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The Role of GMOs in Trade Disputes¹

Andrew Schmitz, Charles Moss, and Won Koo²

In October of 2003, industry representatives, government leaders, and academicians met in San Antonio, Texas, to examine the role of genetically modified organisms (GMOs) in worldwide trade disputes, with a focus on GMOs as barriers to trade. The major conference sponsor was the Farm Foundation. Other sponsors included the Ben Hill Griffin Jr. Chair, University of Florida; the Center for Agricultural Policy and Trade Studies, North Dakota State University; the Center for North American Studies, Texas A&M University; the Economics and Management of Agrobiotechnology Center, University of Missouri-Columbia; the IMPACT Center, Washington State University; and the International Agricultural Trade and Policy Center, University of Florida.

GMOs in agricultural products have met with consumer resistance both domestically and abroad, resulting in marketing and policies that could disrupt trade and international negotiations. Research presented during the conference focused on three areas: (1) technical aspects of GMOs and their international impacts, (2) property rights surrounding GMOs and identity preservation costs associated with keeping marketing channels segmented, and (3) consumer education related to GMOs.

Technical Aspects of GMOs

Harvey Glick with Monsanto; Robert Evenson of Yale University; and David Zilberman of the University of California-Berkeley discussed the technical aspects of GMOs, including seed development, crop yields, and environmental issues, especially within the context of developing countries.

Glick discussed how the Green Revolution of the 1960s and today's Gene Revolution (improving plants through modern biotechnology) have helped increase crop yields and productivity. For example, transgenic (genetically modified) crops increase crop yields while decreasing costs through better weed and pest control.

However, as pointed out by Evenson, the promise of productivity gains from transgenic crops in developing countries is constrained because only two mechanisms for using GMOs are available to them: genes-for-rent and transgenic breeding. Genes-for-rent is where a recipient country agrees to pay a technology fee to a seed company to incorporate a GMO into its traditional crops, and transgenic breeding is where biotechnology is used to introduce specific traits of value in crop varieties via GMOs. At present, few developing countries have the

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2. Andrew Schmitz, Professor, and Charles Moss, Professor, Department of Food and Resource Economics, Florida Cooperative Extension Service, UF/IFAS, University of Florida, Gainesville, FL; and Won Koo, Professor, Department of Agricultural Economics, North Dakota State University, Fargo, ND.

intellectual property rights, regulatory regimes, or technical skills to support these mechanisms.

There has been much debate about agricultural biotechnology. Zilberman suggests that if managed correctly, agricultural biotechnology can increase crop biodiversity. He also argues that the risks involved in agricultural biotechnology (e.g., potential damage to beneficial insects) must be weighed against the expansion of agricultural production.

Property Rights and Identity Preservation Costs

Richard Gray of the University of Saskatchewan; Charles Moss and Andrew Schmitz of the University of Florida; Troy Schmitz of the Arizona State University; and Bill Wilson and Eric DeVaut of the North Dakota State University discussed property rights and crop segmentation.

The assignment of property rights has become a major point of debate concerning GMOs. Gray, Moss, and Schmitz contend that, under the current U.S. system, producers of genetically modified crops could create significant economic losses to producers of non-genetically modified crops. Economic losses could be reduced by changing property rights so that GMO innovators would bear the cost of introducing GMOs, rather than producers and consumers.

Property rights, however, are only part of the struggle with marketing GMOs. Wilson identified other elements of costs and risks within the marketing chain, including identity preservation costs, accidental commingling of genetically modified and non-genetically modified products at various stages of the marketing chain, and the accuracy of testing new technologies.

The United States has been embroiled in several genetically modified product cases—most notably, StarLink corn. Schmitz and Moss pointed out that although StarLink corn has not been approved for food use in the United States, it has been found in the U.S. food chain. The economic costs of StarLink have exceeded \$100 million, due in part to the inability to segment StarLink corn from non-genetically modified corn.

At the conference, several studies were presented on the impact of identity preservation costs resulting from the introduction of GMOs in corn, wheat, and soybeans. For example, DeVuyst states that there is considerable debate on the impact of using GMOs in wheat varieties in the United States and Canada. He suggests that genetically modified wheat could face considerable resistance from traditional wheat importers since some countries reject the use of GMOs.

Consumer Education

Studies are being conducted to test consumer perceptions and acceptance of genetically modified products. Ian Sheldon of Ohio State University; Fu-Sung Chiang of the Institute of Applied Economics at the National Taiwan Ocean University; and Thomas Wahl of Washington State University, in separate studies, found that the resistance to GMOs is much greater in Europe, Japan, and Taiwan than in the United States.

GMOs are highly controversial in Europe. Sheldon discussed the European Union's system of regulating agricultural biotechnology and the legal implications. He further speculated on whether the European Union's biotechnology regulations violate the World Trade Organization's agreements.

There has also been debate about GMOs in developing countries. According to Huffman, without GMO biotechnology, developing countries could experience malnutrition, micronutrient deficiencies, starvation, and unsustainable development.

Chiang's study investigated consumer acceptance of genetically modified foods by analyzing consumer behavior in Taiwan. He found consumers, in general, to be inadequately educated about biotechnology (40 percent considered themselves uninformed on the issue).

Education plays a key role in the future of GMOs. For example, there was initial resistance in the United States to foods containing StarLink corn because of adverse publicity by environmental groups. Marks found that consumer resistance to

GMOs quickly faded when presented with favorable information on agricultural biotechnology.

International trade is important to the future of GMOs. According to Oehmke, GMOs bring new concerns into an already challenged world trading system. There needs to be more emphasis on educating consumers worldwide about the benefits of agricultural biotechnology.

Sources

Technical Aspects of GMOs

Technical Aspects Of GMOs Speakers:

- Robert Evenson, Yale University, New Haven, CT
- Harvey Glick, Monsanto, St. Louis, MO
- David Zilberman, University of California-Berkeley, Berkeley, CA

Property Rights and Identity Preservation Costs

Property Rights and Identity Preservation Costs Speakers:

- Eric DeVuyst, North Dakota State University, Fargo, ND
- Richard Gray, University of Saskatchewan
- Won Koo, North Dakota State University, Fargo, ND
- Charles Moss, University of Florida, Gainesville, FL
- Andrew Schmitz, University of Florida, Gainesville, FL
- Troy Schmitz, Arizona State University, Tempe, AZ
- Bill Wilson, North Dakota State University, Fargo, ND

Consumer Education

Consumer Education Speakers:

- Fu-Sung Chiang, Institute of Applied Economics, National Taiwan Ocean University, Taiwan
- Wallace Huffman, Iowa State University, Ames IA
- Nick Kalaitzandonakes, University of Missouri-Columbia, Columbia, MO
- Jill McCluskey, Washington State University, Pullman, WA
- Leoni Marks, University of Missouri-Columbia, Columbia, MO
- Ian Sheldon, The Ohio State University, Columbus, OH
- Monika Tothova, Michigan State University, East Lansing, MI
- Thomas Wahl, Washington State University, Pullman, WA