

# **Food Safety and Security – A View from Mars**

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# What is Mars?

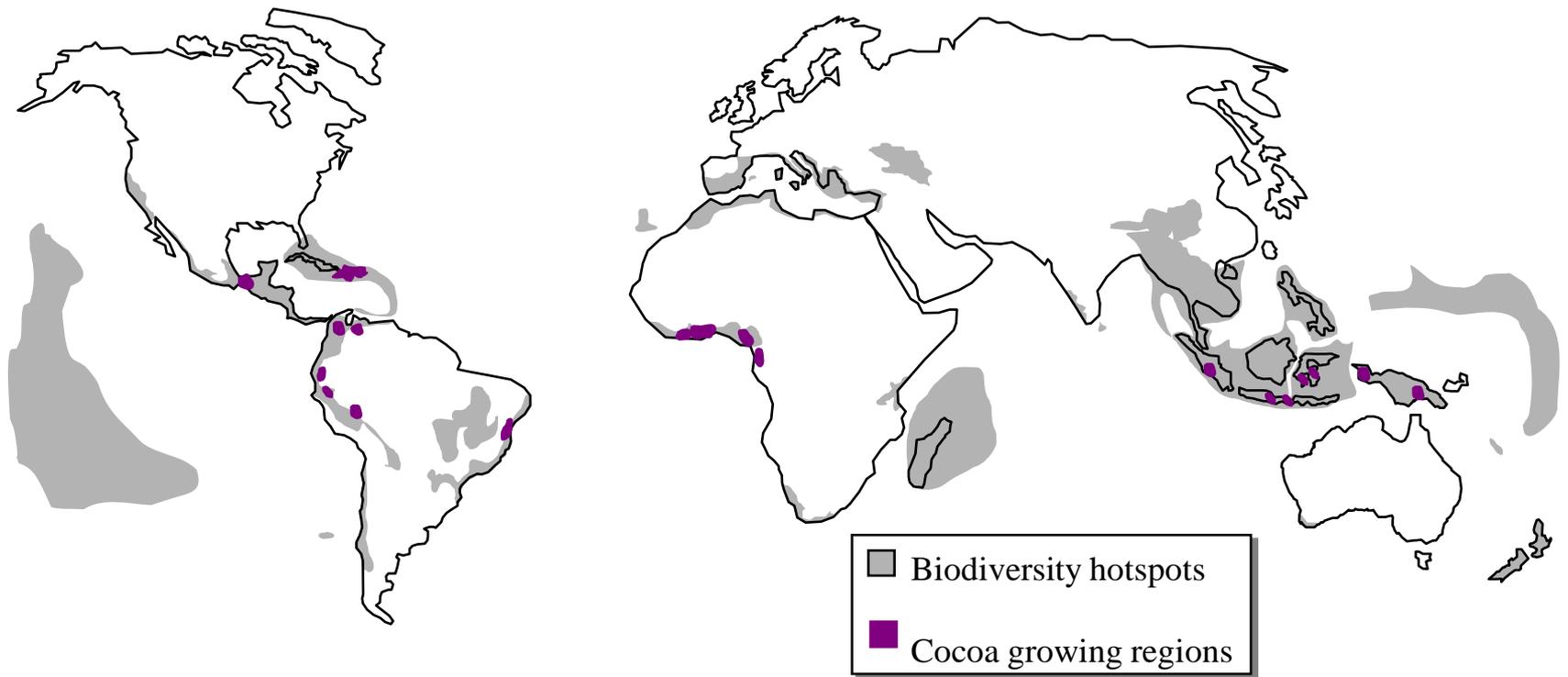
- One of the world's largest food companies
- 100% Privately held
- Significant player in Chocolate, Petcare (including pet food), gum and rice
- Founded in 1911



# Beginnings: Domestication and Distribution



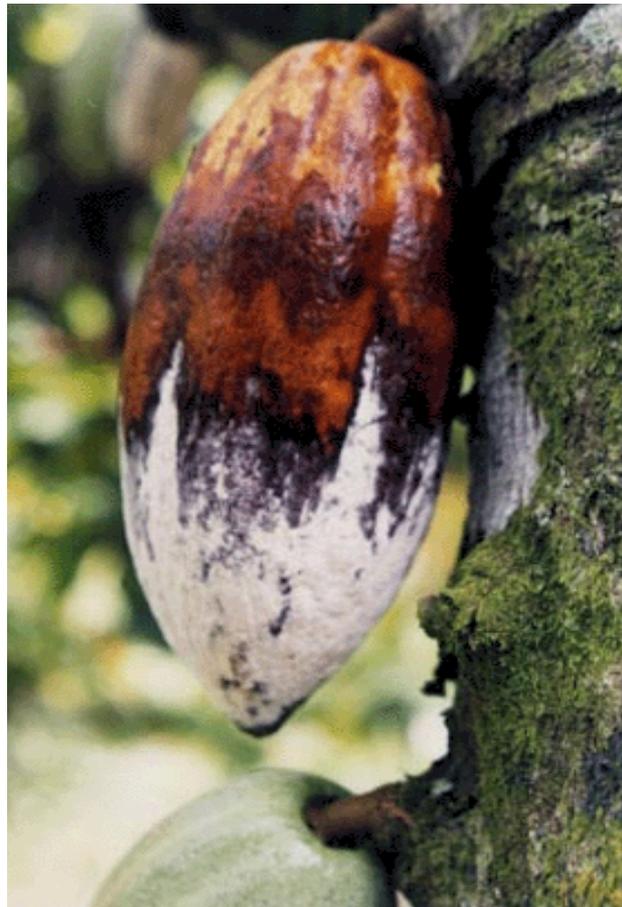
# Cocoa Growing Regions and Biodiversity Hotspots



# Common diseases of Cacao



Black Pod  
*Phytophthora sp*



Frosty Pod  
*Moniella roreri*



Witches' Broom  
*Moniliophthora perniciososa*

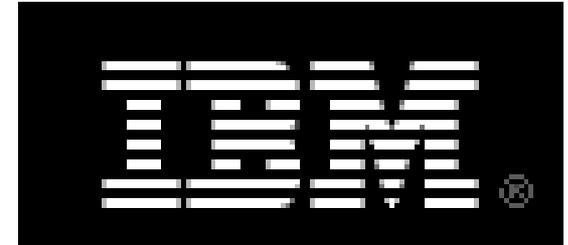


# Mars Center for Cocoa Science



# The Public-Private Collaboration To Sequence the Cacao Genome Led by Mars, Incorporated

Work initiated 26 June 2008





# MARS

**Melamine:**

**A lesson in preventing what you don't  
expect**

**GUIRR meeting**

February 4, 2009

# Melamine

- Nitrogen-rich organic compound with multiple uses:
  - Agricultural: herbicides, pesticides, fungicides
  - Sanitizing agent for food processing equipment
  - Plastic resins, Melaware cups and dishes, and coatings
  - Adhesives
  - Paper and paperboard agents
  - Flame retardant fibers

# Melamine is now notorious

- 2008 - 52,857-300,000 Chinese infants with kidney stones attributable to adulterated milk in baby formula
- 2007 - dogs and cats in US, Canada, South Africa sickened by adulterated pet food



# Concluding Thoughts

- Food Industry is a vulnerable industrial sector in context of security
- Food industry is a very complicated sector in terms of security
- To make progress re improving food industry security, government, universities and industry (including non-food industry players) need to implement a new paradigm of constructive interaction
- The opportunities for Science and Technology to make a positive difference are enormous (and much needed!!)