10 Principles of Food Industry Sustainability Webinar
April 30, 2015
Today’s Speakers

Cheryl Baldwin
Pure Strategies

Cheri Chastain
Sierra Nevada

Moderator:
Bryan Sheehan
Pure Strategies
Agenda

Introduction and Logistics
Bryan Sheehan

10 Principles of Food Industry Sustainability
Cheryl Baldwin

Farm to Fork Sustainability at Sierra Nevada
Cheri Chastain

Q&A

About Pure Strategies

- Organizational sustainability, vision & goals
- Enterprise-wide alignment & execution

- Insight and strategies to improve product sustainability performance

- Supply chain alignment and engagement
- Measuring and motivating performance

www.purestrategies.com
Sample of Clients
Agenda

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Q&A
10 Principles of Food Industry Sustainability

Production

Processing & Distribution

Purchasing & Consumption
10 Principles of Food Industry Sustainability

- **Climate Change**
- **Natural Resource Depletion & Degradation**
- **Pollution & Toxicity**
- **Rural Economy & Development**
- **Food Safety & Nutrition**

**Business Benefits**

- Reduce costs
- Reduce supply and reputational risks
- Growth and meeting customer and consumer demand
- Improved employee satisfaction and productivity
What part of the food supply has the most food waste in industrialized countries like the U.S.?

A. Farm production  
B. Post-harvest handling  
C. Processing  
D. Distribution, retail, and food service  
E. Consumers
Food and ingredient waste and loss are prevented across the supply chain and what cannot be avoided is put to a positive use.

The supply chain and consumers advance sustainable business and food consumption.
10 Principles of Food Industry Sustainability

Food and ingredient waste and loss are prevented across the supply chain and what cannot be avoided is put to a positive use.

The supply chain and consumers advance sustainable business and food consumption.

- Providing consumers with preferable options
- Helping consumers select preferable options
- Reducing consumer food waste
Some numbers to ponder

~7 times more energy is used in the food supply chain than the amount of energy provided from food

~50% of nitrogen fertilizer applied is used by the plant

~40% of water applied is used by the plant
10 Principles of Food Industry Sustainability

Agricultural production beneficially contributes to the environment while efficiently using natural resources and maintaining healthy climate, land, water, and biodiversity.

Use of animals, fish, and seafood in the food supply optimizes their well-being and adds to environmental health.
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- Responsible sourcing
- Producer support
- Supplier engagement
Question for the audience

What growers produce the majority of the world’s food?

A. Industrialized farms in the U.S.
B. Industrialized farms in other parts of the world
C. Family farms in the U.S.
D. Small farms in developing countries
Producer equity and rural economy and development are strengthened with **fair and responsible production and sourcing**.

Safe and highly-nutritious **food is accessible and affordable** to promote and support a healthy population.
10 Principles of Food Industry Sustainability

Producer equity and rural economy and development are strengthened with **fair and responsible production and sourcing**.

Safe and highly-nutritious **food is accessible and affordable** to promote and support a healthy population.

- Focused on priority needs
- Building capacity (training, tools)
- Providing market access
10 Principles of Food Industry Sustainability

1. Safe and highly-nutritious food is accessible and affordable to promote and support a healthy population.

2. Agricultural production beneficially contributes to the environment while efficiently using natural resources and maintaining healthy climate, land, water, and biodiversity.

3. Use of animals, fish, and seafood in the food supply optimizes their well-being and adds to environmental health.

4. Producer equity and rural economy and development are strengthened with fair and responsible production and sourcing.

5. Safe and suitable working conditions are provided to support employees across the supply chain.

6. Food and ingredient processing generates resources and requires minimal additional inputs and outputs.

7. Packaging effectively protects food and supports the environment without damage and waste.

8. Food and ingredient waste and loss are prevented across the supply chain and what cannot be avoided is put to a positive use.

