

The effects of prior beliefs and learning on consumers' acceptance of genetically modified foods

Wallace E. Huffman^{*,1}, Matthew Rousu²,
Jason F. Shogren³, Abebayehu Tegene⁴

Department of Economics, Iowa State University, Ames, IA 50011, United States

Received 5 November 2004; accepted 27 April 2005

Available online 10 March 2006

Abstract

New food products using genetically modified crops appeared in U.S. supermarkets starting in 1996, and consumers' perceived some risks. This paper examines the role of consumers prior beliefs about genetic modification and of diverse, new information on their willingness to pay for foods that might be genetically modified. We use data from economics experiments and show that participants who had informed prior beliefs discounted GM-labeled food products more highly than those who had uninformed prior beliefs. Uninformed participants were especially susceptible to information from interested and third parties. In contrast, informed participants were generally not affected significantly by new information.

© 2006 Elsevier B.V. All rights reserved.

JEL classification: C91; D12; D82

Keywords: Laboratory experiments; *n*th-Price auction; Food labels; Diverse information; Learning; Prior beliefs; Consumers; Willingness to pay

* Corresponding author. Tel.: +1 515 294 6359; fax: +1 515 294 0221.

E-mail address: whuffman@iastate.edu (W.E. Huffman).

¹ The author is a C.F. Curtiss Distinguished Professor of Agriculture and Professor of Economics, Iowa State University.

² The author is an Assistant Professor, Susquehanna University.

³ The author is a Stroock Distinguished Professor of Natural Resource Conservation and Management, Department of Economics and Finance, University of Wyoming.

⁴ The author is a Senior Economist, Food and Rural Economics Division, ERS, U.S. Department of Agriculture.

New food products made from genetically modified crops appeared in U.S. supermarkets starting in 1996. The genetic modification consisted of herbicide tolerance and insect resistance that have been introduced into field crops through the use of techniques in modern biotechnology. Herbicide tolerance and insect resistance are so-called input traits that reduce the expected cost of production to farmers (Fernandez-Cornejo and McBride, 2002; FAO, 2004) but have no direct benefit to consumers and pose some risks (Chern and Rickertsen, 2004; FAO, 2004). Consequently, GM products have been subject to much controversy (claims by environmental groups of reducing biodiversity, new food safety concerns due to allergens, and ethical concerns regarding the movement of genes across species), and they have raised important new issues in trade talks especially between the U.S. and the European Union.

Huffman et al. (2003) examined the effects of GM-food labels on bidding behavior of participants in an experimental auction, and Rousu et al. (2004) developed a methodology to value the contribution of third-party information in a setting with conflicted information. These papers, however, have not focused on the contributions of subjective prior beliefs about genetic modification in an experimental auction-market setting. Consumers have subjective prior beliefs about attributes of goods (Akerlof, 1970; Hirshleifer and Riley, 1992; Molho, 1997; Stigler, 1961) and frequently obtain new information to update these prior beliefs, for example, Bayesian learning (DeGroot, 1970; Molho, 1997, pp. 248–249, Tirole, 2003, p. 373).¹ This paper examines in depth the role of consumer's prior beliefs about genetic modification and diverse, new information about genetic modification on their "willingness to pay" for foods that might be genetically modified. The information is of two broad types: subjective prior beliefs that arise from prior investments in information and new information from interested and disinterested parties. In the GM-food debate, the interested parties are the agricultural biotech industry and environmental groups. The agricultural biotech industry consists of the private companies that market crop input traits and distribute pro-biotech information such as Monsanto, Syngenta, and Pioneer Hibred, and the Council for Biotechnology Information, a private trade association. The environmental groups are largely Greenpeace, Friends of the Earth, and Action Aid, which disseminate anti-biotech information. Furthermore, Huffman and Tegene (2002) have speculated about the potential value of independent, third-party information in such a conflicted market, and Rousu et al. have injected independent, third-party information into a set of economic experiments to assess its value.² In these experiments, food-label types and information treatments were randomly assigned to sessions or trials. In this setting, participants who perceived themselves to be at least somewhat informed about genetic modification bid significantly less for GM-labeled foods than those who considered themselves to be uninformed. This raises an important issue of how prior information affects the interpretation of new information, which this study emphasizes.

If consumers place heavy weight on information from interested parties, including cheap talk, their welfare will be lower than if they use objective information (Akerlof, 1970; Molho, 1997; Morris and Shin, 2002). One hypothesis is that consumers who have uninformed priors have their bidding behavior affected by information from one or more interested parties, but consumers who have informed priors are relatively unaffected (Schultz, 1975; Huffman, 2001; Tversky and Kahneman, 1981; Kahneman, 2003). Another hypothesis is that the presence of third-party information affects the way that consumers use information from interested parties in placing bids.

¹ These beliefs could, however, be uninformative or diffuse (DeGroot, 1970).

² Independent, third-party information is sometime referred to as verifiable information (Milgrom and Roberts, 1986).

Download English Version:

<https://daneshyari.com/en/article/884698>

Download Persian Version:

<https://daneshyari.com/article/884698>

[Daneshyari.com](https://daneshyari.com)