

Societal Perspectives on Agricultural Biotechnology

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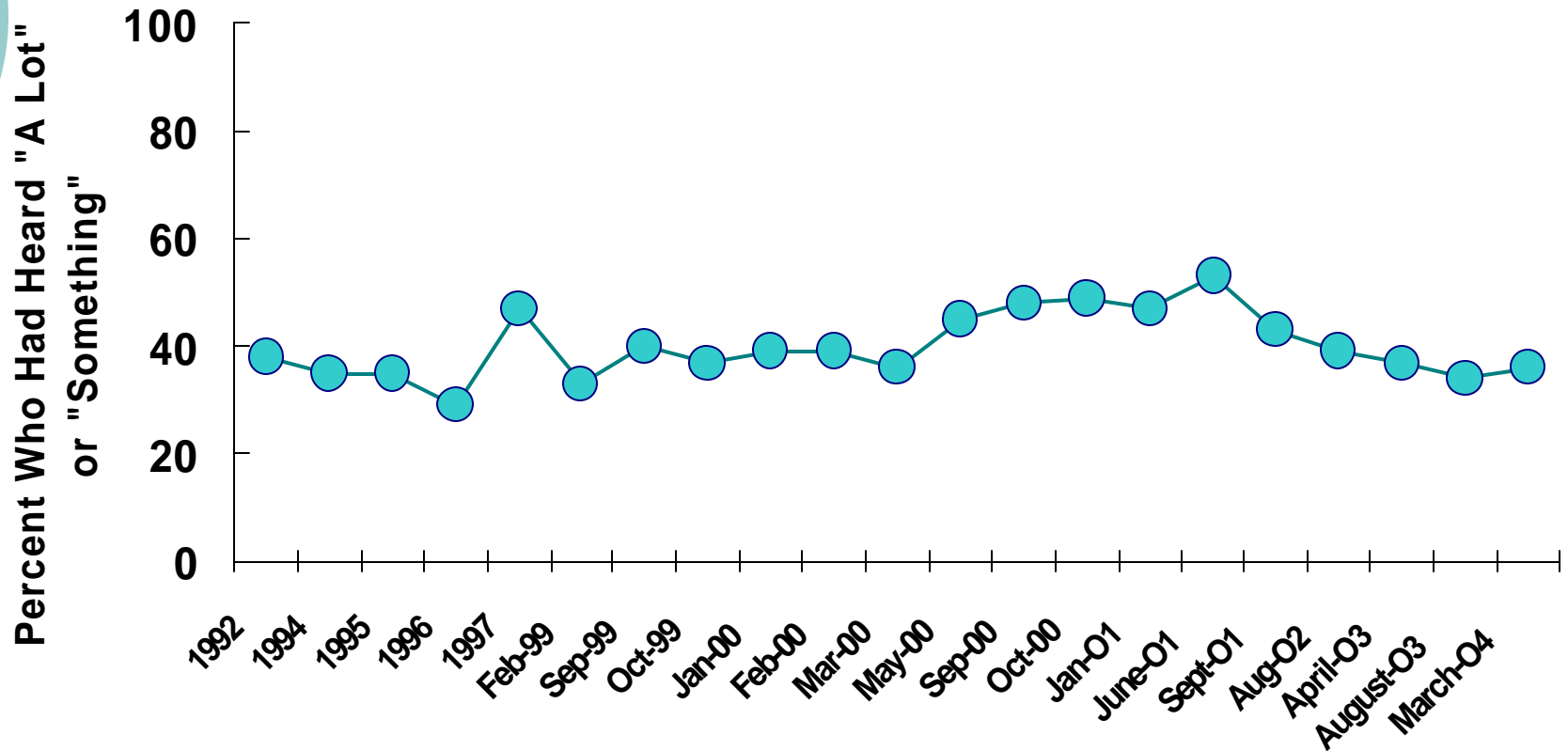
Emerging Social Issues Impacting USDA

- More consumers are opting out of the industrial food system in favor of booming organic market
- Growing sense among consumers and food industry that risks are not being addressed in open manner
- Food industry is very opposed to using food crops for drug production
- Confidence in US government has dropped significantly in recent years.
- Animal cloning and biotech will further undermine consumer confidence
- Poorly-timed WTO case has already made trade matters worse in Europe and elsewhere



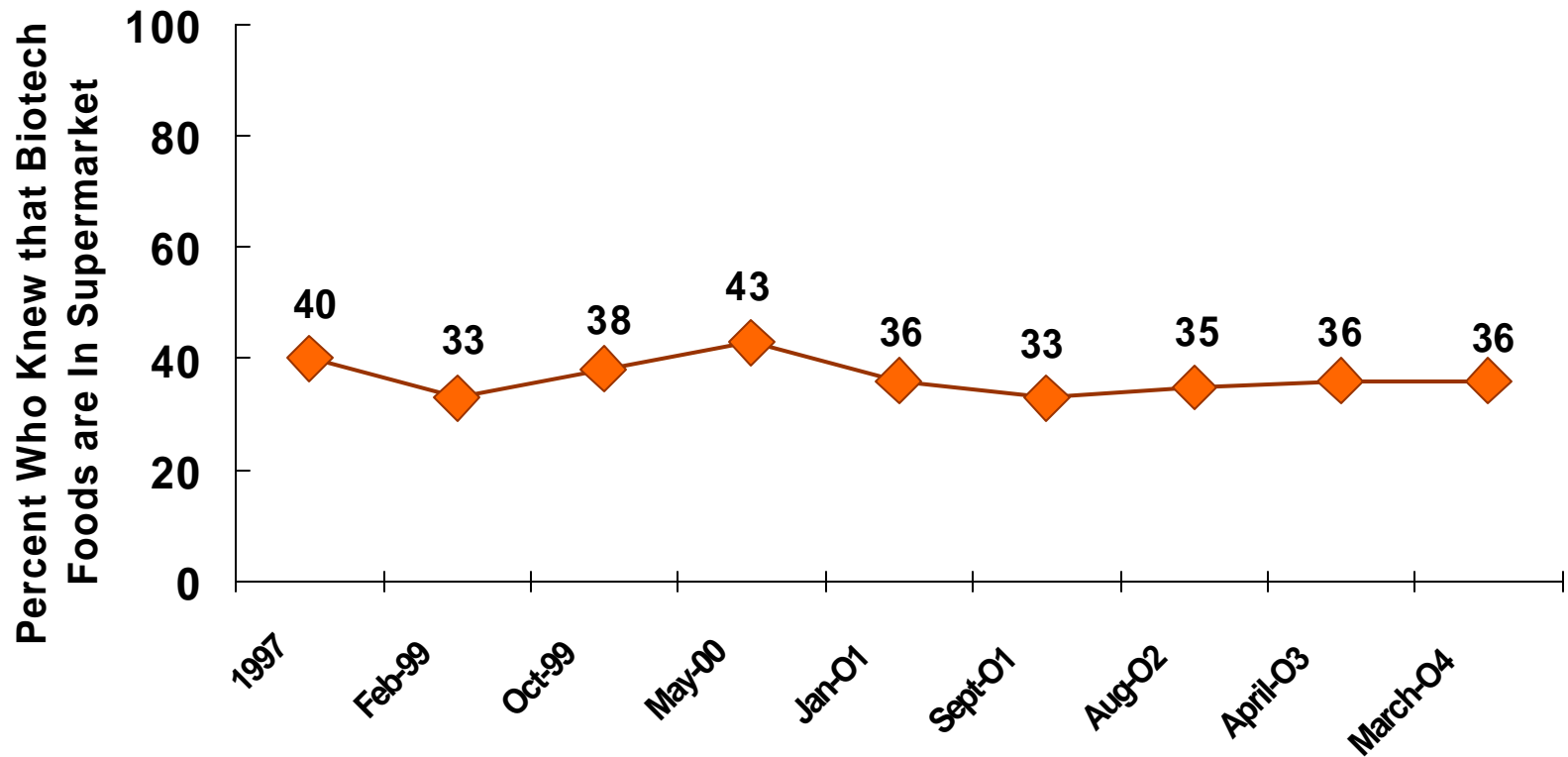
US Consumers: *Low Awareness Should Not Be Considered Bliss*

