The Consumer Matters

- 1996, Genetically-modified (GM) crops introduced
- Farmers embraced biotech crops
- Some food companies required GM grain
  - Higher quality
    - Less foreign matter
    - Fewer broken kernels

But...

- European and Japanese consumers raised concerns
The Consumer Matters

- 1999, Food companies concerned about consumer sentiment re GM
  - Gerber and Heinz: no GM in baby food
  - Frito Lay: no GM in snack food
- Then, StarLink (not approved for humans) found in taco shells
  - Increased consumer awareness
  - Confirmed industry fear: The bulk grain handling system unable to guarantee segregation
The Consumer Matters

- Post-StarLink, retailers want guarantees from the supply chain
  - Increased vertical control
  - Increased information flow

- The Challenge:
  - Commodity grains now differentiated product
    - GM vs. non-GM
  - Bulk handling system vs. demand for identity preservation
The Supply Chain

- Final Consumer
- Food Retailer/Distributor
- Food Processor
- Grain Handler
- Farmer
- Seed Company
Contracts Before Biotechnology

- Contracts common in food supply chain
  - Popcorn, White corn, Tofu soybeans

- Niche markets
  - Supply assurance
  - Quality specifications above No. 2

- Marketing contracts
  - Most production decisions made by producer
  - Specific hybrids or varieties required
  - Often direct delivery to processor
Contracts After Biotechnology
(StarLink)

◆ Food grade contracts
  - No StarLink

◆ New market for non-GM grain
  - Greater demand for identity preservation
  - Tokyo Grain Exchange trades Non-GMO soybean futures contract
    ◆ Identity preserved non-GMO No. 2 yellow soybeans of the growths of Indiana, Ohio and Michigan in the U.S.A. (Non-screened, stored in silo).
Contracts After Biotechnology (StarLink)

- Marketing contracts
  - Require increased farmer effort
    - Clean planter, combine, grain buggy, grain bins, and truck
    - Buffer zones (pollen drift)
  - Require increased handler/processor effort
    - Increased testing and auditing

⇒ Increased amount of information and verification
  - Costs and effort depend on tolerance levels
The Supply Chain

Final Consumer
Food Retailer/Distributor
Food Processor
Grain Handler
Farmer
Seed Company
Marketing Contracts
Example 1: Food-Grade White Corn

- Food retailer requires guarantee of no StarLink
- Contract specifies:
  - Approved hybrid list
Now...
  - Require seed receipts
  - GIS field maps, surrounding fields
  - Test in field, in grain bin, and before delivery
- Contract changes due to end-user demand
Example 1: Food-Grade White Corn

- Mill contracts with 100 farmers
  - 6 year relationship
  - Mill and farmers learned together
  - Offer new acreage to current farmers

⇒ Qualified-supplier model
Example 2: Non-GMO Soybeans

- **Export to Japan**
  - Japanese importer demands seed receipts, testing before delivery, strict tolerance levels (99.5% purity)

- **Contracts**
  - Open to all farmers
  - One year
Example 2: Non-GMO Soybeans

- Premiums are steady/increasing

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<th>Crop Year</th>
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<th>2002</th>
<th>2003</th>
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<td>Premiums</td>
<td>0.05-0.10</td>
<td>0.20-0.25</td>
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<td>0.7-1.0</td>
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<tr>
<td>(Million metric tons)</td>
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Grain Contracts

◆ Yearly contract
◆ Part of portfolio
◆ No/little long-term capital investment

⇒ Grain farmers can/do say NO!
⇒ Then premiums increase
Examples: Popcorn, non-GM soybeans
Survey Summary

- Crops enterprises send mixed signals
  - 60% of producers believe contracting will increase
  - But...only 34% of corn/beans producers, and 46% of wheat producers plan to increase contracting

⇒ Wait and see approach
The Supply Chain

Final Consumer

Food Retailer/Distributor

Food Processor

Grain Handler

Farmer

Seed Company

Channeling Agreement

Marketing Contracts
A New Piece of Paper

Channeling Agreement
- For corn not approved for sale in EU
- Before farmer purchases seed, must sign agreement
  - Identify market outlet before planting
  - Channel production to domestic feed use, or grain handler that’s willing to accept

What does this agreement mean?
- Educational purpose
- Shifts liability?
Final Thoughts

- Consumers/Retailers demanding more information
- Entire supply chain is *learning*
  - Identity preservation requires different mindset
- Contracting outcome (in long run) depends on whether consumers are willing to pay for this information