PUREFRUIT™ Monk Fruit Extract
A Revolutionary Natural Sweetener

Dave Tuchler
VP Global Marketing
November 9, 2011
Tate & Lyle: Full-Service Solutions, Customer Focus
$4B Global Company, Broad Portfolio of Sweeteners

Wellness

Texturants

Sweeteners

Innovation Centre – Early 2012
Hoffman Estates, IL

Sweetener Platform Components

Intense Sweeteners

Functional Sugars

Natural Intense Sweeteners

Bulk Sweeteners

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An exciting new sweetening ingredient

All Natural
No Calories
Great Tasting
From FRUIT
Agenda

• Monk Fruit Extract - The Consumer Value Proposition

• Origins/Sourcing/Processing – Monk Fruit

• Creating Awareness

• Questions
Monk Fruit (*Siraitia grosvenorii*):

- Known as *Luo Han Guo* in China
- Historically used in dried form

- A member of the melon (*Cucurbitaceae*) family
- Cultivated in subtropical Southeast Asia for centuries
- Used to sweeten tea, other beverages and as herbal medicine
- Active Ingredient: Mogroside V (‘Mog 5’) – an antioxidant
- FDA GRAS notification, no questions, January 2010 - sweetener and flavor enhancer*

*Additional approvals in China, Japan, S Korea, Australia, New Zealand*
Excellent Opportunities for Marketers
- Leverage fruit equity to address consumer needs

Reduced-sugar kids’ products with Mom-approved sweetening system

Enable ‘Naturally Sweetened!’ Claim on diet or reduced sugar products

Reduced sugar, naturally sweetened extension of a natural product

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Consumer Appeal of Monk Fruit Extract
Supported by Extensive Consumer Research

Monk fruit extract research areas:
- Consumer acceptance of monk fruit extract
- Interest among mothers
- How best show on product labels
- Interest by food and beverage categories

Studies:
Qualitative & quantitative
Oct 2009 – April 2011
Adults demonstrate different balancing behaviors - Reducing sugar or calories is high on the list

- Roughly 1 out of 4 consumers claims to avoid artificial sweeteners

<table>
<thead>
<tr>
<th>Food Type</th>
<th>Avoid</th>
<th>Cut Back</th>
<th>Neither</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fat</td>
<td>14</td>
<td>54</td>
<td>32</td>
</tr>
<tr>
<td>Sugar</td>
<td>12</td>
<td>52</td>
<td>36</td>
</tr>
<tr>
<td>Calories</td>
<td>6</td>
<td>55</td>
<td>39</td>
</tr>
<tr>
<td>Salt</td>
<td>14</td>
<td>46</td>
<td>40</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>16</td>
<td>44</td>
<td>40</td>
</tr>
<tr>
<td>Carbohydrates</td>
<td>6</td>
<td>44</td>
<td>50</td>
</tr>
<tr>
<td>Artificial Sweeteners</td>
<td>26</td>
<td>22</td>
<td>52</td>
</tr>
<tr>
<td>Alcohol</td>
<td>24</td>
<td>21</td>
<td>55</td>
</tr>
<tr>
<td>Artificial Flavors</td>
<td>15</td>
<td>28</td>
<td>57</td>
</tr>
<tr>
<td>Caffeine</td>
<td>12</td>
<td>30</td>
<td>58</td>
</tr>
<tr>
<td>Artificial Colors</td>
<td>15</td>
<td>26</td>
<td>59</td>
</tr>
<tr>
<td>Non-organic Food</td>
<td>7</td>
<td>23</td>
<td>70</td>
</tr>
<tr>
<td>Dairy Products</td>
<td>3</td>
<td>17</td>
<td>80</td>
</tr>
</tbody>
</table>

Base: All respondents (3092)  
Figures shown in %

Source: Illuminas US Online Study 2010

What types of food do you try to avoid, or at least cut back on, for your own personal health or safety?  
PROMPTED
Consumer Research Identified Two Major Trends
- Naturally sweetened; reduced sugar/calories

- 92% interested in natural sweetening
- Over 75% interested in reduced sugar/calories

**Claim Preference**
*For each one, can you tell me how appealing you think the claim is?*

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very appealing</th>
<th>Fairly appealing</th>
<th>Not very appealing</th>
<th>Not at all appealing</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Naturally sweetened&quot;</td>
<td>54</td>
<td>38</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>&quot;25% fewer calories&quot;</td>
<td>28</td>
<td>49</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>&quot;25% reduced sugar&quot;</td>
<td>27</td>
<td>50</td>
<td>18</td>
<td>6</td>
</tr>
</tbody>
</table>

TOTAL POSITIVE
- 92%
- 78%
- 77%

*Pursuant to PUREFRUIT™*
Sugar is powerful:
• Creates happiness at home
• Love for mom
• Can be a reward
• Can be energy source

• However:
  • Health tradeoffs -
    • Weight
    • Calories
    • Teeth
    • Bad habits
  • Meltdowns/moodiness
  • Failure as gatekeeper?