Trends in U.S. Consumers' Awareness of Biotechnology

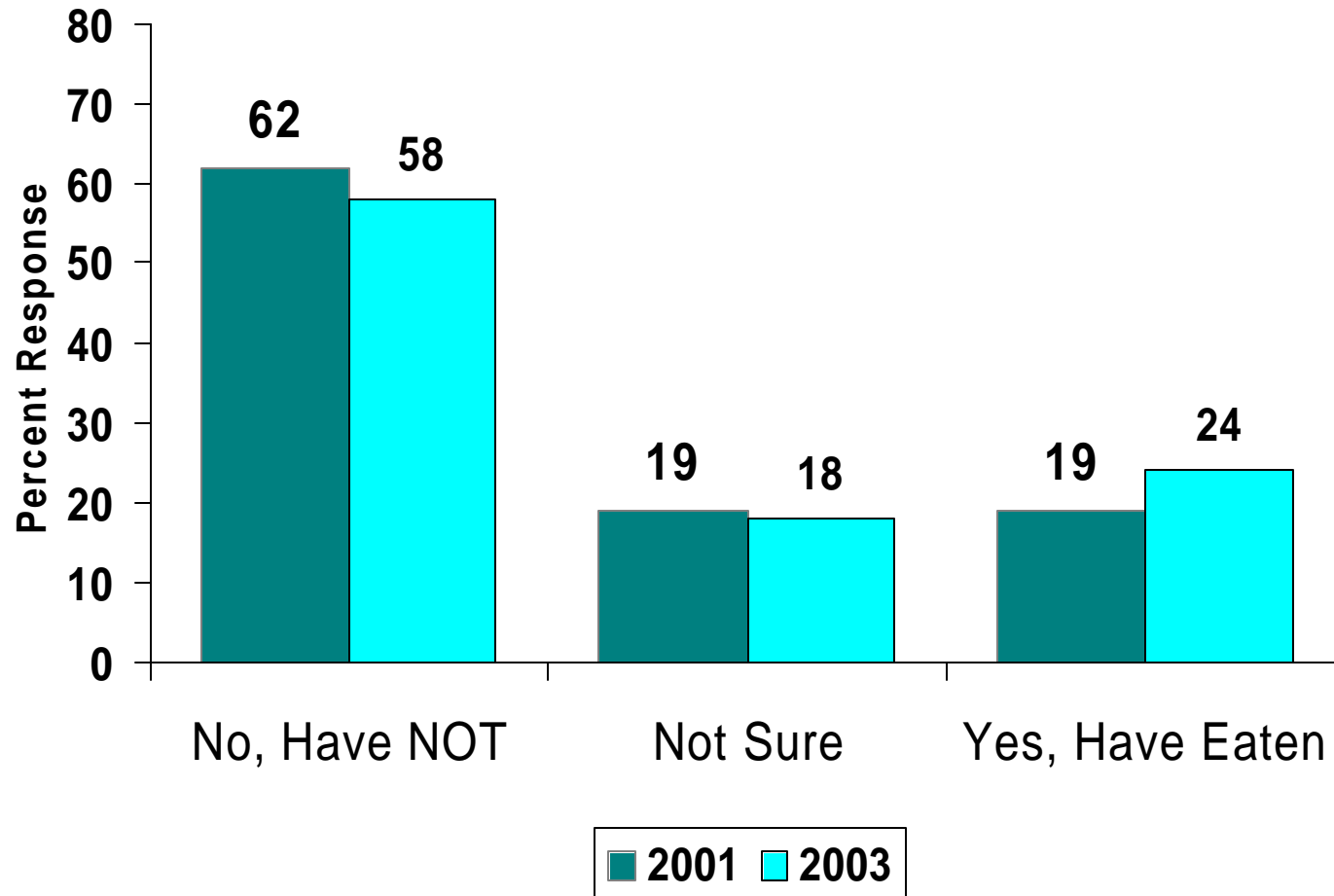


(Various Sources)

Most American Consumers Still Do Not Know that Foods Produced with Biotechnology are Already in Stores



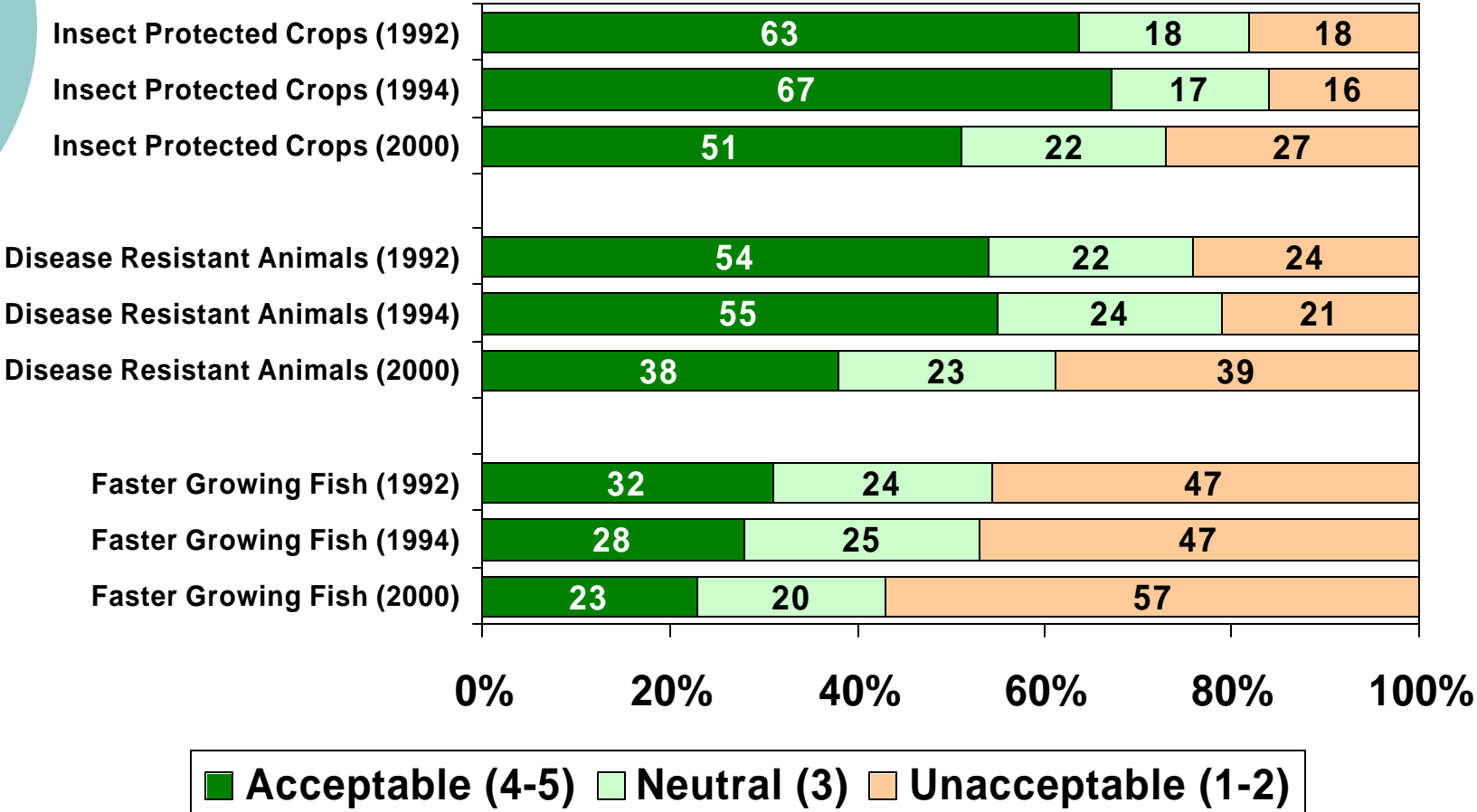
Most US Consumers' Still Do Not Realize That They Already are Eating GM Foods





