

# Top Ten Reasons the World Does Not Want Biotechnology

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# Biotechnology Must Serve Needs of Society

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The potential benefits of biotechnology will only be realized if society accepts the science and new products as safe and ethical.

***Such acceptance is not guaranteed.***



# Why the World Seems to Not Want Biotechnology

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- New food technologies are initially resisted (margarine, pasteurization, microwaves)
- Most people have limited knowledge about or interest in science and agriculture.
- Ethics and emotions play a major role in shaping public perceptions of food
- Confidence in government is a prerequisite for food industry and consumers
- Biotechnology raises complex moral and ethical issues that need attention (more so with animals than plants).

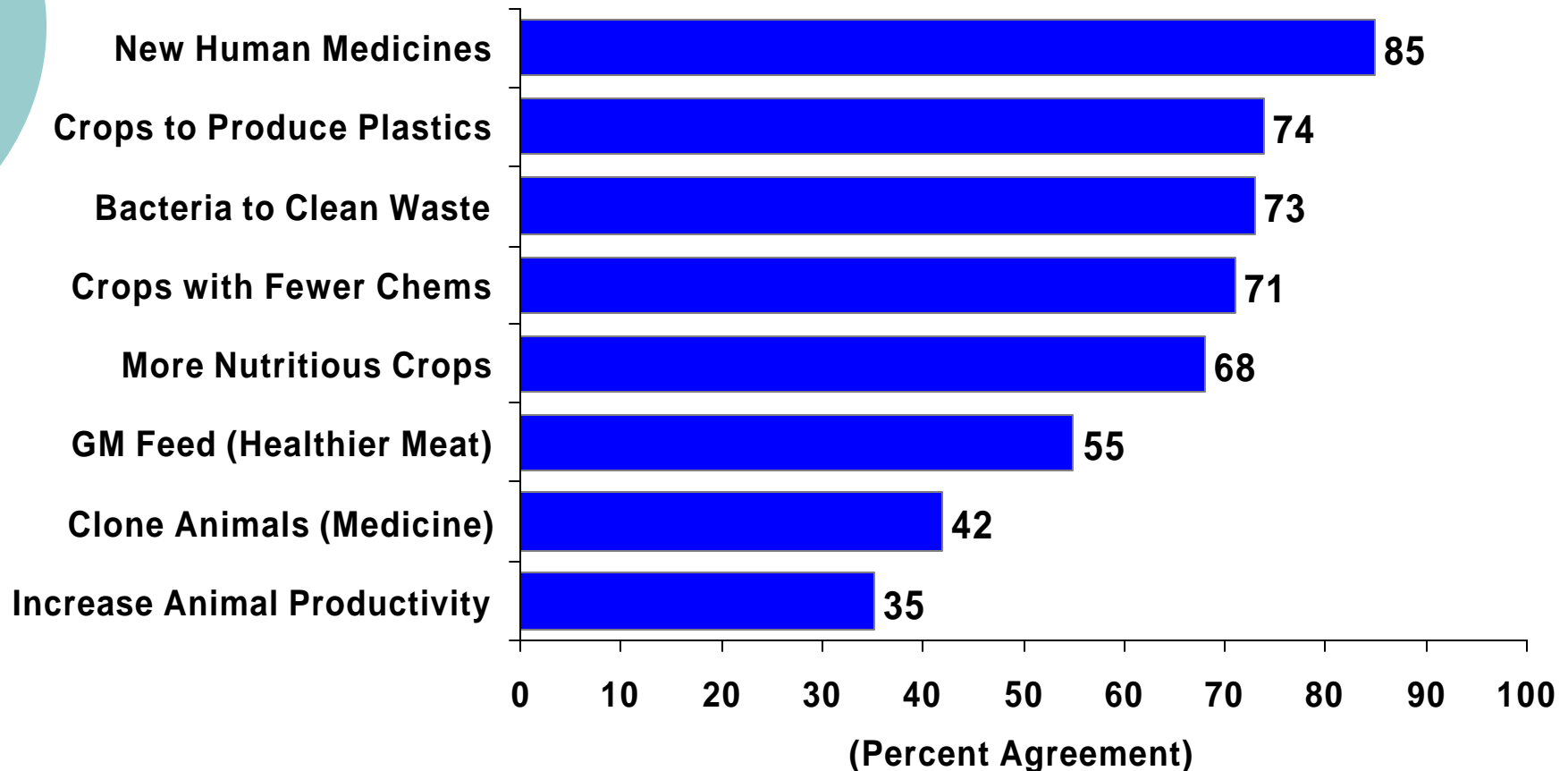


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# Some World Markets do NOT want Certain Biotech Products

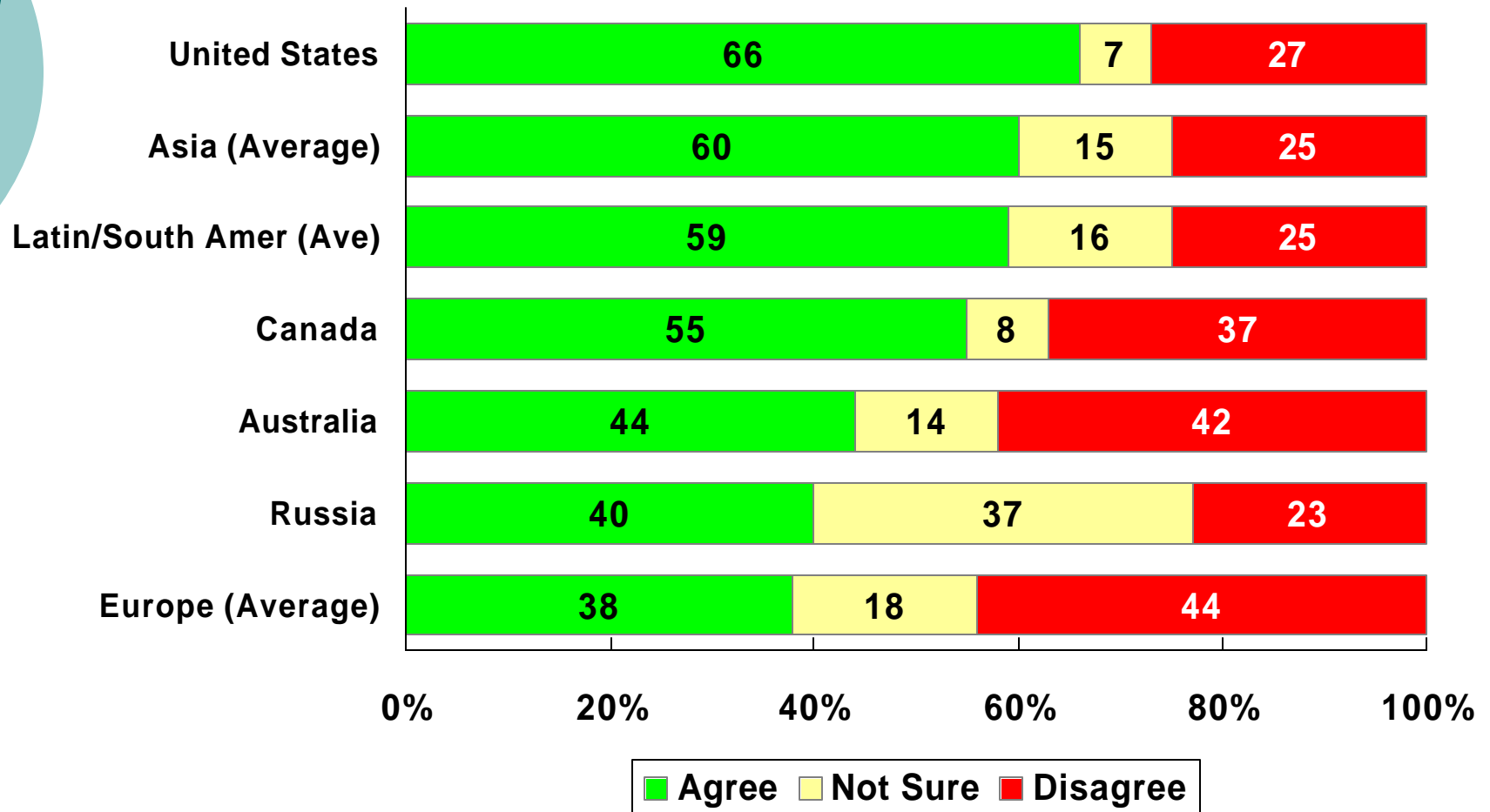
# Public Support Varies for Different Applications of Biotechnology

(Includes 35 Countries – N = 35,000)