Reduced sugar foods can be part of the solution:
• Lower calories
• Lower sugar
• Lots of choices

Balance/moderation is goal:
• Basis of healthy diet
• Allows periodic treats
• Starts good eating habits
• Control of inputs
• Pride as good parent

• However:
  • Requires constant effort
  • Control is difficult
  • Choices/tradeoffs
  • Potential battlefield

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Monk Fruit Extract Can Provide An Answer

Moms Trust Fruit! - it’s:
- Sweet
- Healthy
- Natural
- Wholesome
- Easy to understand
- Simple!

Fruit Tastes Great!
- Everyone likes it
- Kids will eat it
- Great sweet taste
- New fruits can be exciting (açaí, pomegranate)

Mom Wins!
- Great taste
- Less sugar
- Happy family
- Easy solution
- Peace of mind
- Smart move by mom
- No angst!

Info Needs to be Available

Understanding the Fruit
- Familiarity/seeing it
- Origins
- Proof of naturalness
- Additional qualities/benefits

Safety Information
- Establishing trust
- Experts’ endorsements

Reinforcement
- Other trusted products with monk fruit extract

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‘Naturally Sweetened’ is an Idea that Strongly Resonates - Balanced Taste/Health Solution

“I would try it because it is healthier. I like [Brand A]. If all of a sudden [Brand A] was naturally sweetened, but not with NutraSweet, and if it was still low calories, then I would definitely want to try it.”

[age 35-55, Chicago]

“...the thing is that right now I feel like I have to choose between either sugar, which is more natural, that has more calories than ... or something that has no calories but it’s completely unnatural. And I haven’t had a lot of products with [this] so I don’t know how the taste is, but it seems like it’s kind of a happy medium, where maybe it does have the calories, but it’s more natural. So I definitely would [try it]”

[age 30-45, New York]

“[I would try it] because it is healthier. I like [Brand A]. If all of a sudden [Brand A] was naturally sweetened, but not with NutraSweet, and if it was still low calories, then I would definitely want to try it.”

[age 35-55, Chicago]

“If it was naturally sweetened, like you said, then it might be something that might be interesting to drink and it tastes good, but it’s also not really bad for me or for my child.”

[age 20-45, Chicago]

“I am not going to sacrifice taste or flavor when I am shopping for the family”

[age 35-55, New York]

“[I would try it] because it is healthier. I like [Brand A]. If all of a sudden [Brand A] was naturally sweetened, but not with NutraSweet, and if it was still low calories, then I would definitely want to try it.”

[age 35-55, Chicago]

“It would be good for you, which is why I would [try] it. If it didn’t taste good I would just say screw it and I wouldn’t do it at all.”

[age 20-45, Chicago]
Moms trust fruit as a natural, great tasting, healthy choice for their families

- Telegraphs: great taste, natural, wholesome
- High comfort level
- Peace of mind!

FOCUS GROUP OUTTAKES

“It’s from a fruit, so it’s natural”

“Fruit…what could be better than that?”

“Fruit is delicious!”

BioVittoria primary research among mothers of 1st thru 8th graders, 2010
60% Of Consumers Find Sugar Reduction With Monk Fruit Extract To Be Appealing (even with low awareness)

- Importantly, very low ‘not appealing’ scores

*How appealing is it to replace some of the sugar with a small amount of monk fruit extract in the food and drink products you buy for your own consumption?*

Figures shown in %

*Tate & Lyle Consumer Quantitative research conducted August 2010; N=903*
Monk Fruit Extract has Excellent Health and Taste Perceptions
- Remarkable for an unknown ingredient

- Moms compared back labels of a simulated fruit juice cocktail package with a ‘25% reduced sugar’ claim*
  - Labels showed either rebiana (common name for stevia) or monk fruit concentrate

- Monk fruit concentrate significantly outscored rebiana on key measures

<table>
<thead>
<tr>
<th></th>
<th>Monk Fruit Concentrate</th>
<th>Rebiana</th>
</tr>
</thead>
<tbody>
<tr>
<td>healthiest?</td>
<td>47%</td>
<td>13%</td>
</tr>
<tr>
<td>best tasting?</td>
<td>28%</td>
<td>10%</td>
</tr>
<tr>
<td>more likely to buy?</td>
<td>42%</td>
<td>13%</td>
</tr>
</tbody>
</table>

*Tate & Lyle Consumer research conducted January 2011; N=421. Respondents also compared against a back label showing sucralose – responses for sucralose, ‘either’ or ‘none’ make balance of 100%
Monk Fruit Extract Has Strong Appeal Across Most Categories

In which of the following types of food or drink do you think it would be appropriate / inappropriate…?