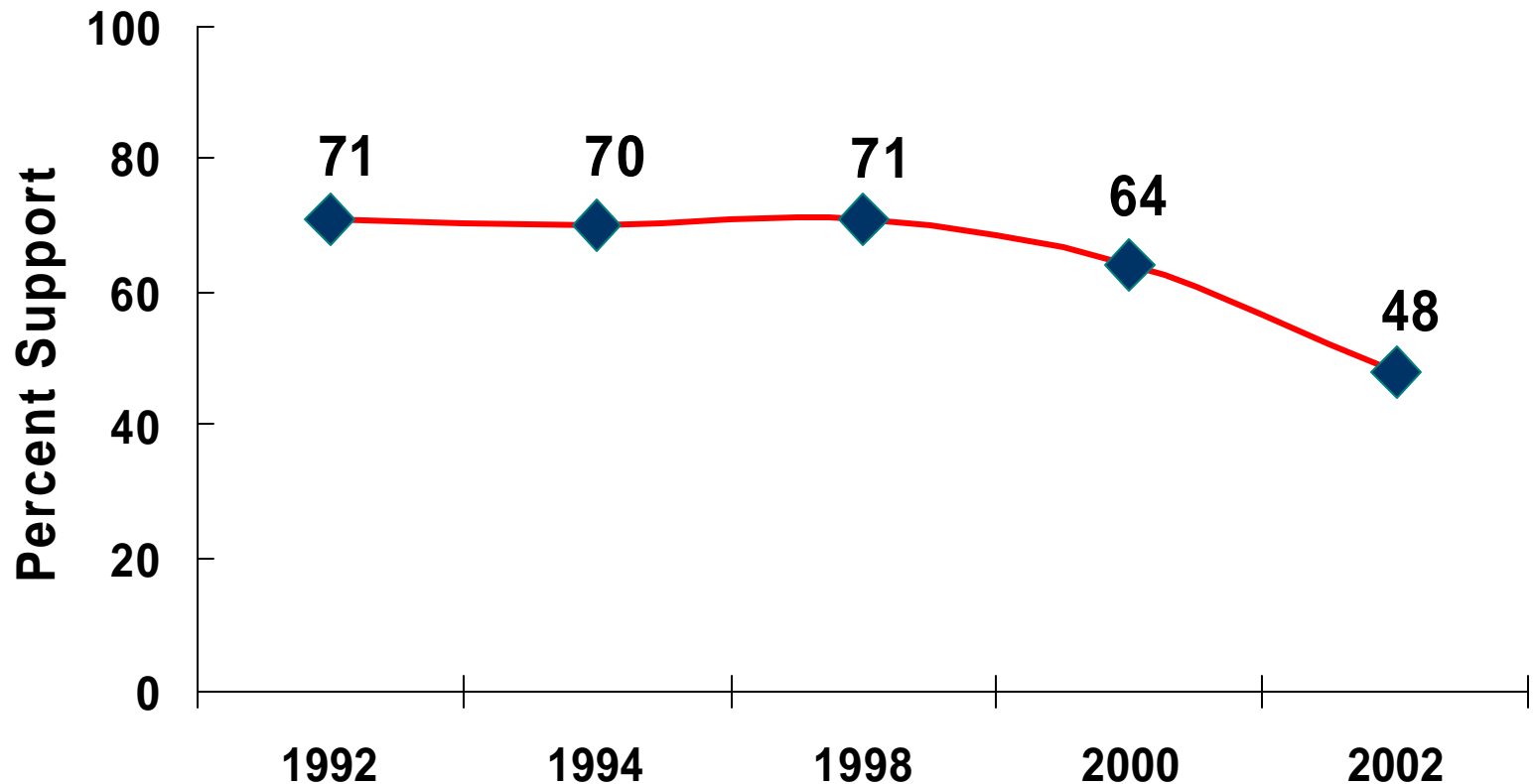
US Acceptance of Biotech is Trending Toward the EU

US Acceptance of Biotechnology has Dropped – Especially for Animals

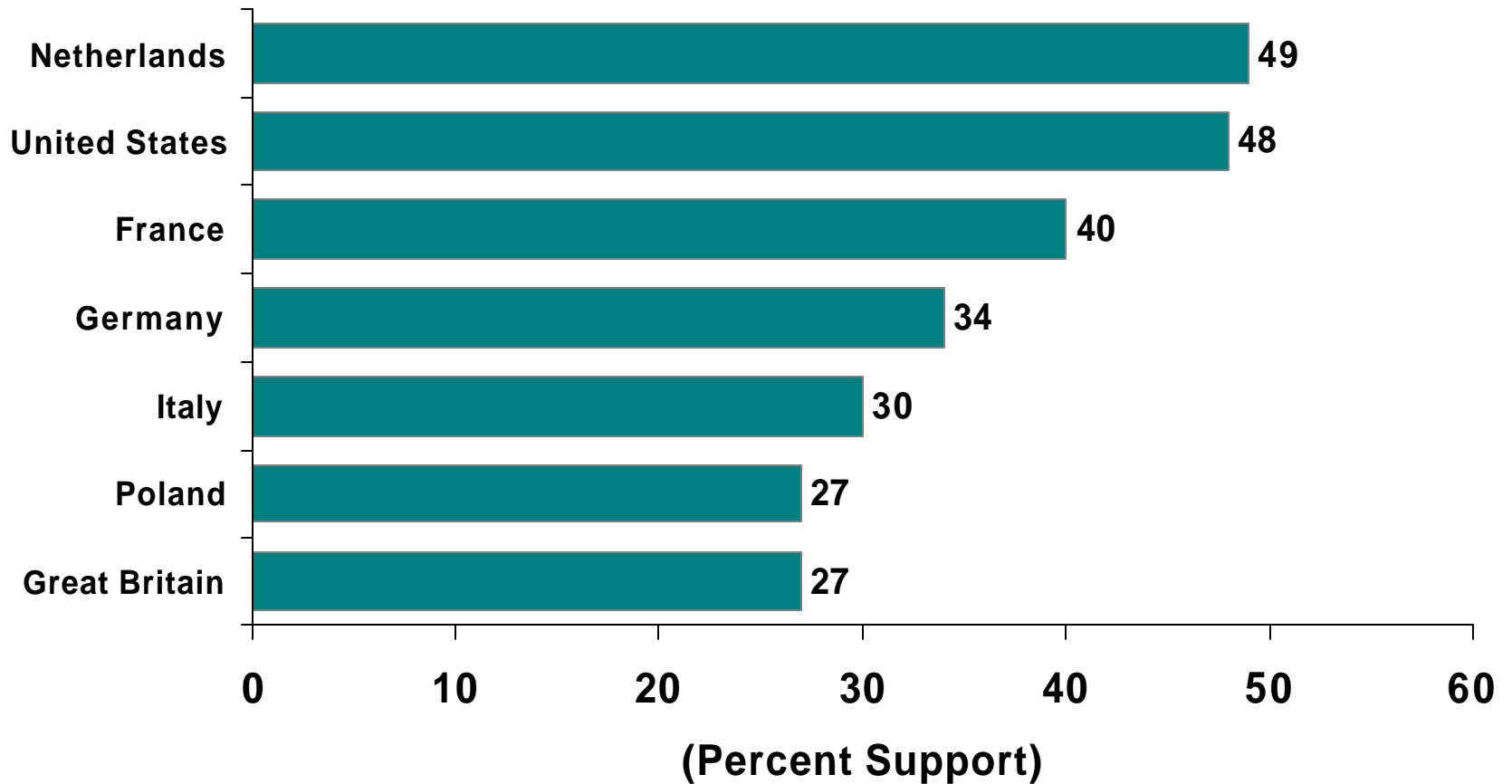


(Hoban, 1992-2000)

