Today's conversation

Mars:
Who are we?
What do we do?

Existing threats

Future threats

Mitigation Strategies

Conclusions
Mars: a principle-based business
The Products we make ...... The Brands we have
Where do we operate?
Our global agricultural footprint is significant – 6.6 million tonnes of raw materials consumed in 2012

Key Raw Materials By Percentage of Volume Purchased
Food Safety Challenges we face today

We take for granted that our food supply is safe, although

In the USA
- 1/6 of the population had food-related illnesses in 2011

Causing
- almost 50 MILLION illnesses

128,000 hospitalizations

3,000 deaths

Costing about 80 BILLION dollars

• In emerging regions, diarrhea related to food borne infections is a leading killer of adults and children at almost 2 million annually ...more than TB, HIV/AIDS and malaria

• Globally at least 1/3 of food produced gets lost or wasted—1.3 billion tons of food
  - 40% of losses in developing countries at post harvest and processing levels
  - Sub-Saharan Africa losses est. at $4 billion which could feed 48 million

Sources: 2012 The State of Food Insecurity in the World; FAO, IFAD and WFP; collateral information from WHO; CDC Morbidity and Mortality Weekly Report June 10, 2011; FAO Global Food Losses and Food Waste 2011
Throughout the business supply chain, risks abound that can ultimately impact food safety and security.

**Food Security**
- Access • Availability • Utilization

**Food Security**
- Agricultural Production
  - Inputs
  - Harvesting
  - Post harvest handling
  - Storage
  - Transportation
- Food Manufacturing
  - Processing
  - Packaging
  - Storage
  - Distribution
- Consumer Contact
  - Point of sale
  - Storage
  - Handling
  - Consumption

**Food Safety**
- Raw Materials • Pathogens • Cross-Contamination

**Mitigating for these risks allows us to:**
- Make more food available
- Reduce demand for increased production
- Manage environmental footprint
- Lower food production costs
- Expanded trade opportunities
- Reduced hunger and poverty
The world must solve three food problems simultaneously: end hunger, double food production by 2050, and do both while drastically reducing agriculture’s damage to the environment.

*Scientific American 12/10/11*
How can Industry help?
Managing the bio safety risk within a context of running a sustainable business

Chemical Hazards

Biological Hazards

Commercial Adulteration

Physical Hazards

Bioterrorism

New Technologies

GM

Nano-technology

Requirements to operate a sustainable business

Meeting the consumer expectations and needs
Meeting consumers expectations and needs

Very Satisfied

Execution:
(Did it poorly or not at all)

Very Dissatisfied

Execution:
(Did it very well)

Time

Performance

Excitement

Basic

12
...as a minimum ensure food is SAFE and LEGAL
Drive rigorous processes from farm to fork

Obtain safe raw materials

Process as if contaminated

Prevent recontamination
Examples of Food Safety Initiatives that can be applied to Biosecurity

- Horizon Scanning
- Raw Material Pipeline
- Driving a Food Safety Culture
- Post market surveillance
Horizon Scanning

- Designed to identify and highlight potential food safety risk trends and threats across the supply chain
  - Intelligence Driven: scanning several data sources (news, science, social media) to identify emerging risks
  - Information used to drive actions to investigate, validate and quantify potential food safety impact, informing and influencing:
    - **Supplier Quality Assurance to work with the supply chain**
    - **Operational Quality to heighten surveillance at the factory front gates**
    - **Regulatory Affairs to alert and engage appropriate officials when necessary**
Where a Total Quality Management System supports Bio-safety

- **Material Risk Assessments**
  - Identify the potential risks associated with raw materials and the production pipeline
    - *Inherent risks coming from the actual materials*
    - *Risks coming from external sources (i.e. tampering and adulteration)*

- **The Supplier Quality Assurance Program**
  - Uses information coming from the Materials Risk Assessments to direct actions to mitigate and manage risks
  - Strong foundation built upon establishing relationships with suppliers as an added measure to manage potential biosecurity risks
    - *Gather local and regional intelligence about potential threats*
Example of Raw Material Verification Process to Ensure Raw Material Quality & Safety