- Juice Drinks (family) - 74%
- Iced Tea (RTD) - 57%
- Yogurt - 62%
- Jam/Jelly - 53%
- Energy Drinks - 51%
- Sports Drinks - 50%
- Carbonated Soft Drinks - 52%
- Kids' Juice - 54%
- Granola/Cereal Bars - 41%

Appropriate
Not appropriate

Tate & Lyle Consumer Quantitative research conducted January 2011; N=1070
PUREFRUIT™ Consumer Value Proposition
Benefit: healthy food choices without sweetening concerns

Primary Target: Women with children at home
• Interested in natural
• Healthy moderators – Currently use sugar-sweetened products but try to moderate intake
• Demographics – 25-54, above-average income, higher education, married with children
• Shopping Behavior – Traditional Food, Walmart, Target, etc.

Secondary Target: Health-conscious women

Value Proposition:
• For those who want great tasting, healthy foods and beverages, monk fruit provides the natural, wholesome sweetness of fruit without calories.
Sourcing/Processing of Monk Fruit Extract
High-Potency Sweeteners Have A Long History
Heavily Researched, Constantly Evolving; Naturals are New, Growing

**Cyclamate**
- Discovered 1937
- US Approval 1958
- US Banned 1969

**Aspartame**
- Discovered 1965
- 1st US Approval 1981

**Sucralose**
- Discovered 1976
- 1st US Approval 1998

**Saccharin**
- Discovered 1879

**Acesulfame-K**
- Discovered 1967
- 1st US Approval 1988

**Monk Fruit Extract**
- FDA Clearance 1/10

**Stevia**
- FDA Clearance 12/08

Global New Product Launches Containing nHPS (Natural High Potency Sweeteners)

Source: Mintel Global New Products Database, Jan 2011

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Monk Fruit – Regulatory

- Monk Fruit Extract Is Approved in US and various parts of Asia (China, Japan, South Korea)
- Limited Approval in ANZ

China, Japan, S Korea

United States

Australia/New Zealand
Tate & Lyle Had Been Investigating Natural Sweeteners
- Upon January 2010 Government Approval, In Position to Pursue Monk Fruit

**Features**
- Clean sugar-like taste
- High sweetness potency
- Low calorie
- Process-stable (e.g. heat)
- Versatile (applications)
- Regulatory approval
- ‘Made from Fruit’ consumer appeal
- Market-leading partner (BioVittoria)

**Desired Outcomes**
- Allows formulation of great tasting foods with reduced sugar/ calorie content and a natural claim at an acceptable cost
- Tate & Lyle has unique position
Our Long-Term Partnership with BioVittoria is Designed to Develop the Global Market for Monk Fruit Sweeteners

- **BioVittoria** brings leadership in monk fruit cultivation, harvesting and processing
- **Tate & Lyle** supplies Sales, Marketing, Technical Service, Applications and processing expertise, in addition to support of a large company
- **Collaboration** for product innovation and improvement (taste and cost)
Vertically Integrated Value Chain
- Ensuring the highest control and quality standards

From seedling to supermarket
Monk Fruit Extract - Performance
PUREFRUIT™ Monk Fruit Extract Has Excellent Stability and Versatility
- 150-250x sweetness of sugar

Excellent stability
- Very stable in both neutral and acidic foods and beverages
- Stable in manufacturing processes such as pasteurization

Applicable in a wide variety of foods and beverages
- Dairy (chocolate milk, yogurt, coffee beverages)
- Juice drinks
- Flavored/enhanced waters
- Sports drinks
- Powdered soft drinks
- Carbonated beverages
- Ready to drink teas
- Snack bars
- Breakfast cereals

Stability in Flavored Water (pH 3)
35°C for 6 months

Stability to Pasteurisation
Flavored Water (pH 3)

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An Intensive Multi-Year R&D Effort Had Already Been Underway - Enabled Us to Offer Multiple Products For Different Needs

Monk Fruit Extract Optimization

Isolate Novel Monk Fruit Components

Analytic/Testing Loop

Design Improved Taste Monk Fruit

Sensory Loop

Monk Fruit extract sweetener solutions

Multi-component sweetener solutions
Sweetening System Approach – Taste Benefit Proven in Testing
- Taste Preference over Reb-A Shown

Paired Comparison Test
Sweetening Systems vs Reb A 97 at 1000ppm in Citric Acid

Panelists

Preference
Sweetening System
Reb A

41

Sensory Test Preference
- 91% of panelists prefer system in sensory test

Consumer Taste Test Preference
- 67% preference for system in consumer taste testing (peach flavored water)
Customers Have Begun to Adopt Monk Fruit Extract