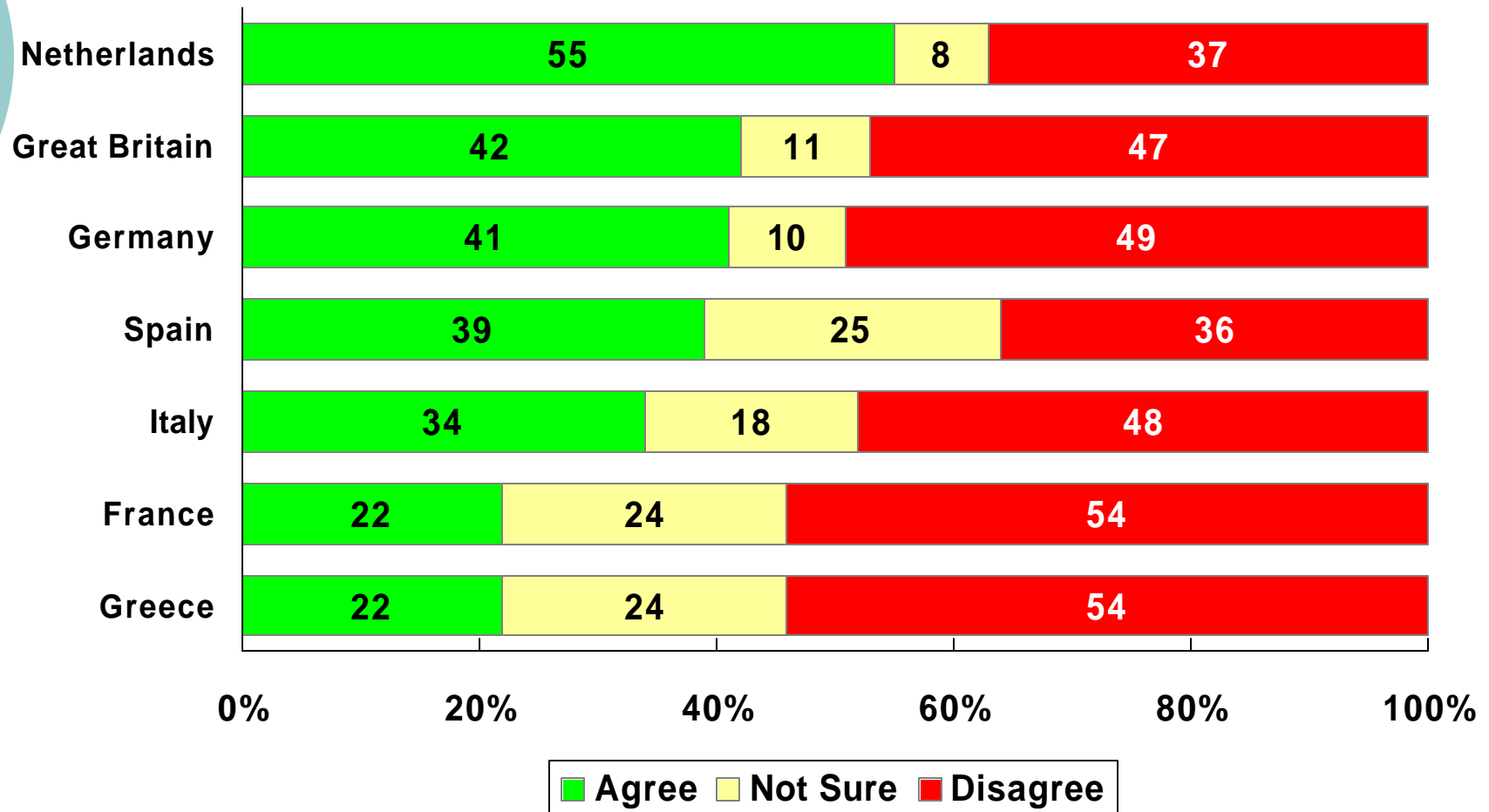
# “The benefits of biotechnology to create food crops that do not require chemical pesticides are greater than the risks.”

(35,000 Consumers from 35 Countries)

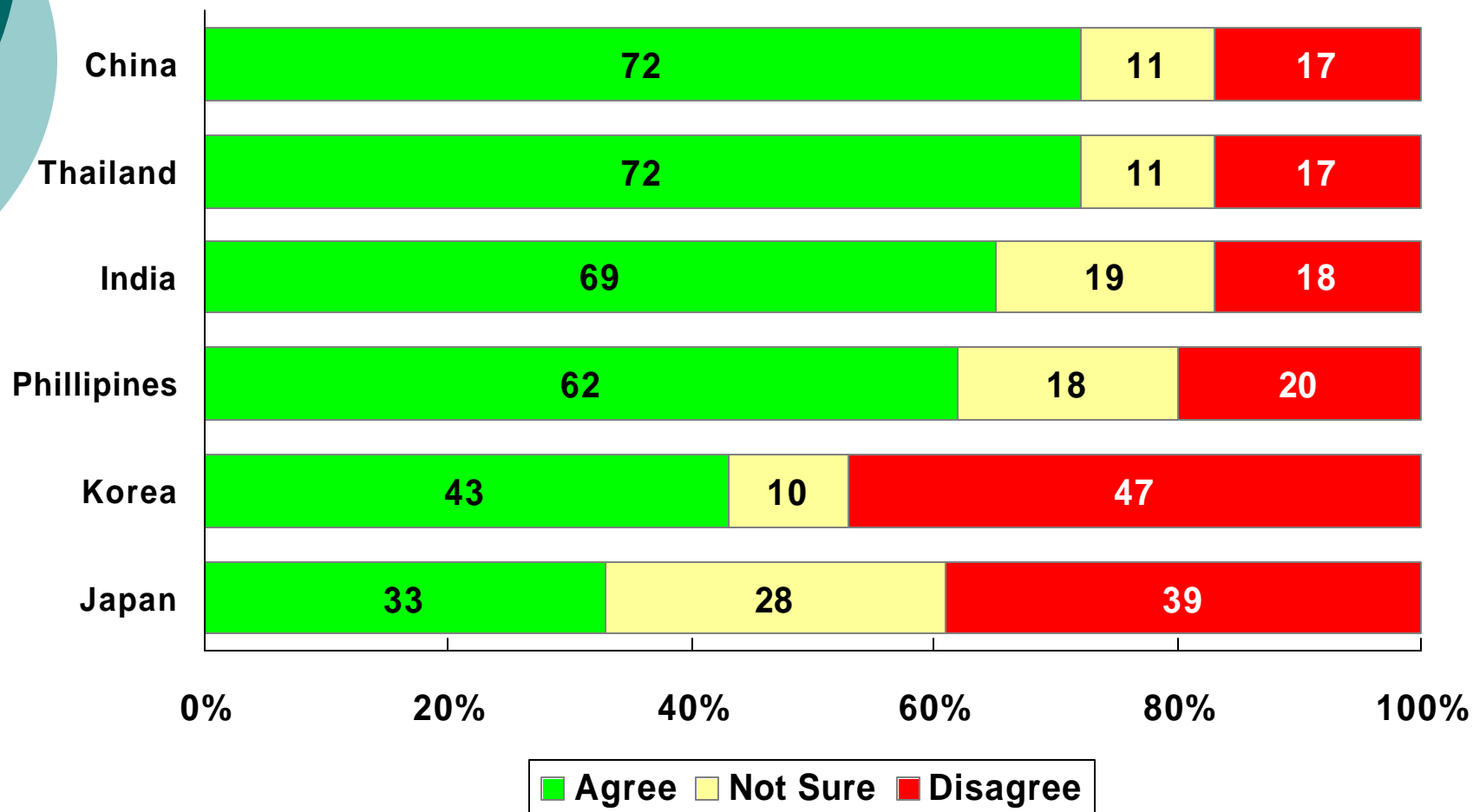


**“The benefits of biotechnology to create food crops that do not require chemical pesticides are greater than the risks.”**  
**(European Consumers)**