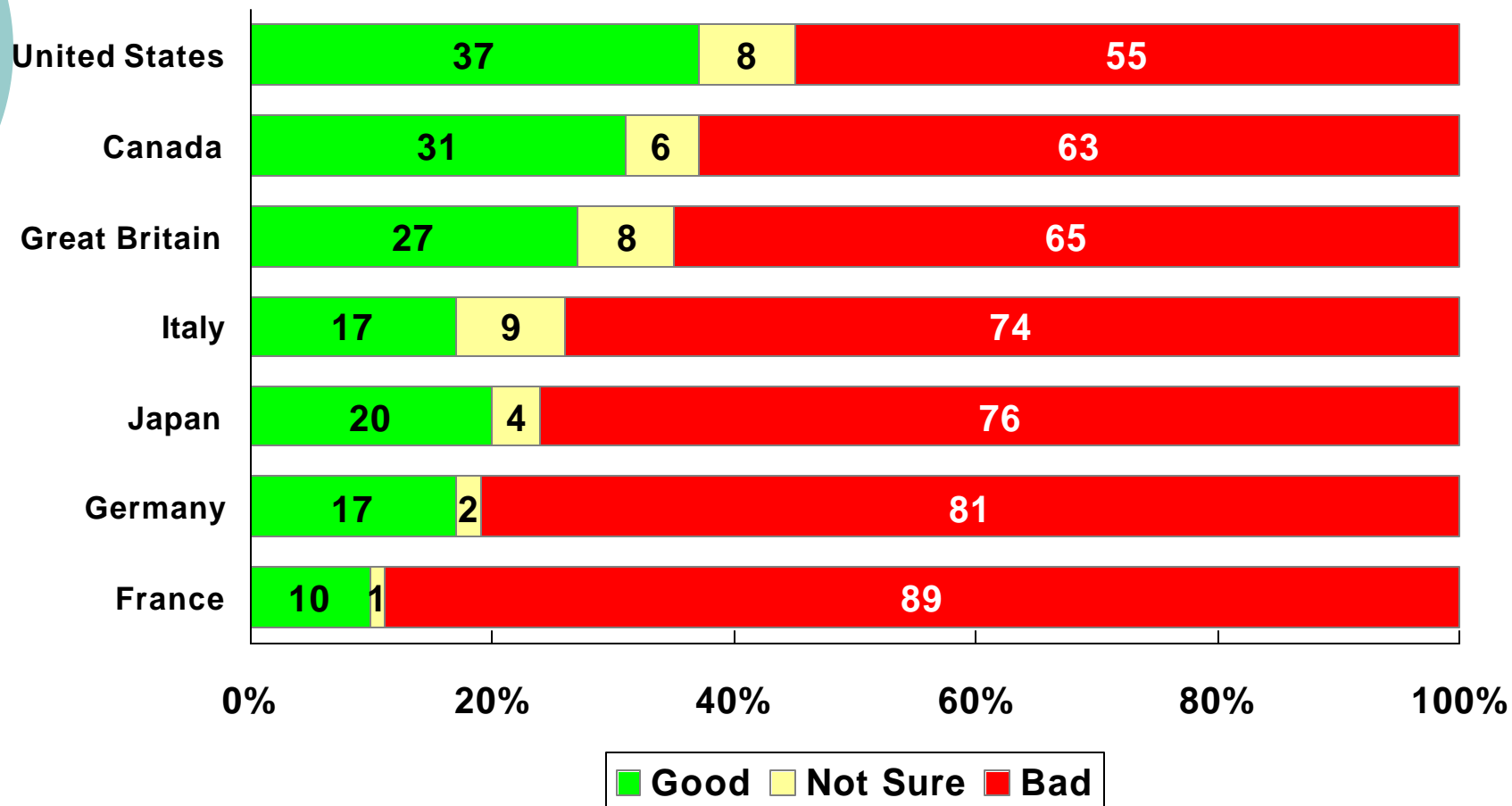
American Consumer Support for Ag Biotech has Dropped Recently



American Support for Ag Biotech is Still Higher than in Most of Europe



Is it good to scientifically alter fruits and vegetables because it increases yields to feed more people and is good for the environment; Or is it bad because it could hurt human health and the environment.



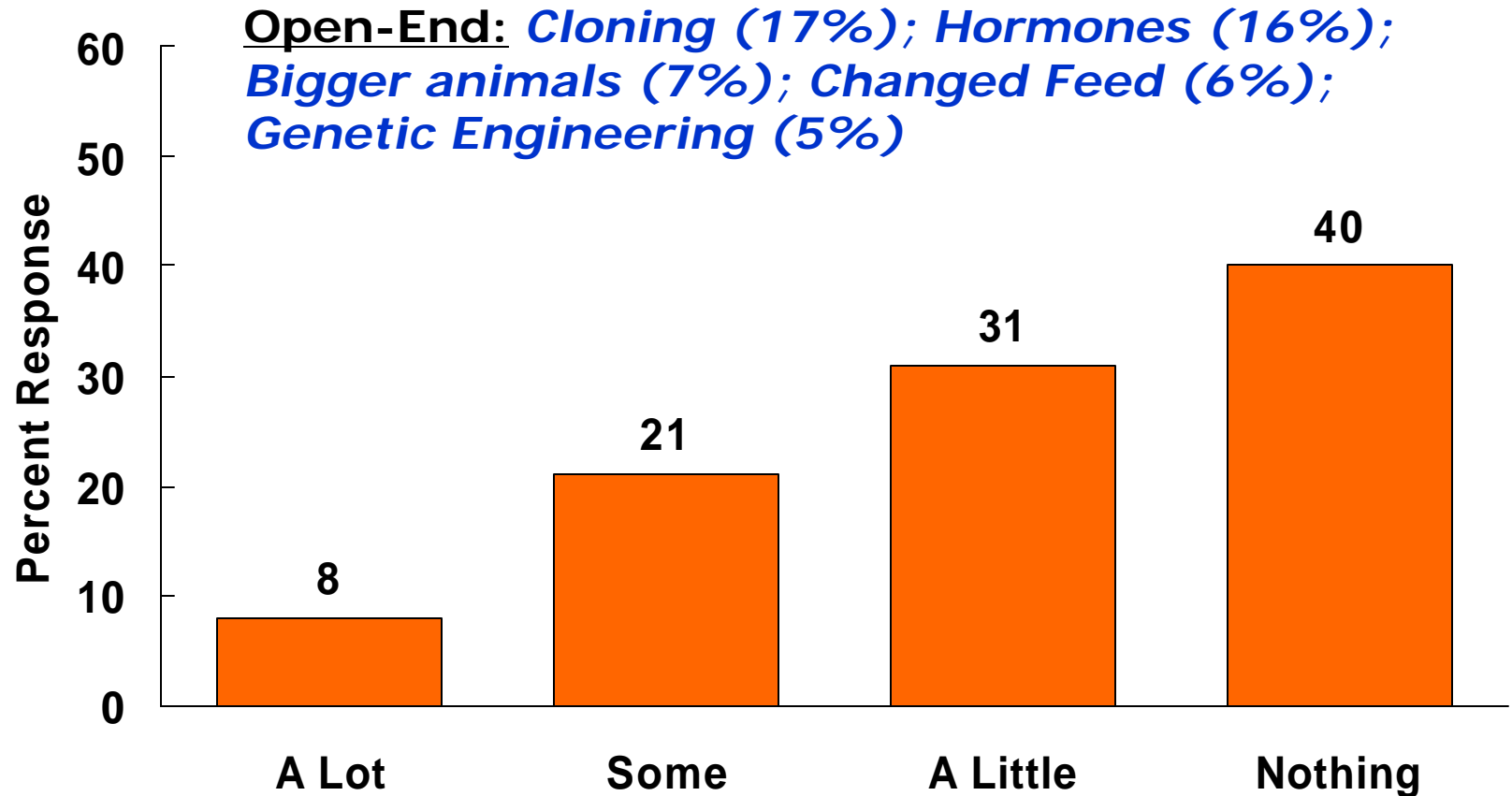


Most Consumers Have
Serious Concerns about
Meat and Milk from Cloned
or Transgenic Animals

