Issues in Food Safety

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Areas of interest by Food Scientists are UNL among other topics.

- Pathogenic microorganisms
  - In animal products (meat, poultry, dairy, eggs, seafood)
  - In fruits and vegetables
  - In water and other environments

- Chemical toxins

- Allergens

- Genetically modified foods

What are Genetically-modified Foods?

- Foods containing ingredients made by genetically engineered microorganisms or their enzymes
- Foods whose genetic make-up has been modified by turning existing genes on or off
- Foods whose genetic make-up has been modified by addition of new genes (transgenic)

Examples

- **Chymosin** – the enzyme used to make cheese, extracted from calf stomachs. The gene was cloned from calf stomach cells into bacteria, now the bacteria make the enzyme. Now most U.S. cheese is made with genetically engineered chymosin.

- **Flavr Savr Tomato** – a gene coding for an enzyme involved in tissue softening was inactivated, such that the tomato could ripen on the vine and develop good flavor, yet not become too soft during transit.

- **Bt Corn** – contains a bacterium-derived gene that codes for a protein that kills the corn borer insect.

- **Roundup Ready Soy Beans** – contains genes that confer resistance to Roundup pesticide.
Risks

- Transfer of allergens
- Transfer of resistance genes
- Ecological affects
- Long-term unknowns

Benefits

- Agroeconomical advantages (improved yields)
- Reduced reliance on pesticides and herbicides
- Cheaper prices for consumers

What are the issues?

- Ethical issues
- Social issues
- Political issues
- Labeling issues
- Environmental issues
- Regulatory issues