

## **Lesson 8**

# Food Science and technologies

# Human Health and Food Safety

- Food engineering
  - Done for increased yields, pest resistance and increased shelf life
- Genetically modified organisms (GMOs)
  - DNA transferred from one plant or animal to another

# Human Health and Food Safety (cont'd.)

- Cloned Farm Animals
  - Milk and meat tentatively concluded safe by the FDA
- Food Allergen Labeling and Consumer Protection Act (FALCPA)
  - Requires presence of common allergens be included on the food label

# Human Health and Food Safety (cont'd.)

- Food allergens
  - Food service operators not currently required to post warnings
- Growth-enhancing hormones
  - Natural steroids added to feed of beef and milk animals
  - Banned in E.U. but allowed in U.S.

# Human Health and Food Safety (cont'd.)

- Food irradiation
  - Reduces disease causing germs in food
  - High levels of radiant energy kills microorganisms without raising temperature of the food
  - FDA requires that irradiated foods be labeled as such

# Cultural Heritage

- Parts of society we want to keep, appreciate, and pass on to future generations
- Tourism draws on cultural heritage
- Local food service operations can protect cultural heritage by preparing local foods native to their region

# Environmental Protection

- Commitment to preserve and renew natural resources
- Ecology
  - Study of the interaction between living things and their physical environment
- Biodiversity
  - Number of species is declining

# Environmental Protection (cont'd.)

- Monoculture
  - Practice of growing the same crop on the same fields year after year
  - Need additional chemicals for pest control and fertilizers for soil quality
    - Risk that pests will become resistant to the chemicals and destroy crops



# Environmental Protection (cont'd.)

- Sustainable agriculture
  - Steps to maintain high yields without destroying the soil or decreasing productivity
    - Examples: crop rotation; planting cover crops; using natural predators instead of chemicals
- Conservation
  - Conserving food frees up more for others

# Environmental Protection (cont'd.)

- 20 percent of food is wasted each year
  - Left in fields or orchards
  - Lost during manufacturing, storage, or transportation
  - Wasted during final preparation in homes or restaurants

# Environmental Protection (cont'd.)

- Organics
  - No chemical fertilizers or pesticides
  - Minimally processed
  - Before the 1940's, all farming was organic
- National Organic Program implemented in 2002
  - Provides guidelines and certifications

# Environmental Protection (cont'd.)

- Sustainability and greening initiatives
  - National Restaurant Association (NRA) launched a campaign for sustainability in 2008
  - National nonprofit Green Restaurant Association (GRA) formed in 1990
  - All new Starbucks buildings will be certified by the U.S. Green Building Council

# Summary

- Food is one of the most basic human needs
  - Number of undernourished people in the world is one in seven
  - Several international organizations working to reduce world hunger
- Food allergen labeling is mandated

## Summary (cont'd.)

- Hydroponics, aquaculture, and biotechnology are methods employed to increase agricultural yields
- Sustainable agriculture uses methods designed to preserve environment
- Examples of green practices
  - Conservation, waste reduction