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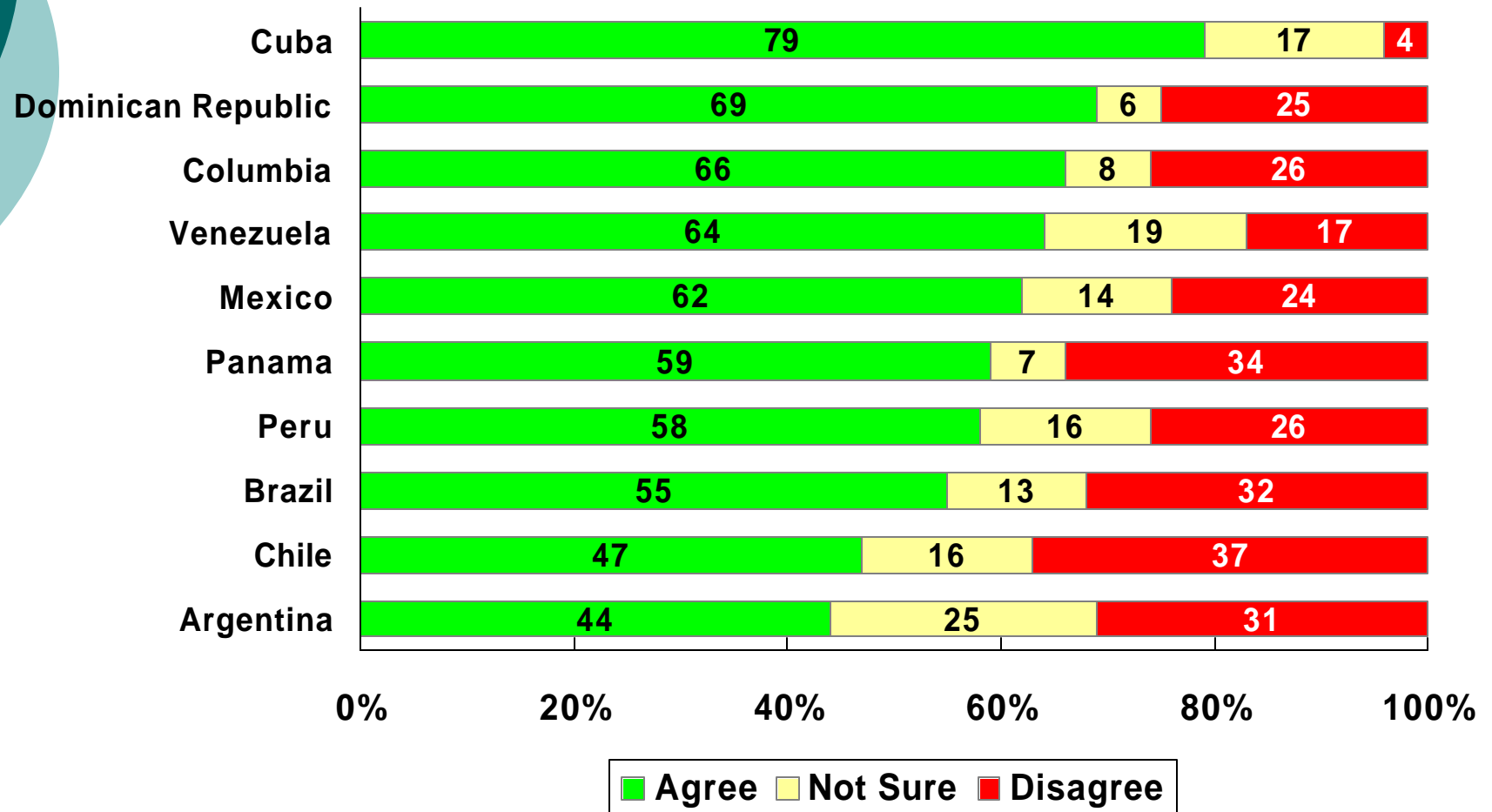


**“The benefits of biotechnology to create food crops that do not require chemical pesticides are greater than the risks.”  
(Asian Consumers)**

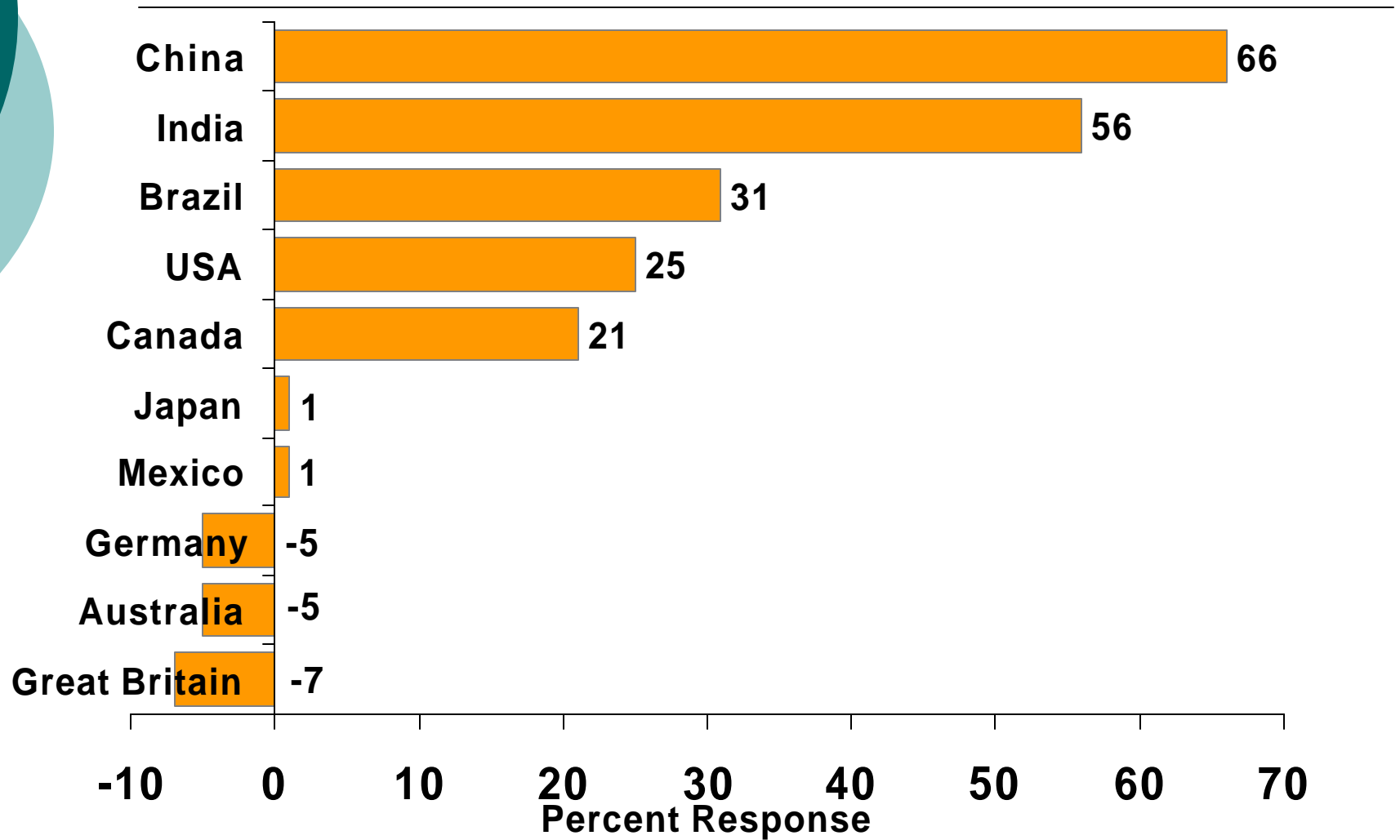


**“The benefits of biotechnology to create food crops that do not require chemical pesticides are greater than the risks.”**

