Good Agricultural Practices and Food Safety:

A Farmer's Perspective

Critical GAPs

- Clean and properly adjusted equipment
- Secure and sanitary storage
- Adequate time between manure application and harvest
- Assessment of drainage
- **Proximity to livestock operations**

Education & Attitudes

- Treat sprouting seed as a raw food
- Facilitate farmer cooperation through education
- Industry education

Less Beneficial GAPs

- **GAPs that are impractical to implement**
  - Controlling wildlife access
- **GAPs that are not specific to the sprouting seed industry**
  - Toilet and hand-washing facilities to the standards of produce farmers

GAPs & Organic Standards

- Organic certification covers many GAPs
- Organic standards exceed norms of conventional farming
- Organic farmers should have to follow same GAPs as conventional farmers

Field Inspections

- Increased seed prices
- Seed shortages
- Quality problems

What do we want the **future of sprouting seed** production to look like?

GAPs will not eliminate contamination. However, by focusing on the most critical sources of contamination, GAPs can **minimize contamination**.

Genetically Engineered Sprouting Seed:

Should We Care?

Contamination

- For the first time, the traditional seed supply for important food crops is contaminated with DNA from genetically engineered crops. UCS tested six traditional varieties each from three crops—corn, soybeans, and canola—and found that most of them carry pieces of DNA from genetically engineered varieties. (Union of Concerned Scientists, Gone to Seed Report)

Modes of Contamination:

- Wild & domestic animals
- Seed drift & spills
- Volunteer plants
- Pollination

Pollination

·"In the Colorado experiment conducted by the Colorado State University it was shown that bees were transmitting the Roundup Ready pollen/gene from a Roundup Ready seed field up to **1.7 miles to 83% of the 23 seed collection sites** of non-RR alfalfa seed. In some instances, the bees carried the gene up to 7 miles." -Peace Region Forage Seed Association

Can Farmers Avoid Contamination?

- The USDA argues that non-GE farmers simply need to **change their planting and harvesting practices** to "avoid simultaneous flowering" with the GE alfalfa planted in a neighbor's field

Alfalfa farmers from across North America express concern:

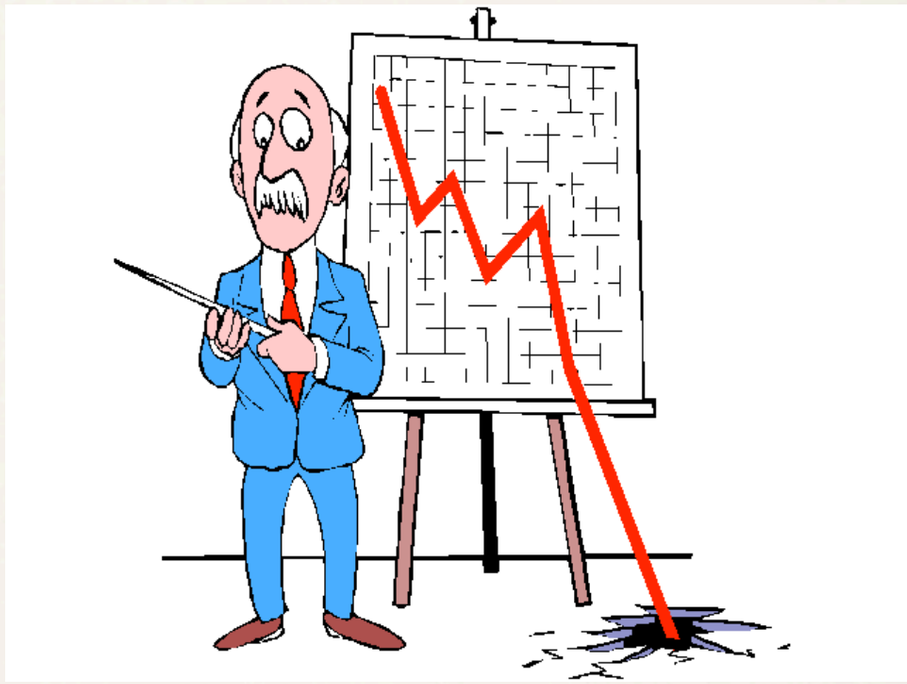
- "The opportunity for farmers to produce organic alfalfa, or conventionally-grown alfalfa that is free of glyphosate-tolerant genes, will **steadily deteriorate**." -National Farmer's Union

- "Conventional alfalfa producers in Canada, and I expect to a large extent in the US, feel that this is a largely and **unnecessarily harmful product**." -Terry Boehm, farmer

"If introducing these lines of GT alfalfa means over a period of time **eliminating conventional lines of alfalfa** (which will inevitably happen, through gene flow, through transfer of seed via equipment, through transfer of seed via birds or wildlife, because of unforeseen weather events, through seed cleaning plants, because of bad management, etc) that does not appear to be protecting America's agriculture." -BJ Kazas, farmer

Good economics?

- Increased chemical inputs
- Glyphosate resistant weeds
- Disease susceptibility
- Higher price for seed



There has been no demand by producers for RR alfalfa as the RR gene does not carry the potential for higher productivity
-Peace Region Forage Seed Association

Increased herbicide use

- "How can any government agency recognize and condone an **50% increased level of herbicide use** on an alfalfa crop when currently only 18% of alfalfa acres use any type of herbicide as stated in the FEIS?" -Weldon Hobbs, alfalfa farmer at JWG Farms

Glyphosate-resistant weeds

- *At least eight weed species in the United States (and 15 worldwide) have been confirmed to be resistant to glyphosate, including aggressive crop weeds such as ragweed, mare's tail and waterhemp.* -Food and Water Watch

•Glyphosate-resistant horseweed, or mare's tail (Conyza canadensis), emerged:

•In 2000 in Delaware in soybeans

•In 2001 in Tennessee in cotton and soybeans

•In 2002 in Indiana, Maryland, New Jersey, and Ohio, also in soybeans

Ragweed is an aggressive weed

Susceptible to Disease

- The Roundup Ready trait lowers the nutritional content of crops by **inhibiting the absorption of nutrients** including calcium, iron, magnesium and zinc, making plants **more susceptible to disease**.

Alfalfa mosaic disease

Increased seed prices

- Biotech corn seed **prices increased 9 percent annually** between 2002 and 2008, and soybean seed prices rose 7 percent annually.

Increased cost of seed offsets any potential savings in herbicide: GE Soybean farmers save $3-$20/acre; GE soybean **farmers pay $23 more per acre** for GE soybean seed

Consumer Perception

- "We need to be able to deliver to customers the product they want. If the buyer says "no" on the basis of the presence of GMOs, we have to ask ourselves if we have the capacity and the ability to produce and deliver the desired non-GMO products." -Jim Linot, Chairman, Manitoba Forage Council

- "We have to produce what our customers not only require but demand. If this means GMO free seed, we have the choice to provide it or loose the market."

  - Kelvin Einarson, Director, Manitoba Forage Seed Association Inc

Farmers take legal action to protect themselves

- "This case asks whether Monsanto has the right to sue farmers for patent infringement if Monsanto's transgenic seed should land on their property. It seems quite perverse that a farmer contaminated by transgenic seed could be accused of patent infringement, but Monsanto has made such accusations before and is notorious for having sued hundreds of farmers for patent infringement, so we had to act to protect the interests of our clients."

-Dan Ravicher, PUBPAT's Executive Director and Lecturer of Law at Benjamin N. Cardozo School of Law in New York.

Farmers in the Philippines protest against Monsanto