



Tropentag, October 11-13, 2006, Bonn

“Prosperity and Poverty in a Globalised World—
Challenges for Agricultural Research”

Public-private Partnerships in Biotechnology Research and Impacts on Technology Adoption: the Case of Bt Eggplant in India

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Abstract

The study analyses ex-ante the adoption of transgenic insect-resistant Bt eggplant, developed under a public-private research partnership in India. Eggplant is often described as the “poor man’s vegetable”, because it is popular amongst small-scale farmers and low-income consumers. Eggplant is attacked by various insect pests, the major one being the shoot and fruit borer, *Leucinodes orbonalis* Guenée. Farmers’ willingness to pay (WTP) for Bt technology is estimated using the contingent valuation method. Given the economic importance of shoot and fruit borer, the average WTP for proprietary Bt hybrids is more than four times the current price of conventional hybrids, but only a quarter of the total economic loss inflicted by the pest. Since the private innovating firm has shared the technology with the public sector, it is likely that public open-pollinated Bt varieties will also be released after a small delay. This is will reduce farmers’ WTP for Bt hybrids by 35 %, thus decreasing the scope for corporate pricing policies. Nonetheless, ample profit potential remains, as the mean WTP will remain almost three times higher than the existing price of conventional hybrid seeds. Analysis of factors influencing farmers’ adoption decisions demonstrates that public Bt varieties will improve technology access for resource-poor eggplant producers, who currently resort to intensive chemical measures for borer management. Partnership with the public sector might facilitate technology approval process for proprietary technologies, where biosafety procedures are highly politicized, with technology critics trying to block technologies developed by the private sector. The results suggest that public-private partnership can be beneficial for all parties involved.

Keywords: Adoption, Biotechnology, Bt eggplant, Contingent valuation, India, Insecticide use, Public-private partnership, Shoot and fruit borer, Willingness to pay