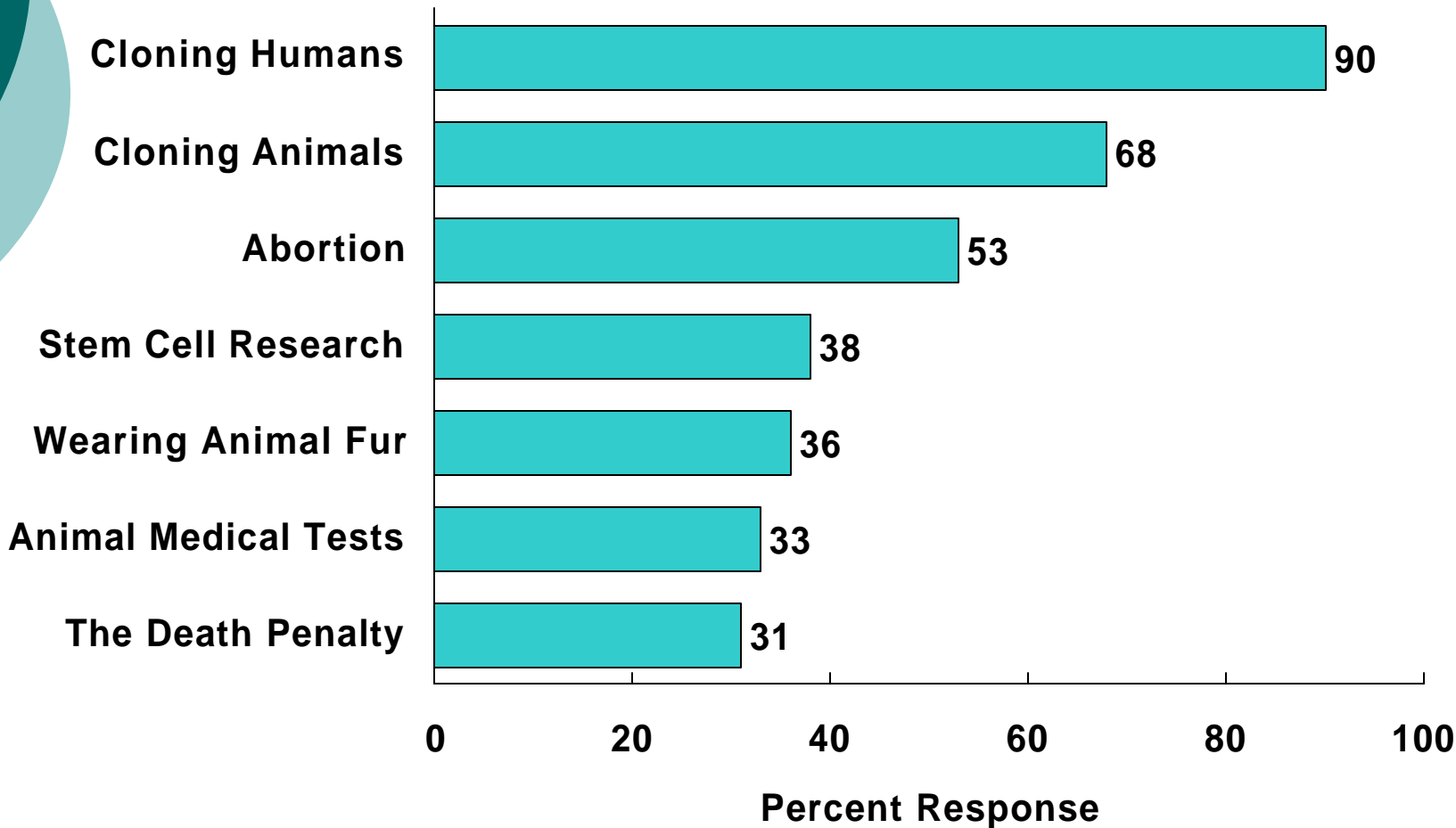
Why Animal Biotechnology is Less Acceptable than Plants

- People worry a lot about animal pain and suffering (anthropomorphism). People love their pets and care about wildlife.
- Trend toward vegetarianism and animal rights (especially among young women)
- Animals can move around once released into environment (concerns over GM fish)
- Once we modify animals, it could be a slippery slope to genetically modified people. Animal biotechnology sounds bad (“yuck”)
- The federal government is unprepared for the arrival of cloned or GM animals (which will be met with considerable consumer opposition).

How much US Consumers had “heard about applying the science of biotechnology to animals?”



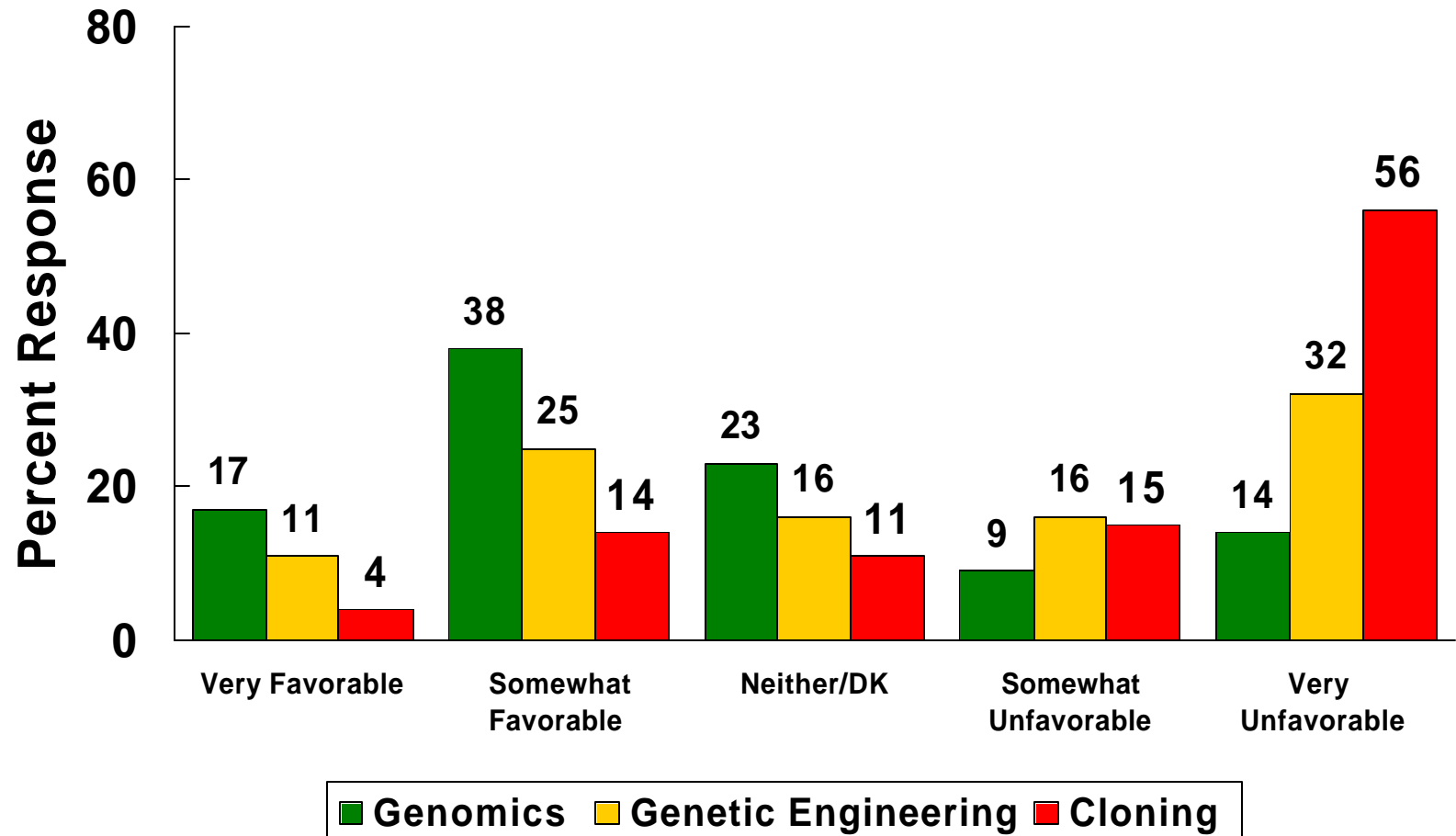
American Consumers' Views that Various Actions are Morally Wrong