**(Latin and South American Consumers)**



# Willingness to Buy GM Food if More Nutritious

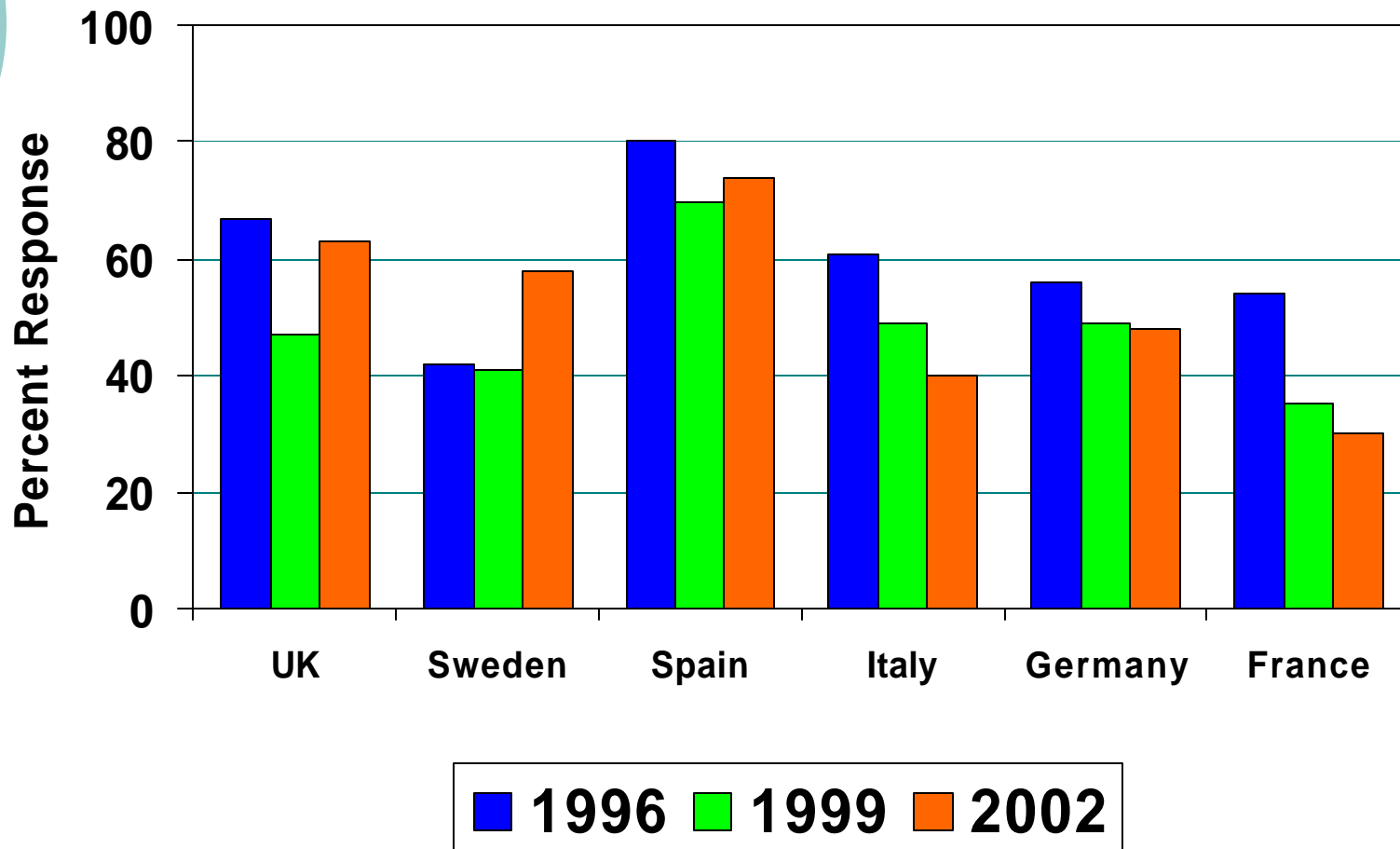




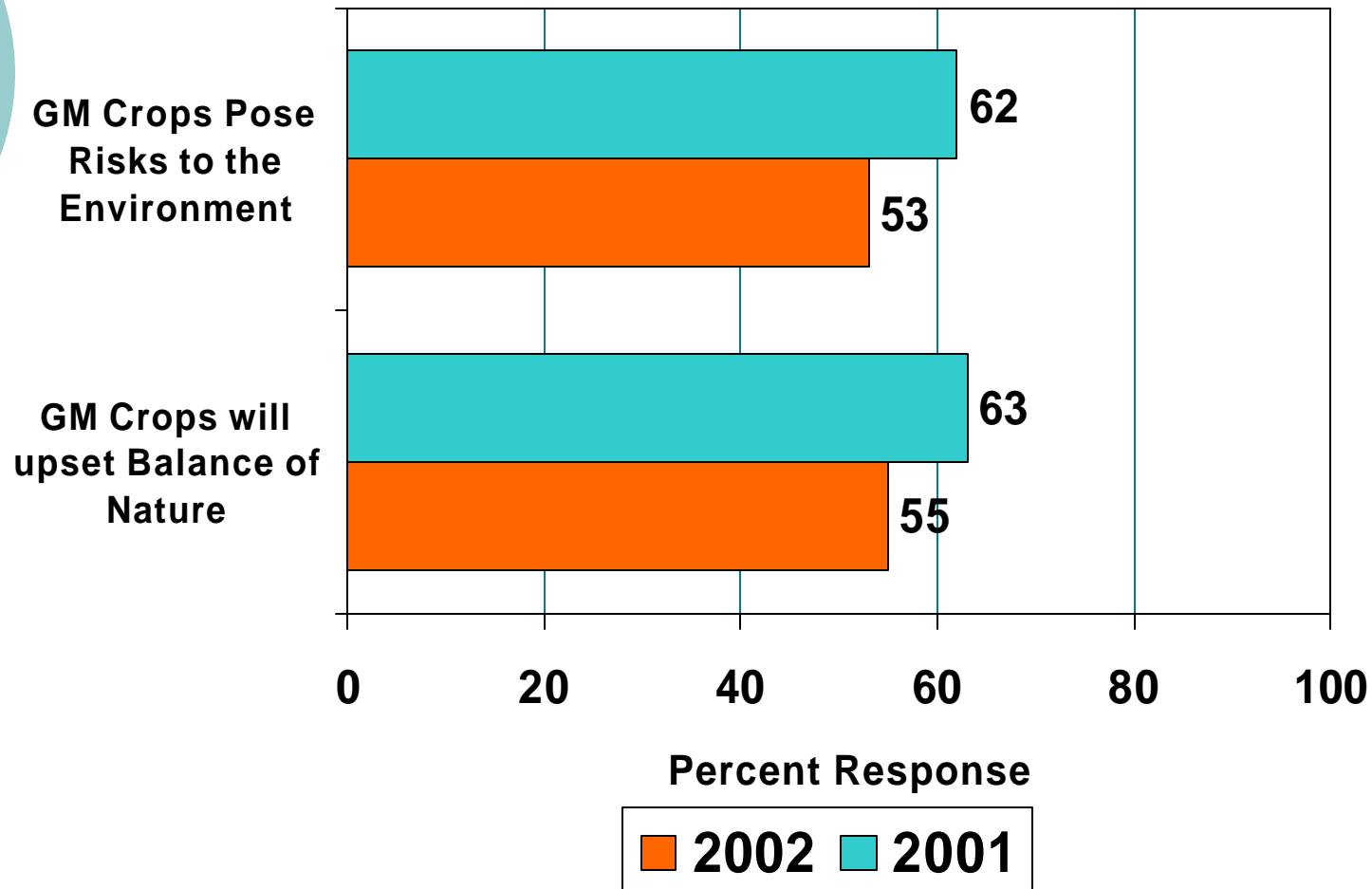
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# EU Consumers: *Things were Finally Getting Better*

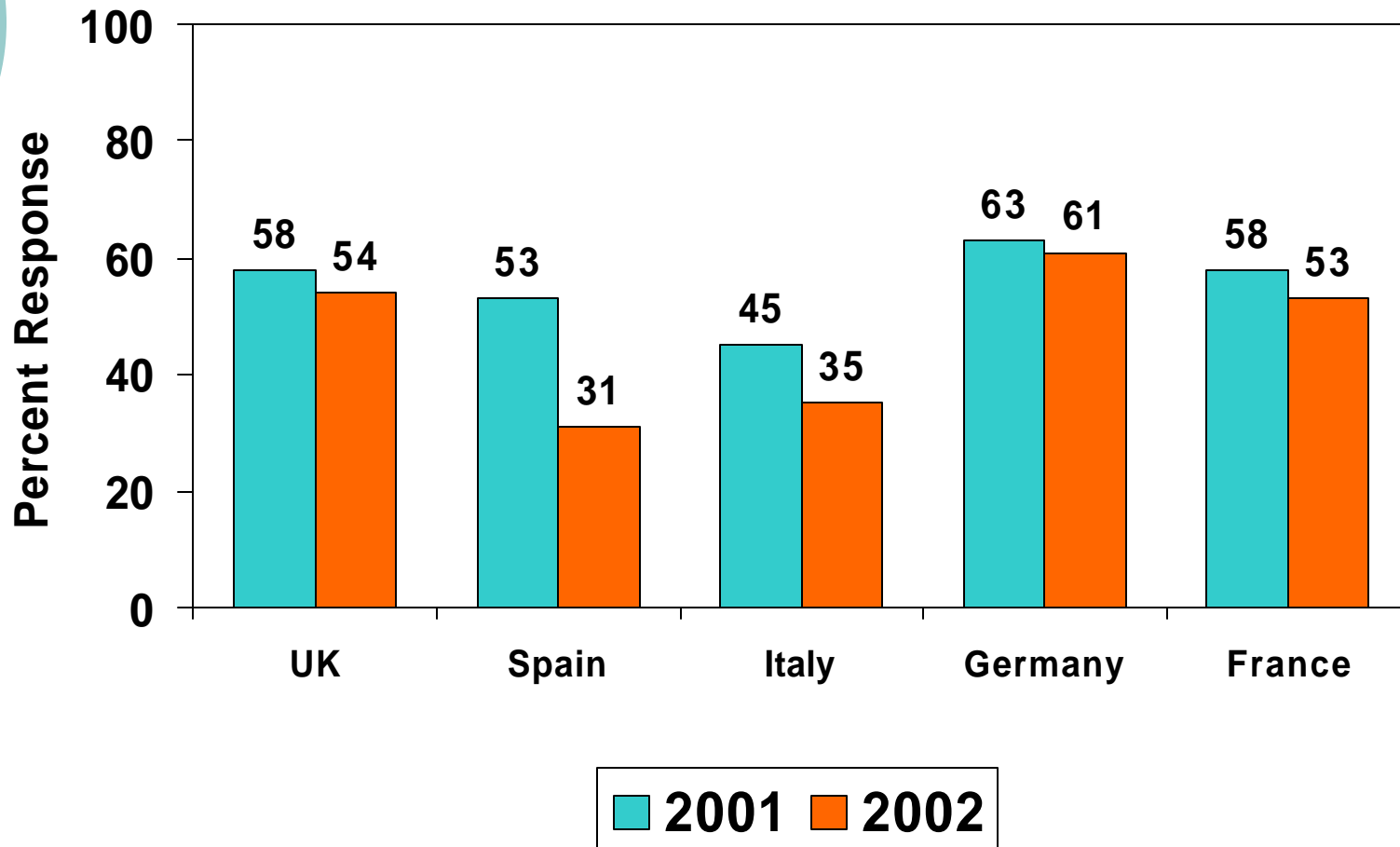
# Europeans' Support for Genetically Modified Food (Selected Countries)