**Kashi**
Unit of Kellogg’s
(multi-product line)

**Ingredients:**
Whole oat flour, oat bran, evaporated cane juice syrup, yellow corn meal, corn flour, KASHI® Seven Whole Grain Flour (Whole: Oats, Hard Red Wheat, Rye, Brown Rice, Triticale, Barley, Buckwheat), oat fiber, wheat germ, honey, cinnamon, salt, expeller pressed canola oil, natural flavor, decaffeinated green tea extract, alpha tocopherol acetate (vitamin E), decaffeinated white tea extract, baking soda, spices, ascorbic acid (vitamin C), acerola & grape seed extract, luo han guo fruit concentrate, beta carotene (a source of vitamin A), ferric pyrophosphate, folic acid, pyridoxine hydrochloride (vitamin B6), turmeric for color, zinc oxide, vitamin B12. Contains wheat ingredients.

**Bear Naked Fit**
(multi-product line)

**Ingredients:**
Whole grain oats, brown rice syrup, whole grain crisp rice (whole grain rice, barley malt), oat bran, evaporated cane juice, ground flax seeds, freeze dried raspberries, freeze dried blueberries, natural flavors, luo han guo fruit concentrate.

**Turtle Mountain LLC**
Major supplier to Whole Foods
(multi-product line)

**Ingredients:**
Organic coconut milk (water organic coconut cream), gum arabic, cocoa (processed with alkali), vegetable glycerin, chicory root extract, erythritol, vanilla extract, natural flavors, sea salt, locust bean extract, guar gum, carrageenan, monk fruit extract.
Consumer Label Appeal
‘Monk Fruit Extract’ or PUREFRUIT™
A Name and Logo Were Developed for Consumer Appeal  
- Both Designed to Feature the Fruit Component

- ‘Fruit origins’ claim instantly conveys great taste, natural, wholesome

- Logo is consumer-preferred way to communicate*  **

Back Label:  
INGREDIENT LINE OPTIONS
Monk fruit extract
Monk fruit concentrate
Luo han fruit extract
Luo han fruit concentrate
Luo han guo extract
Luo han guo concentrate

*Would need ‘with other natural sweeteners’ underneath logo if another natural high potency sweetener is present (e.g. stevia)*
**Logo preferred over generic claim or no claim - Tate & Lyle quantitative research, 2011; N=3101 adults
The ‘Naturally Sweetened With PUREFRUIT™ Monk Fruit Extract’ Logo Communicates Natural, Part Of A Healthy Lifestyle

Can you tell us whether or not you think the following apply?

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>NEITHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Looks like the sweetener is natural</td>
<td>42</td>
</tr>
<tr>
<td>Looks like something which could be part of a healthy lifestyle</td>
<td>42</td>
</tr>
<tr>
<td>Looks appealing</td>
<td>35</td>
</tr>
<tr>
<td>Looks like something I would be comfortable with in foods and drinks I buy for my children</td>
<td>33</td>
</tr>
<tr>
<td>Looks like something I would be comfortable with in foods and drinks I buy for myself</td>
<td>37</td>
</tr>
<tr>
<td>Looks like it would make foods or drink taste good</td>
<td>33</td>
</tr>
</tbody>
</table>

Base: All Respondents (3100) Figures shown in %
Tate & Lyle Consumer Quantitative research conducted April 2011; N=3100
Building Awareness
Support rollout builds awareness over time
- Still early stage; customer launches will multiply impact
www.monkfruit.org – Monk Fruit Industry Website
- Online Destination, Essential Element of Success

- Consumer & stakeholder destination
- Social network
- KOL outreach
- Consumer education platform
- Linkages to relevant brands
Jointly Building Awareness & Support

Public Relations Support
- Trade editorial coverage (April, May 2011):
  - Beverage Industry
  - Food Processing
  - Specialty Food
  - Dairy Foods
  - Sosland Baking and Snack
  - Snack Foods/Wholesale Bakery
  - FoodNavigator

- Expert Endorsements
  - Linda Gilbert, CEO of EcoFocus and leading natural food trends expert
  - Elizabeth Ward, leading registered dietitian and nutrition editor

- Health Care Professionals Outreach
  - including: ADA, iVillage, WebMD, Family Circle, RDs, other

- Social Networking Support
  - Facebook, Twitter, Youtube
www.purefruit.com - PUREFRUIT™ website tells the story to health conscious women, moms, media and customers
On April 28, T&L launched PUREFRUIT™ in the US
- Customer interest is exceeding expectations

- 2 Websites – monkfruit.org, purefruit.com
  - Provide key information

- Excellent Press Coverage

- Trade shows are generating many leads

- Print/web advertising raising customer awareness

- Social media vehicles are building consumer awareness
Thank You!