimation Method
(mmol Fe²⁺/Kg Fresh Weight)

<table>
<thead>
<tr>
<th>Antioxidant Source</th>
<th>Antioxidant Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackberries</td>
<td>51.53</td>
</tr>
<tr>
<td>Redcurrants</td>
<td>44.86</td>
</tr>
<tr>
<td>Raspberries</td>
<td>43.03</td>
</tr>
<tr>
<td>Strawberries, cultivated</td>
<td>22.74</td>
</tr>
<tr>
<td>Blueberries</td>
<td>18.61</td>
</tr>
<tr>
<td>Plums (red)</td>
<td>12.79</td>
</tr>
<tr>
<td>Grapes (black)</td>
<td>11.09</td>
</tr>
<tr>
<td>Cherries</td>
<td>8.10</td>
</tr>
<tr>
<td>Grapes (white)</td>
<td>3.25</td>
</tr>
</tbody>
</table>

# List of Fruits High in Antioxidants Content

## TRAP Estimation Method

*(mmol Trolox/Kg Fresh Weight)*

<table>
<thead>
<tr>
<th>Antioxidant Source</th>
<th>Antioxidant Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Blackberries</strong></td>
<td>21.01</td>
</tr>
<tr>
<td>Redcurrants</td>
<td>12.14</td>
</tr>
<tr>
<td>Raspberries</td>
<td>10.48</td>
</tr>
<tr>
<td>Blueberries</td>
<td>9.30</td>
</tr>
<tr>
<td>Strawberries, cultivated</td>
<td>8.56</td>
</tr>
<tr>
<td>Plums (red)</td>
<td>8.09</td>
</tr>
<tr>
<td>Grapes (black)</td>
<td>2.50</td>
</tr>
<tr>
<td>Cherries</td>
<td>4.17</td>
</tr>
<tr>
<td>Grapes (white)</td>
<td>1.59</td>
</tr>
</tbody>
</table>

Source: *Total Antioxidant Capacity of Plant Foods, Beverages & Oils Consumed in Italy, Nicoletta Pellegrini et. a., J. Nutr. 1333:2812-2819, 2003*
# List of Fruits High in Antioxidants Content

## TEAC Estimation Method

(mmol Trolox/ Kg Fresh Weight)

<table>
<thead>
<tr>
<th>Antioxidant Source</th>
<th>Antioxidant Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Blackberries</strong></td>
<td><strong>20.24</strong></td>
</tr>
<tr>
<td>Raspberries</td>
<td>16.79</td>
</tr>
<tr>
<td>Redcurrants</td>
<td>14.05</td>
</tr>
<tr>
<td>Strawberries cultivated</td>
<td>10.94</td>
</tr>
<tr>
<td>Blueberries</td>
<td>7.43</td>
</tr>
<tr>
<td>Plums (red)</td>
<td>5.11</td>
</tr>
<tr>
<td>Grapes (black)</td>
<td>3.85</td>
</tr>
<tr>
<td>Cherries</td>
<td>2.69</td>
</tr>
<tr>
<td>Grapes (white)</td>
<td>2.48</td>
</tr>
</tbody>
</table>

Source: *Total Antioxidant Capacity of Plant Foods, Beverages & Oils Consumed in Italy, Nicoletta Pellegrini et. a., J. Nutr. 1333:2812-2819, 2003*
Are we already oversupplied with blackberries on the East Coast?

Or, do we need more blackberry production on the East Coast?
A: The East Coast is Not Oversupplied

❖ Produce buyers/managers would like to see more production on the East Coast.

❖ Want to buy locally grown produce
  ✓ Improved quality
    ➢ Relative to berries shipped across the country
  ✓ Reduced shrink
    ➢ Blackberries are the most perishable berry
    ➢ Buying local is critical due to spoilage
  ✓ Reduces Delivery Price ➔ More Affordable Berries
    ➢ Transportation expenses
  ✓ Buying locally will be more important in the future

Source: Comments of Produce Buyers/Managers
Consumer Perceptions of Locally Grown Food

- Consumer appreciate local food for its:
  - Improved Taste
  - Freshness
  - Improved Quality

Source: Food, Fuel and the Future: Consumer Perceptions of Local Safety and Climate Change in the Context of Rising Prices, Leopold Center’s Marketing and Food Systems Initiative, August 2008
Definition of Locally Grown Food

❖ Consumer definitions of local:
  ➢ 100 miles or less: 67%
  ➢ Within the state or region: 33%


❖ Produce Buyers/Managers definitions of local:
  ➢ 100 miles or less
  ➢ Within the state
  ➢ Within a 6-hour drive

Source: Comments of Produce Buyers/Managers
What is the optimum size container?