9. Food and ingredients are efficiently delivered across the supply chain and to the consumer.

10. The supply chain and consumers advance sustainable business and food consumption.
# 10 Principles of Food Industry Sustainability

<table>
<thead>
<tr>
<th>Principle</th>
<th>Farmers &amp; Agribusiness</th>
<th>Manufacturing</th>
<th>Distribution &amp; Marketing Channels</th>
<th>Consumers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take direct action (apply best practices)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Collaborate across supply chain</td>
<td>X</td>
<td>X</td>
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<td>Support farmer action</td>
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<td>X</td>
<td>X</td>
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<td>Change purchasing</td>
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<td>Educate and connect consumer to the value of sustainable supply chain</td>
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<td>X</td>
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</tbody>
</table>
10 Principles of Food Industry Sustainability
The 10 Principles of Food Industry Sustainability

Thank You

Cheryl Baldwin, Ph.D.
cbaldwin@purestrategies.com
**Agenda**

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Bryan Sheehan

**10 Principles of Food Industry Sustainability**  
Cheryl Baldwin

**Farm to Fork Sustainability at Sierra Nevada**  
Cheri Chastain

**Q&A**
BREWING A SUCCESSFUL SUSTAINABILITY PROGRAM
Sierra Nevada Zero Waste Goal

The drivers behind Sierra Nevada’s zero waste goal are:

- **To improve environmental health** by reducing landfill contribution, reducing greenhouse gas emissions, sustaining natural resources, and preventing the release of harmful chemicals into water and air systems.

- **To save money** by reducing the cost of utilities and resources (energy, water, solid waste management, packaging materials, raw ingredients, etc.) and to provide a revenue stream by selling recyclable materials (spent grain, cardboard, shrink wrap, glass, etc.).

**Potential Wastes**

- Energy
- Compressed Air
- Employee time/productivity
- Miscellaneous solid waste
- Water
- Packaging Materials
- Food
- Parts/Service
- Money

- And most importantly... BEER
Approach to Sustainability

Focus on Zero Waste
Close All Loops
Auditing/benchmarking/Tracking
Process/behavior change
Estate Agriculture
Estate Agriculture

[Images of a greenhouse and a restaurant]
Sustainable Menu

Local Farms
Whole Animals
Bulk Cheese
All natural, seasonal menu
In-house preparations
Energy Generation
Energy Generation

Chico, CA

Mills River, NC
Energy Efficiency

- Heat recovery
  - Fuel cells
  - Boilers
  - Brew kettles
  - Into fermentation

- Lighting, equipment and electronics upgrades

- Water savings = electricity savings = cost savings

- Education and EMS
Water Conservation

- Automated CIP Systems
- Flow Meters
- Dry lube switch in packaging (from a water based lube)
- Reuse
- Drip irrigation and smart controls
- Cisterns
- Behavior
Wastewater Treatment - Chico

Spent brewing process water is pretreated onsite.

The first treatment phase is an anaerobic digester.

The biogas is recovered, cleaned up, compressed and used to offset the natural gas needed for our boilers.

Boilers provide the heat source in order to boil wort.
CO₂ Recovery and Reuse
Reducing our Transportation Impact
2014 Resource Recovery

49,943 tons diverted from landfill

110 tons to landfill = 99.8% diversion

Avoided ~$6.2 million in disposal fees

~$980,000 in revenue
Recycling
Spent Grains, Hops, & Yeast
Recycling
Potato/Onion sacks
Tin/Aluminum Cans
Cardboard
Wax Cardboard
Paper
Plastic Jugs
Glass
Plastic Wrap
Corks
Closed Loop System
Earning Recognition

Sierra Nevada Brewing Co. receives first Zero Waste Platinum Certification from USZWBC

by Jason Morgan  December 2, 2013

Overview of Categories & Points

Redesign  o  Leadership  o
Reduce  o  Training  o
Reuse  o  ZW Analysis  o
Compost (Re-earth)  o  Upstream Management  o
Recycle  o  Hazardous Waste Prevention  o
ZW Reporting  o  Closed Loop System  o
Diversion (Min 90%)  o  Innovation  o
ZW Purchasing  o  Total Points  o
Cheers!

Cheri Chastain
Cheri@SierraNevada.com
Thank You!

Resources:

Cheryl Baldwin, Ph.D.
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www.purestrategies.com

Information about Pure Strategies’ work in food:

Where you can buy the book (hard copy or electronic version):

Cheri Chastain
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www.sierranevada.com