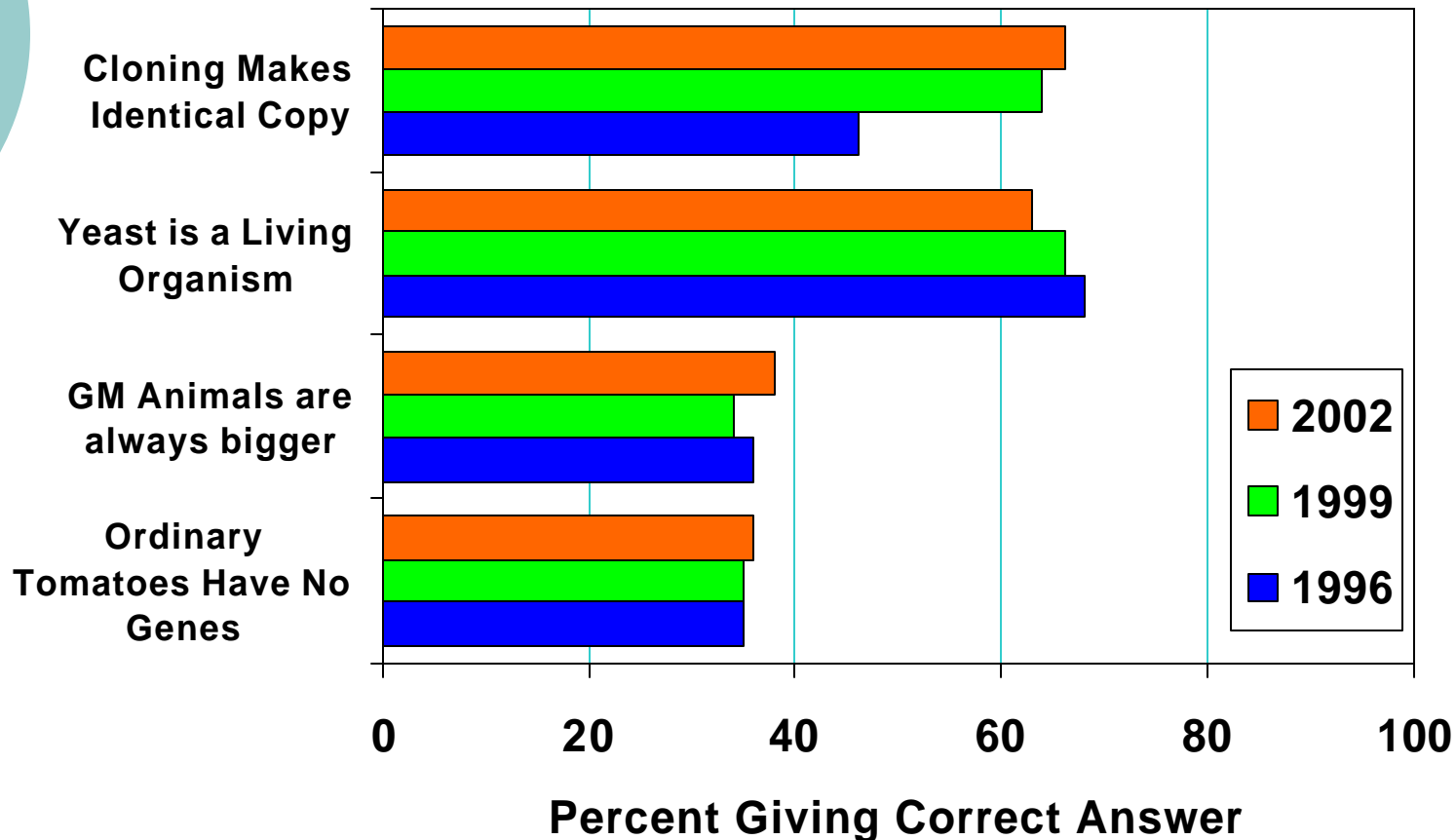
# European Views on GM Crop Impacts on Environment (Five Countries)



# Europeans Who Report they are Mostly Hearing Opponents' Views has Decreased



# Little Change in Europeans' Knowledge about Biotechnology



# Europeans Have Valid Reasons for their Slowness in Accepting GMOs

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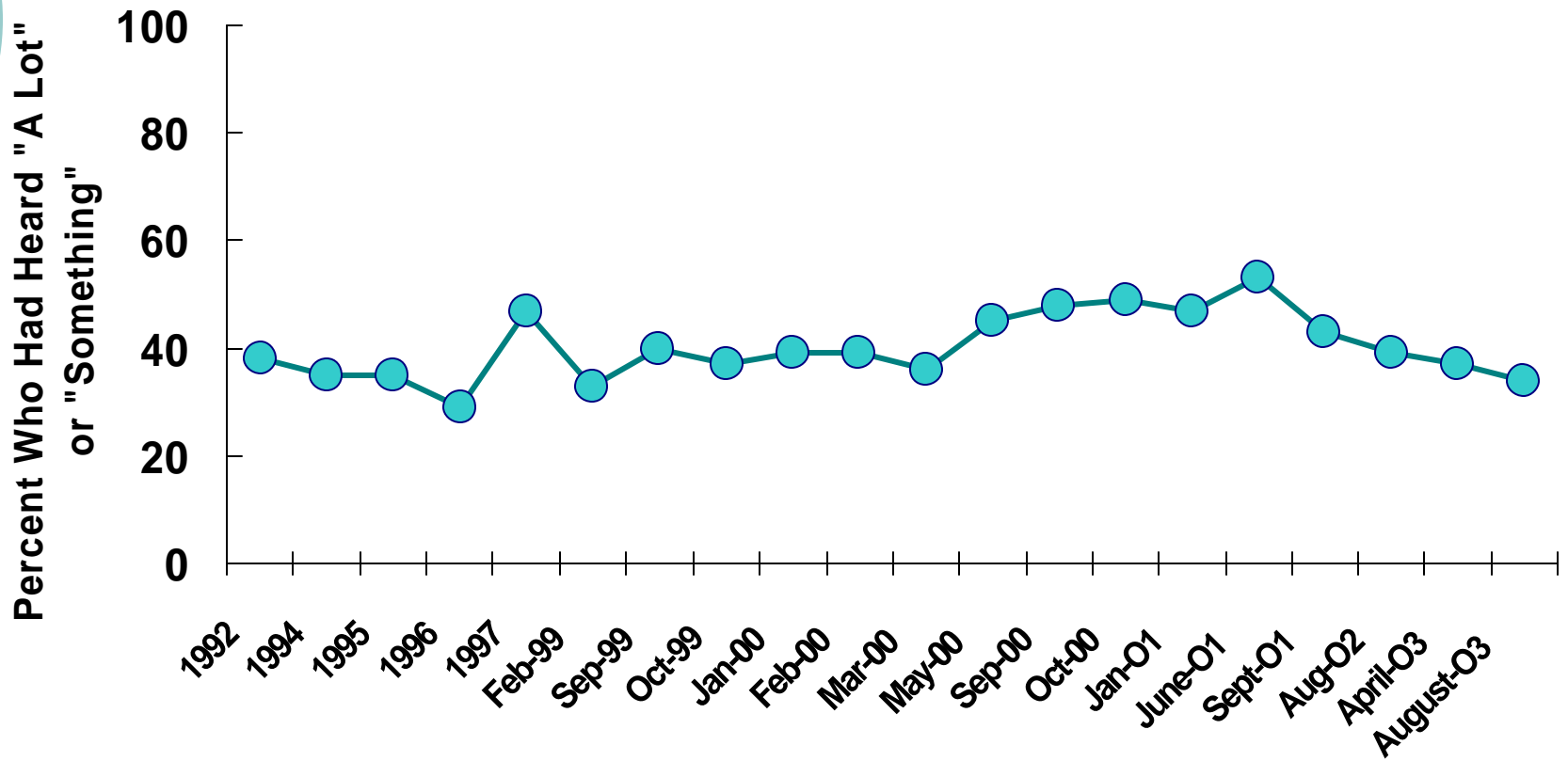
- Biotechnology arrived on the EU market on the heels of mad-cow disease and other problems
- EU consumers recognize no benefits from the first generation of GMOs
- Questions remain for many about the long-term safety for the environment and human health
- Given no clear benefits and the concern over risks, the EU position seems reasonable to their consumers
- Europeans resent Americanization in all its forms, but particularly when it comes to food (e.g., McDonalds)