Is there an advantage to selling blackberries in larger container sizes, such as a quart container?
Product Packaging

- Protecting the fruit is the most important function for blackberries
- Consumers are concerned about:
  - ✓ Product Visibility
  - ✓ Convenience
- Clamshells for berries
  - ✓ Improve quality
  - ✓ Increase refrigerator life for consumers
  - ✓ Help retailers reduce shrink

Source: Packing a Punch, Amy Sung, September 2008
Optimum Size Container?

❖ Chain store produce buyers/managers: No consensus on the optimum container size

❖ Generally the container should be shallow/flat & have a wide profile:
  ➢ Reduces bruising
  ➢ Provides “best” presentation of the berries
    ▪ Blackberries are an impulse item

Source: Comments of Produce Buyers/Managers
Optimum Size Container?

Two Major Considerations:

- Price/Affordability
  - Blackberries are an impulse item, not a staple
  - Consumers buy blackberries with disposable income
  - Concern that purchases will decrease given the current economic situation

- Spoilage Factor – Blackberries are Highly Perishable Berries

Produce Buyer/Manager comments:

- One opinion: “Six-oz clamshells are the best” because of the spoilage factor.

Source: Comments of Produce Buyers/Managers
Optimum Size Container?

- **Produce Buyer/Manager comments:**
  - Container size is dictated by price, i.e. “Whatever size (5.6 oz – 1 pt) is most affordable (at the time).
    - One opinion: “In today’s economy, \( \frac{1}{2} \)-pint clamshells are more affordable.”
    - Another opinion: “One-pint clamshells would be the best.”
      - If one-pint containers were priced so they were affordable (i.e. priced lower); growers would make up the (price) difference by selling greater volume.

Source: Comments of Produce Buyers/Managers
Quart Size Container?

- Larger size, i.e. quart, containers would not be feasible – Almost Unanimous Opinion (One Abstained)

- Reasons:
  - Would not be affordable for consumers
  - Would put increased pressure on the berries and increase bruising
  - Too much risk given how perishable blackberries are

Source: Comments of Produce Buyers/Managers
Larger size containers: a different view-point.

- **Vendor at Charlotte Farmers Market**
  - Blackberry Sales ≈ $3,000 on a typical Saturday
  - Primarily sells in 2-quart containers
    - $9.00 each or $2.75/lb
  - Can not sell ½- pints and only a few 1-pints
    - Sells mostly 1- and 2-quarts containers

- **Costco & Sam’s Club**
  - Sell in 18-ounce containers

Source: Ervin Lineberger
What can growers do to improve their product and or service?
Suggestions to Improve Product

- Blackberry Varieties
  - Varieties that would extend the local season
  - Larger size berries
  - Improved sweetness/flavor
    - “Sometimes we receive blackberries that are too tart to eat.”
    - Previous opinion: “A lost in taste does not seem to matter as long as the fruit looks good.”
    - Some Industry experts: There is evidence that Raspberry consumption is decreasing due to poor flavor (i.e. low sugar content) relative to blueberries.

Source: Comments of Produce Buyers/Managers
Suggestions to Improve Product & Service

❖ More or Better Standardization:
  ➢ More consistent container size
  ➢ More consistent pack

❖ Post Harvest Handling:
  ➢ PHH is critical for blackberries
  ➢ Some growers need additional training
    ▪ e.g. – cooling containers prior to packing berries to increase shelf life

Source: Comments of Produce Buyers/Managers
Suggestions to Improve Service

- Improved Information about Suppliers/Potential Suppliers

- Example: NCDA&CS Marketing Services
  - Growers can post their information onto a website
  - Buyers can identify new growers or growers who were previously unknown to them
    - Buyers can help “train” new growers on marketing requirements
  - Growers can identify other Growers
    - Can exchange information on production, PHH, etc.

Source: Comments of Produce Buyers/Managers
There is potential for increased blackberry production on the East Coast

- However, there are challenges
- To reduce/prevent threat of oversupply, the industry need to address:
  - Consumer education
    - Health/nutrition
    - Value of locally grown blackberries
  - Packaging/containers
  - Post Harvest Handling
  - Varieties Grown?

Safley’s Opinion
Thank you for your attention!

Charles D. Safley
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charles_safley@ncsu.edu
Daily Blackberry Prices at the Atlanta, GA Terminal Market
Georgia Shipments, June and July Market Season
1 Flat: 12 1-Pint Cups

Source: Agricultural Marketing Service, USDA
Daily Blackberry Prices at the Columbia, SC Terminal Market
South Carolina Shipments, June and July Market Season
1 Flat: 12 1-Pint Cups

Source: Agricultural Marketing Service, USDA