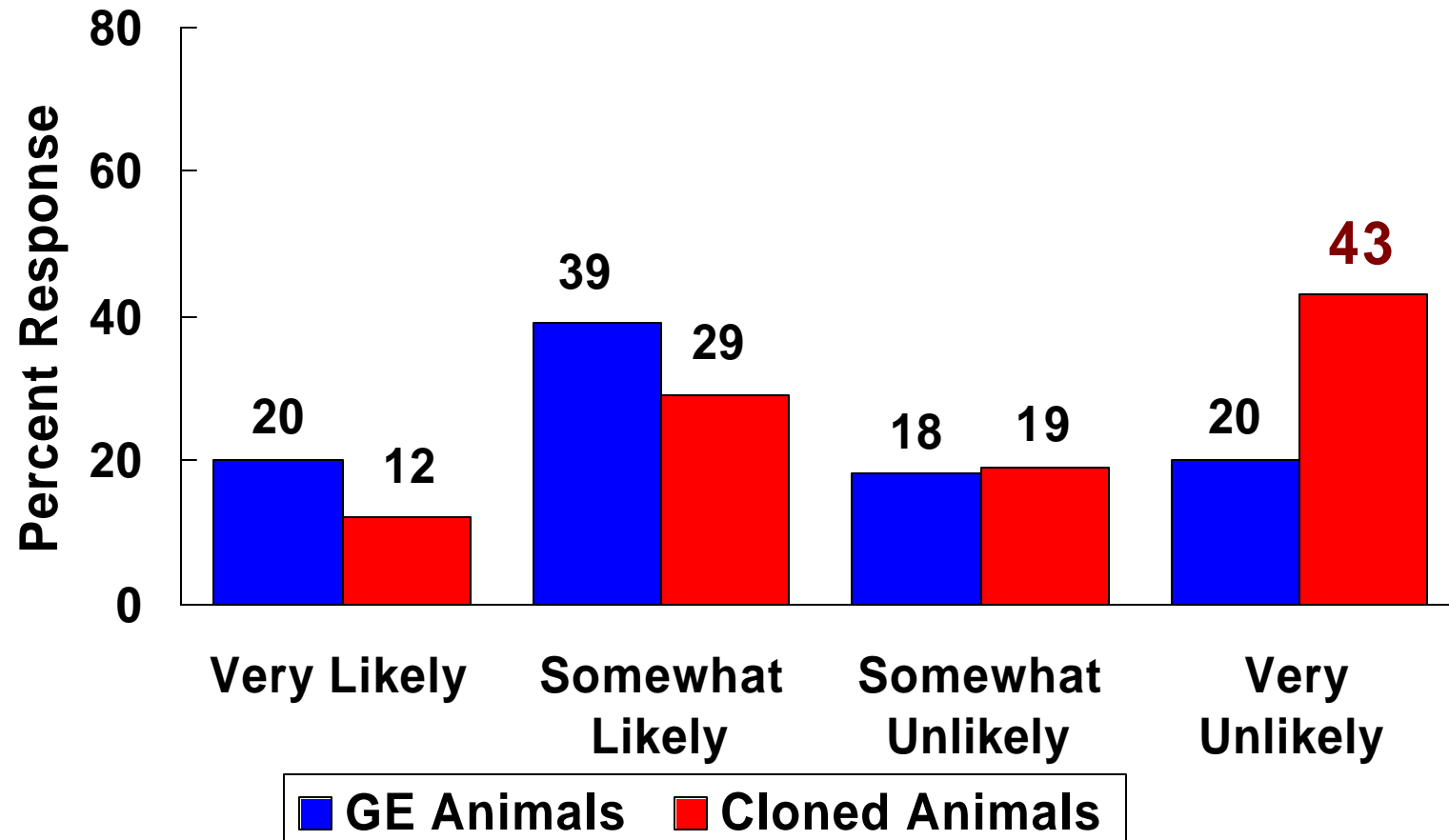
Descriptions of Three Different “Forms of Animal Biotechnology”

- Genomics “uses knowledge about genetics to improve overall animal care and nutrition.”
- Genetic Engineering “allows us to move beneficial traits from one animal to another in a precise way.”
- Cloning “retains desirable traits by producing animals that are biologically identical to their parents.”

US Consumers' Overall Impressions of Three Forms of Animal Biotechnology

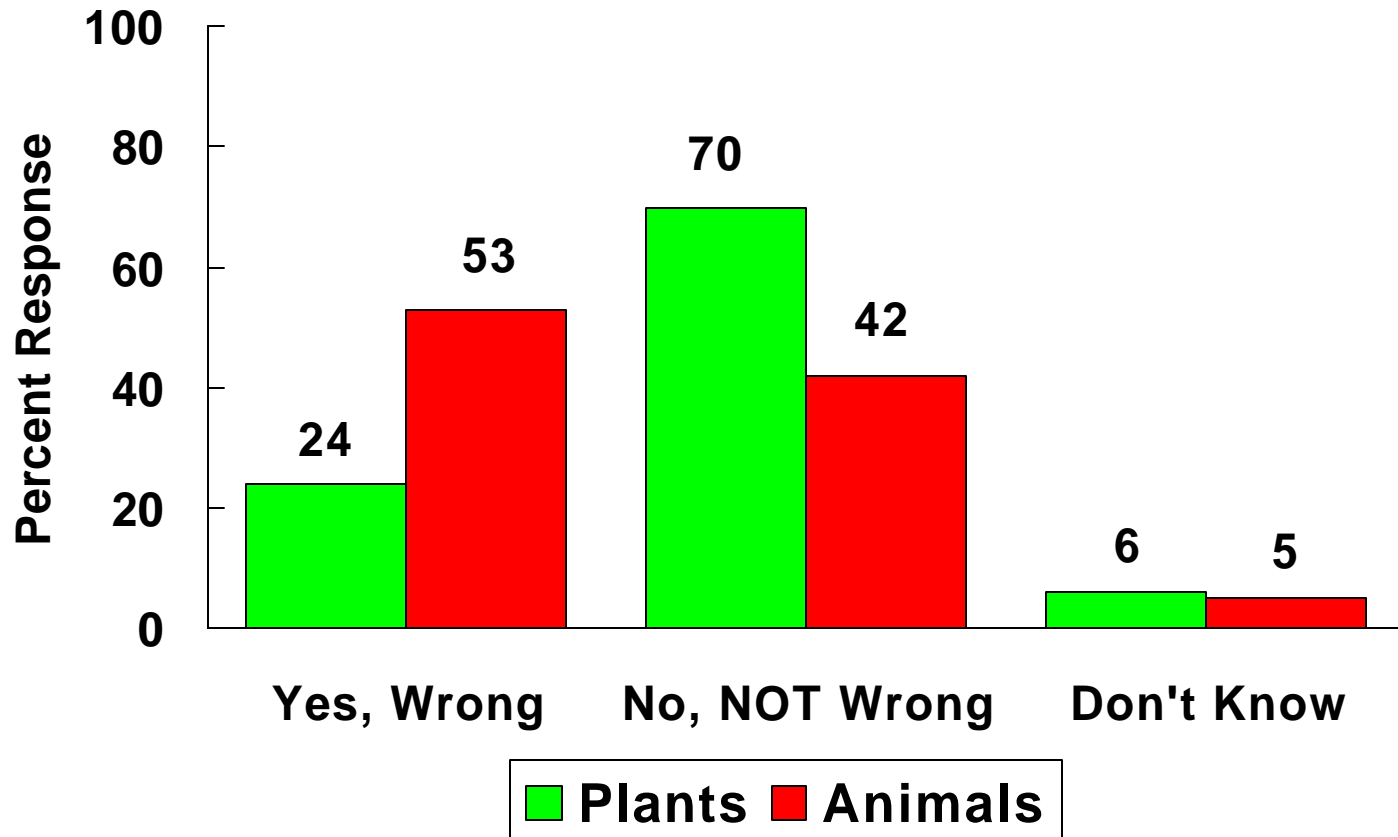


“If FDA determined that meat, milk and eggs from animals enhanced through genetic engineering (*cloned animals*) were safe, how likely would you be to buy them?”