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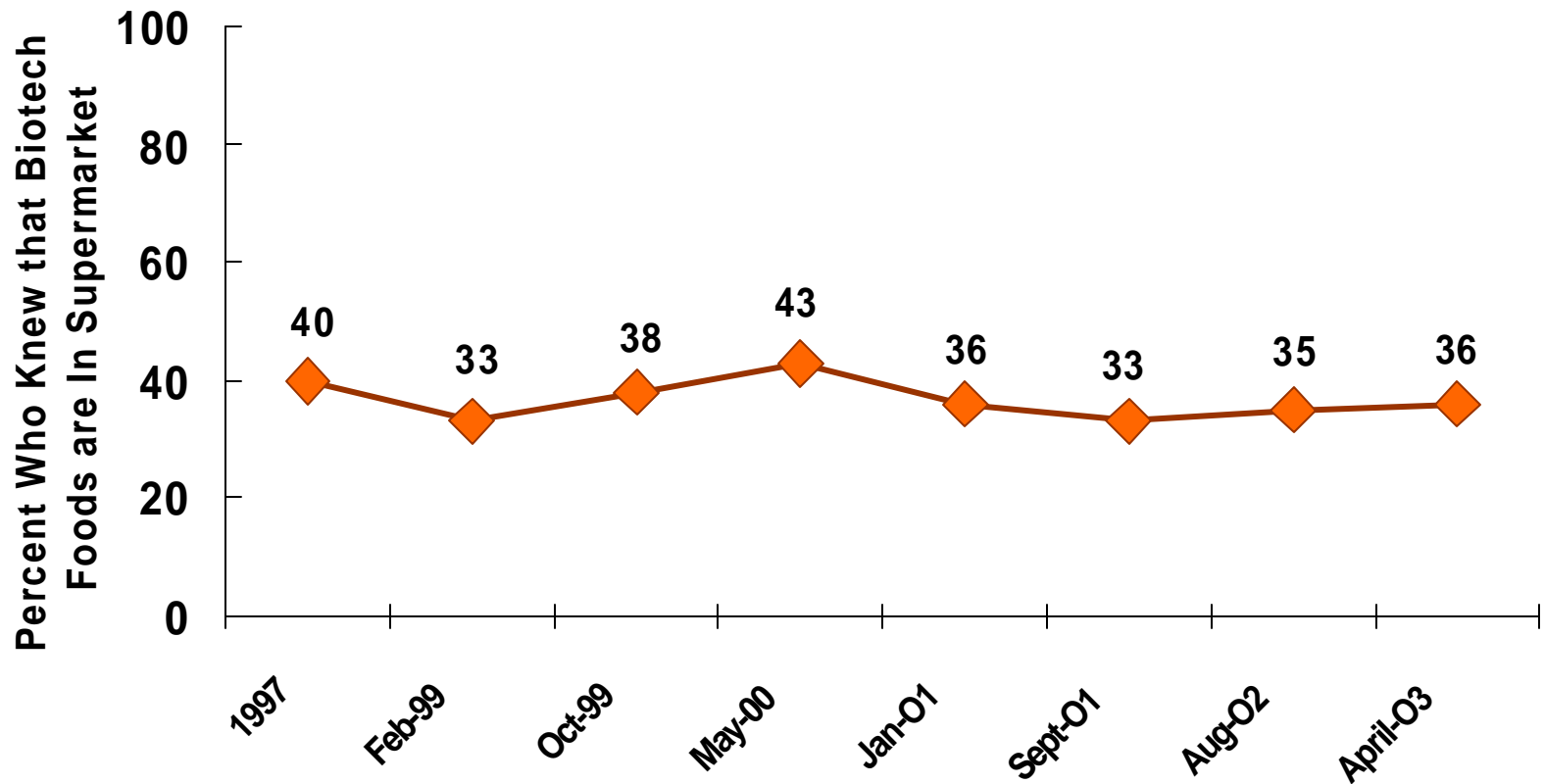
US Consumers:  
*Should Ignorance Be  
Considered Bliss?*

# Trends in U.S. Consumers' Awareness of Biotechnology

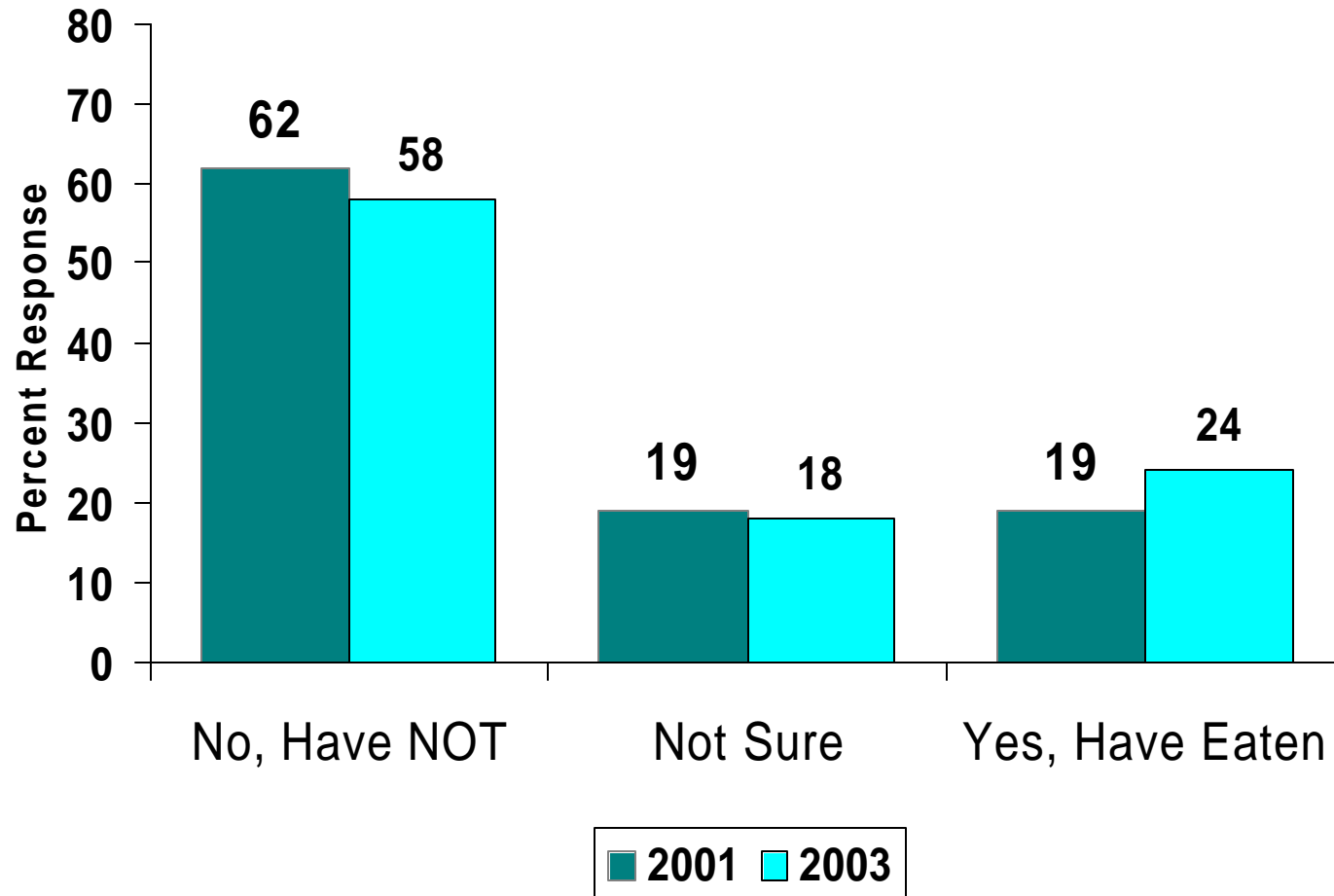


(Various Sources)

