



THE COUNCIL FOR CHEMICAL RESEARCH

Advancing the Chemical Enterprise through Collaboration

The Black Swan: Detecting the Highly Improbable Consequential Event

John Hammerstone

Mars Incorporated

The Grand Challenges

- **Rapid Detection of Salmonella and Other Food Borne Pathogens**
- **Rapid Authentication of Ingredients**
- **Rapid Detection of Adulterants / Chemical Contaminants**
- **Rapid Assessment of Product Freshness**
- **Rapid Quantification of Nutrients in Finished Goods**