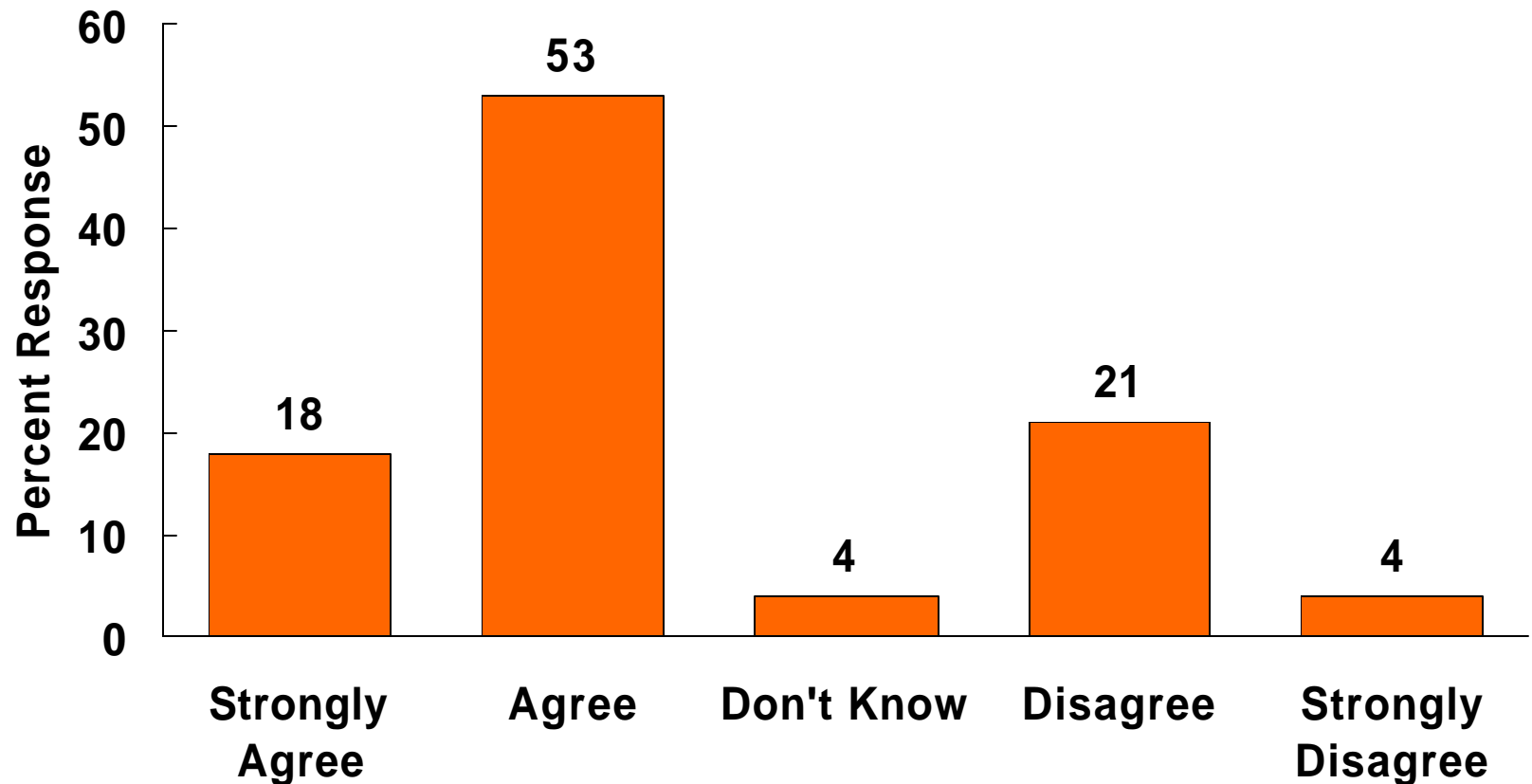


Most U.S. Consumers Believe Animal Biotechnology is Morally Wrong

(1 in 4 also object to Plants)

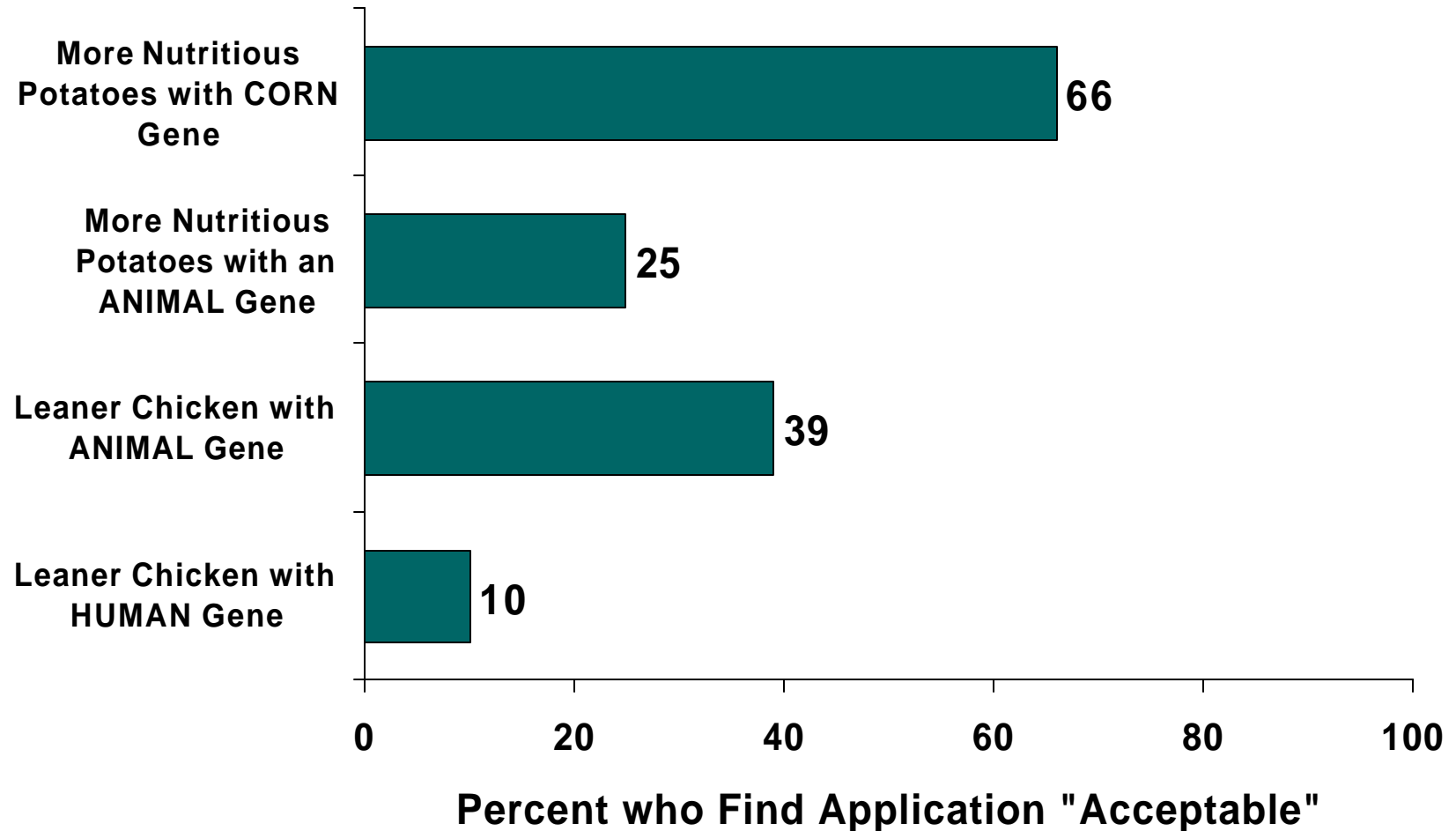


Most agree that “Animals have rights that people should not violate.”