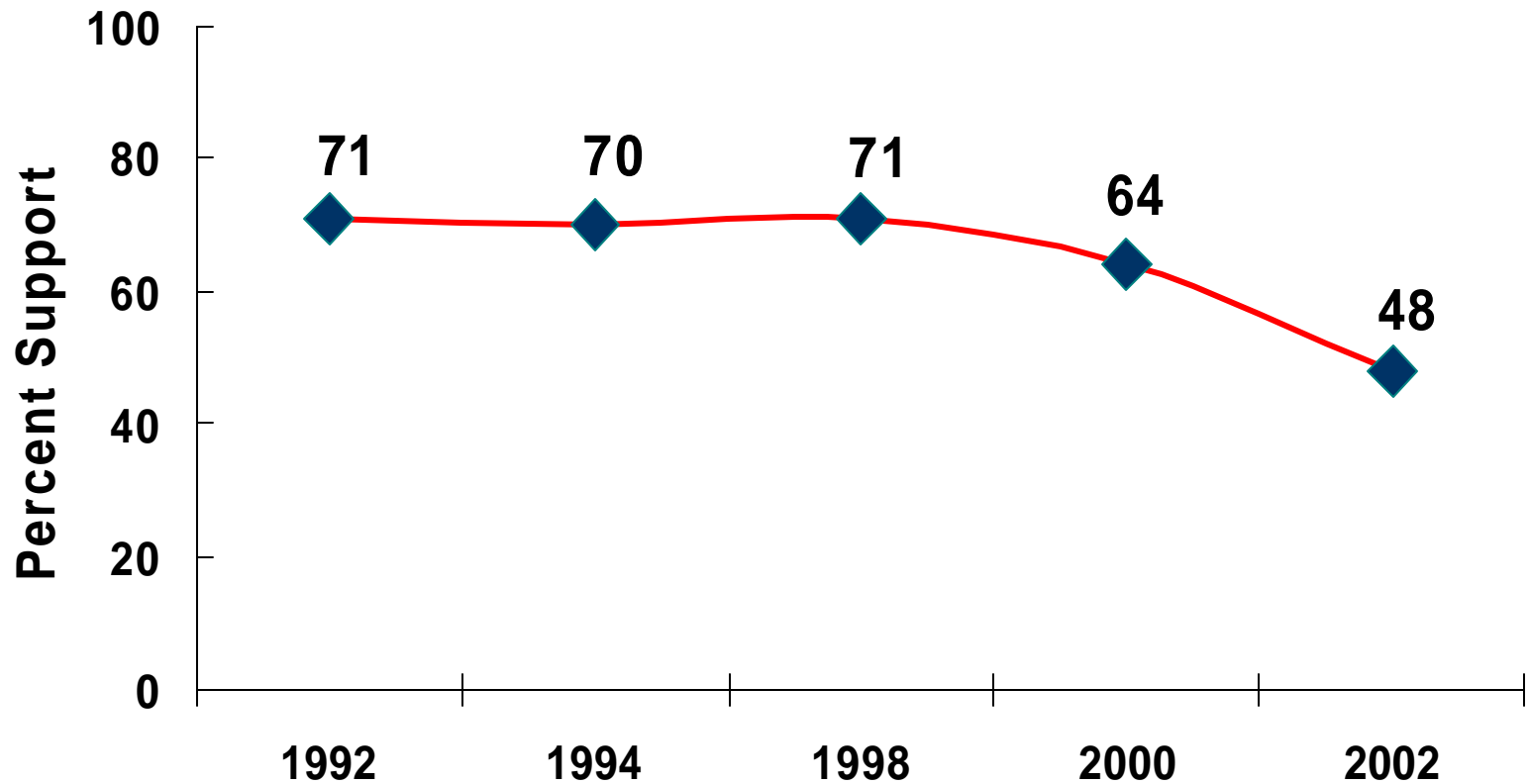
# Most American Consumers Still Do Not Know that Foods Produced with Biotechnology are Already in Stores



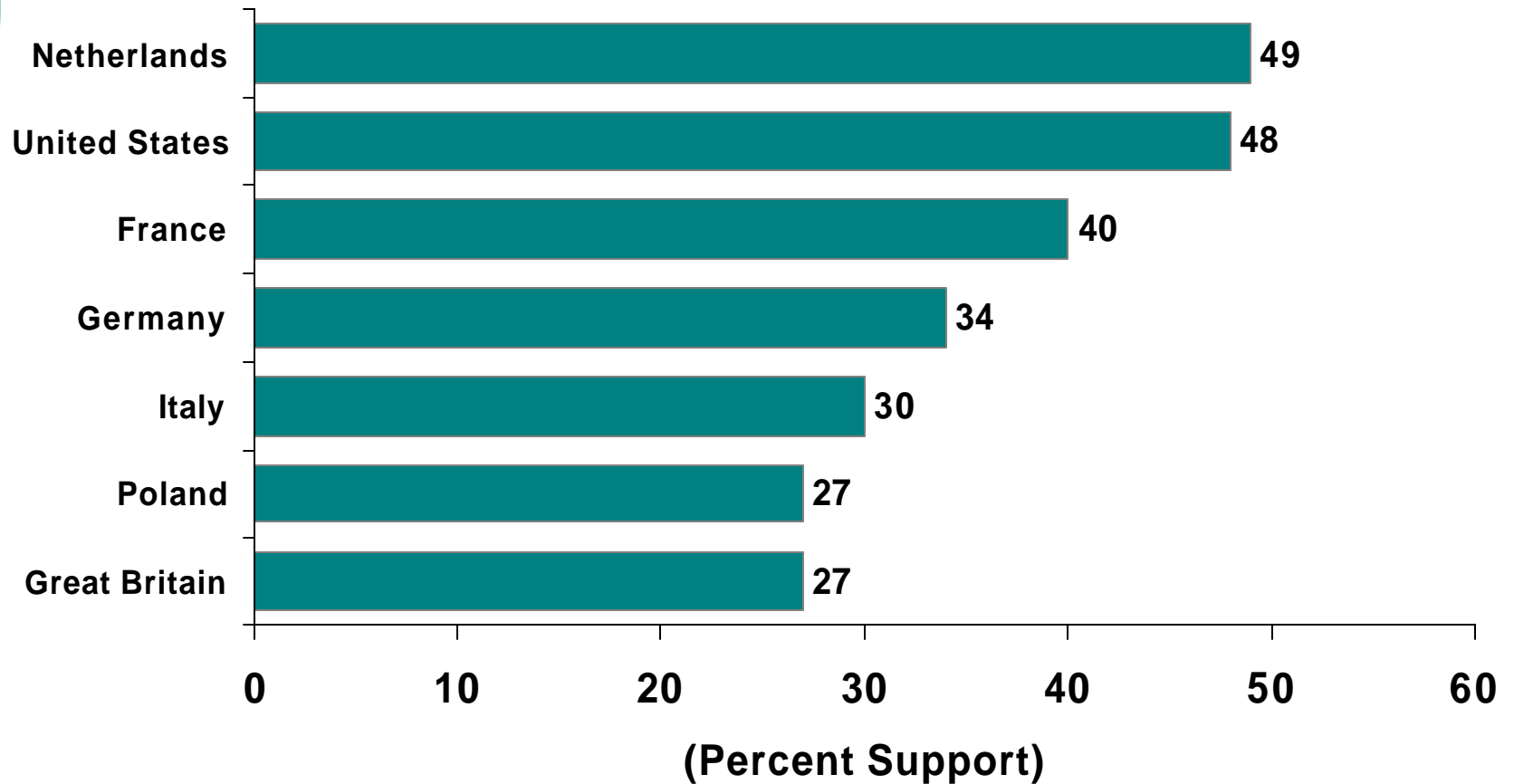
# Most US Consumers' Still Do Not Realize That They Already are Eating GM Foods



# American Consumers' Support for the Use of Biotechnology in Agriculture and Food Production has Recently Declined



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



# American Consumers Express Concerns over Biotech Risks

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- **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