Raw Material: MILK POWDER

- Considered a “High Risk Raw Material”

- Process starts with Material Risk Assessment
  - Identifies and quantifies key risks and likelihood of occurrence
  - Drives material specification
  - Drives supplier audit frequency and focus
  - Drives front gate quality verification audits

- Typical Audit Frequency at Supplier location:
  - 2 to 6 times per year depending on performance / risk

- Typical Testing level
  - Microbiological / Analytical Quality & Safety
  - Performed on every production batch by supplier
  - Audited factory front gate (typically every production batch)
  - Greater than 1,300 analyses performed annually per Milk Powder Supplier
Driving a Food Safety Culture

• Understanding the correlation between a robust Quality Culture and Quality and Food Safety incidents.
  - Metrics available to determine a corporate Quality Culture and how to quantify and apply the data
    • Manufacturing Quality Metrics
      • Right First Time
      • Active Management of Consumer Complaints
    • Audits to determine the Quality Culture of employees, suppliers, distribution channels and production facilities
      • Potential risk of product tampering / abuse
      • Ensuring one standard of operation across the value chain, including at the point of sourcing
Every day, businesses generate a significant amount of data.
Raising the bar for all
Applying the data: Raising the Bar through Surveillance

Exposure Surveillance

- Agent
- Signs & Symptoms
- Diagnostic Tests
- Specific Diagnosis or Agent
- Outcome
- Recovery
- Death

SYNDROMIC SURVEILLANCE

Near real time tracking of selected clinical syndromes in pets to identify outbreaks of disease related to food safety
One opportunity: Banfield has > 800 U.S. Hospitals generating significant data
An example of how the data can help: Canine Tick Activity & Human Lyme Disease

- **Tick infestation per 1,000 dog visits**
- **Human Lyme disease incidence per 100,000 persons**
Early detection generates significant benefits for all

**People**
- Sentinel for supply chain food safety risks
- Increased awareness of health professionals to zoonotic risks

**Pets**
- Enhancing life through early detection, intervention and mitigation of disease outbreaks caused by food safety breakdowns

**Planet**
- Potential to detect “unknown” food safety hazards
- Challenging the industry through independent assessment of food safety in the market
Overcoming barriers to address bio-safety

Legal and regulatory

Communication platforms to share knowledge

Forums (industry, NGOs)
Role of Bio-safety in Food Security

If Food Safety is the...

Assurance that food will not cause harm to the consumer when prepared and eaten according to the intended use.

Bio-safety can’t be managed alone – it must be thought of in the context of overall business operations.

Application of Bio-safety creates foresight to a Food Safety system, ultimately ensuring trust and enabling Food Security.

If we see both as part of the same overall system, we are able to leverage standards and scale in principles to maximize the foresight across industry and markets.
Addressing food safety needs

**EMERGING markets**

The challenge and approach is clear.

**DEVELOPED markets**

The challenge is clear but NOT the approach.

Shifting toward greater vertical integration brings new challenges.

Approaches need to be aligned because this is a global challenge.
A problem for one company in one region can be a problem for the industry globally... and society
The Food Safety Domino Effect

Starts by addressing Food Safety with 1 supplier
- *Establishing a relationship with a customer through clear specification and audit*

Impacts a supply chain

Impacts an industry

Impacts society
In Conclusion

Everyday, Globally, Food businesses...

- Consume millions of raw materials
- Generate millions of hours of experience
- Operate a global network of suppliers and customers

No single entity can resolve the challenge of safe food but each stakeholder has a role to play in the solution.

Safe Food is one of the critical pillars of food security and one that we can all significantly contribute to.

Measures to manage Food Safety risks are also effective in managing Bio-safety risks.

The is an opportunity for industry and regulators to share Best Practice to optimize the effectiveness of Food Safety / Bio-safety efforts.

An integrated, multi-dimensional approach across the entire product pipeline is required to ensure comprehensive coverage.
THANK YOU