Transgenic Applications Vary in their Acceptability to US Consumers

(based on source of the DNA)



Transgenic Hogs Used for Hemoglobin Production *(USDA-sponsored Focus Groups)*

- Recognized as an important medical need (similar to what we already do with animals)
- Women tended to be quite concerned about the ethics of animal modification or treatment
- Many felt uneasy about eating human genes
 - “I wouldn’t mind objectively, but way back down emotionally it would make me cringe.”
 - “Isn’t that like cannibalism?”
- Some did not see it as much of an issue:
 - “It would still just be pork.”
 - “I guess we probably would get used to it.”



US Consumers have Concerns about Policies and Regulations

American Consumers Express Concerns over Biotech Risks

- **80% agree** “Humans are not perfect, so serious accidents involving GM foods are bound to happen.”
- **74% agreed** “Nature is so complex it is impossible to predict what will happen with GM Crops.”

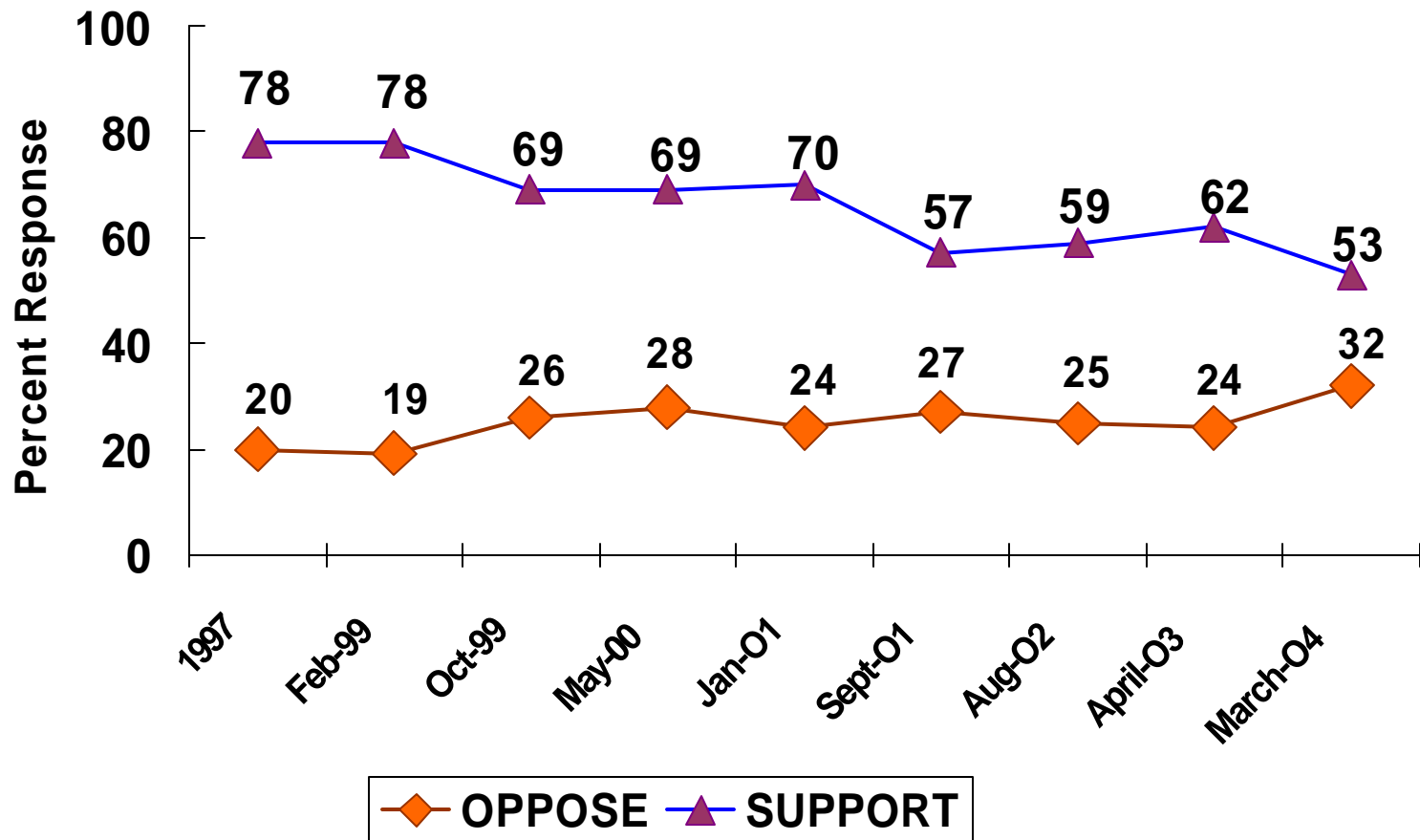
American Consumers Have Doubts about Motives and Management

- **73% agree** “Most GM foods were created because scientists were able to make them, not because the public wanted them.”
- **68% agree** “Companies involved in creating GM crops believe profits are more important than safety.”

American Consumers Expect MORE FDA Regulation of GM Food

- **89% agree** “Companies should be required to submit safety data to the FDA for review, and no GM food product should be allowed on the market until the FDA determines it is safe.” = *Consensus from FDA Hearings*
- **35% agree** “Companies should be allowed to put a GM food product on the market without any special review by the FDA, if the company can show it is as safe as any food.” = *Current Situation*

Public Support for FDA's Labeling Policy has Fallen in Recent Years





Conclusions and Implications

Animal Biotechnology will Lead to Significant Consumer Concerns

- USDA will face serious challenges from public concerns over meat and milk from cloned animals.
- Regulations are not yet in place to address the scientific issues (much less consumer choice).
- Animals present many ethical and emotional issues that go well beyond science and safety.
- Companies tend to be small and have no track record with the agricultural and food industries.
- Little has been done to communicate with the food industry which is understandably concerned.
- It will be a serious mistake to expect society to accept meat and milk from cloned or transgenic animals as “substantially equivalent.”



USDA Must Respect the Needs and Concerns of the Food Value Chain

- The food processing, retail and service sectors have significantly more market clout than the agricultural and biotechnology sectors combined.
- So far, biotech has only meant headaches and costs for the industry (no real benefits in sight for years.)
- The food industry has stated publicly that it does not want food crops used for pharmaceutical production.
- Industry leaders also feel strongly about not allowing cloned animals into the meat or milk supply.
- If food processors decide to stop accepting GMO crops, the ag biotech industry is basically done

How to Prevent Further Rejection of Biotechnology

- Recognize that concerned consumers and food companies are already moving toward organic foods
- Speed up development of crops with REAL consumer benefits (healthier oils, better taste, shelf life)
- Don't cause any more problems for the food industry (NO food crops for pharma)
- Ensure that the US government maintains a strong regulatory program to ensure food safety.
- Make sure all farmers comply with the requirements for IRM, identity preservation and regulatory approval (no planting until global approval)



Points for Reflection

- “Sound science” is only one factor influencing public perception and public policy. For many people this is no longer enough.
- People choose food based on emotion not logic; consumers want and will demand choice.
- Recognize that perception is reality. Education about benefits will not calm concerns over risk.
- Biotechnology benefits must exceed risks; but few benefits will outweigh moral objections (as with animal biotechnology)
- Need much more research and consultation as new products arrive and new issues arise.

For More Information:

<http://hoban.ncsu.edu>