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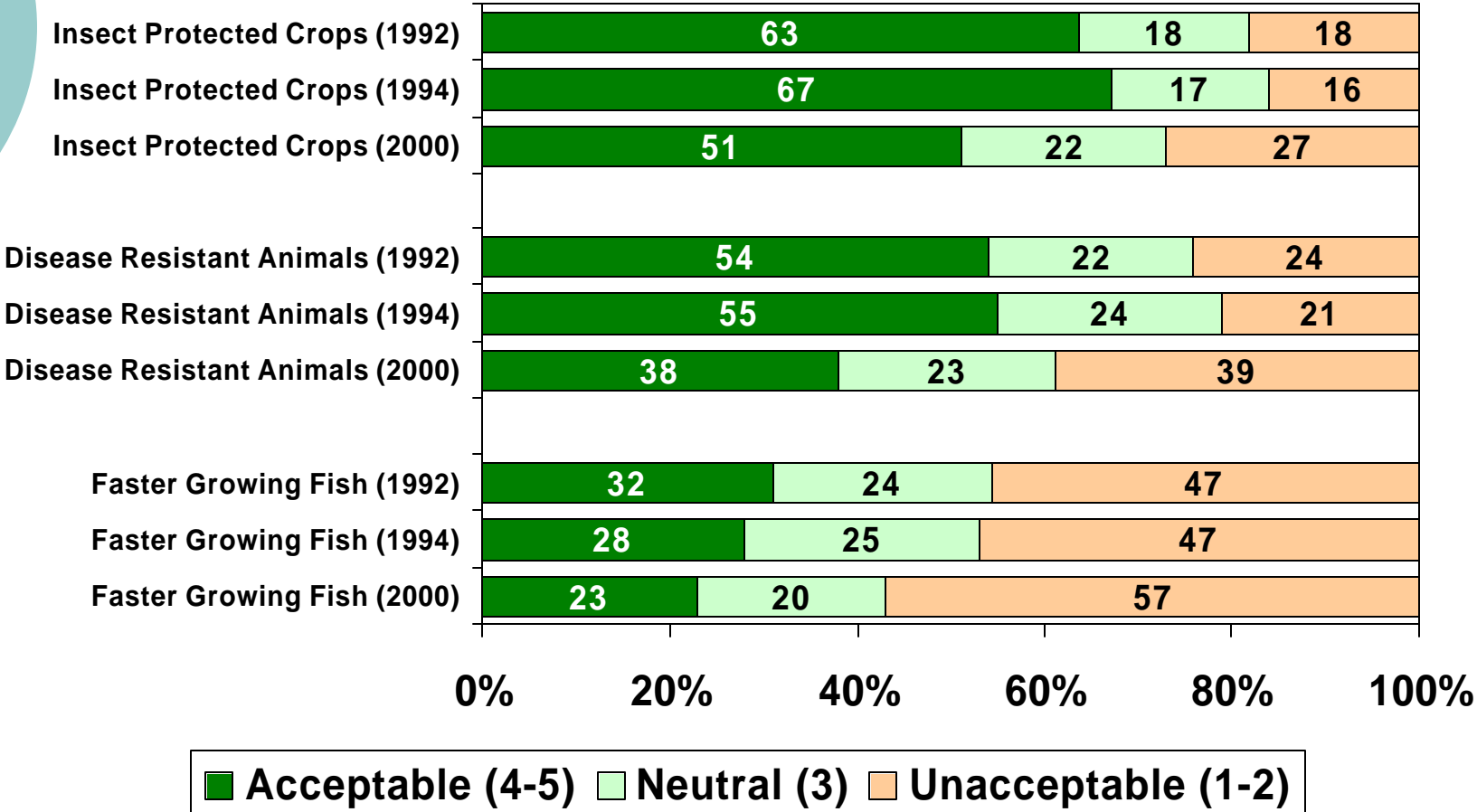
- **73% agree** “Most GM foods were created because scientists were able to make them, not because the public wanted them.”
- **68% agree** “Companies involved in creating GM crops believe profits are more important than safety.”

# American Consumers Expect MORE FDA Regulation of GM Food

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- **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.” = *Latest Word from Bush’s FDA*

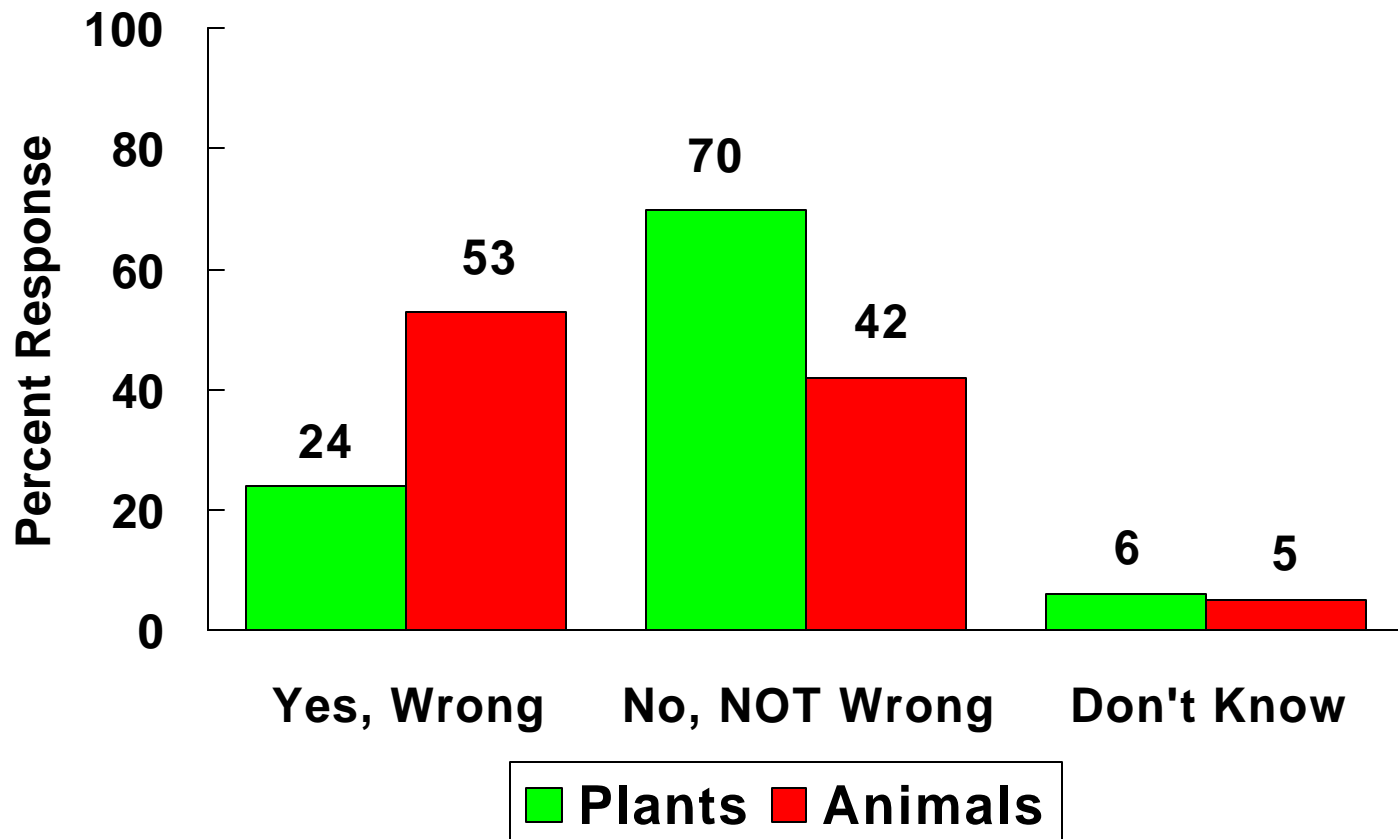
# US Acceptance of Biotechnology has Dropped – Especially for Animals



(Hoban, 1992-2000)

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

*(1 in 4 also object to Plants)*





# Why Animal Biotechnology is Less Acceptable than Plants

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- **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).**



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# **Conclusions and Implications**



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- Europe sets the tone as activists fight biotech industry by blocking the market
- Activist groups have found that GMO's can be an effective fundraising and PR tool
- Experts focus on logic and science, while lay public relies on emotion and ethics.
- Initial products seen as only benefiting the biotech industry and large-scale US farms
- The US is seen as trying to force feed GMOs to the EU and rest of world



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- Food industry has been caught in the middle with nothing to gain and much to lose.
- Developing countries resent being pawns in the US-EU trade war – need assistance.
- People value nature for its own sake and have legitimate concerns about biotech.
- Proponents have hyped benefits, while downplaying risk and stifling dissent
- The US government has made matters worse with the poorly-timed WTO case

# The GMO Controversy had Finally Started to Die Down in the EU

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- Consumer acceptance had started to climb in key EU markets over the past few years
- Relatively few stories had been appearing in the European media and the anti-GMO groups had lost some of their momentum.
- The EU government and industry had instituted a number of educational initiatives aimed at promoting consumer confidence and acceptance
- The WTO case has thrown the issue back into the media and provided renewed legitimacy and visibility to the anti-GMO groups

# The World Expects Strong Government Policies

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- Recent news that FDA will not seek mandatory review of GM foods sends a very negative signal to consumers and the food value chain
- The Bush administration may win the WTO trade war but they will lose the hearts, minds, and stomachs of many consumers -- not only in the EU but in the US and elsewhere.
- FDA review will need to be much stronger when foods are no longer substantially equivalent (but are functionally non-equivalent)
- The federal government is unprepared for the arrival of cloned or genetically modified animals (consumer opposition could spill over into plant biotech).

# When the Food Industry Speaks, Agriculture Needs to Listen

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- So far, the food industry has stood behind biotech even though they have received no benefits.
- Biotech has already caused headaches (e.g., Starlink), but bigger problems await (pharma corn, animals)
- Food companies will be forced to either source non-GM grains for all products in the EU (which will cost more) or label their foods accordingly.
- New functional foods will need to be labeled in the US since they will no longer be “substantially equivalent”
- Once foods are labeled in the EU, the food industry might as well do it worldwide.



# Communication Strategies

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- Reach out to key target audiences (media, opinion leaders, educators, and others).
- Listen to and respect consumer concerns.
- Acknowledge we have been consuming foods with GM ingredients for at least five years.
- Use a variety of communication channels (op-eds, media tours, schools and community groups)
- Partner with Extension, LGUs and other sources
- To promote actual consumer demand (instead of just holding off rejection) use most persuasive message for US consumers: ***“Biotechnology reduces the use of chemical pesticides.”***

# How to Prevent Further Rejection of Biotechnology

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- 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, consider hemp)
- Ensure that the FDA 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

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- “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)

For More Information:

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<http://hoban.ncsu.edu>

