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# Valuation of Non-market Goods: Farmer Health in Nicaragua

Hildegard Garming

*University of Hannover, Department of Business Administration and Economics, Germany*

**Abstract**

Pesticide use is a major factor in farmer health. Pesticide poisoning in Nicaragua affects at least 5 % of farmers every year. Economic valuation of health effects is important in order to stimulate the diffusion of healthier farming practices. Methodologies for economic evaluation of these effects have been developed but actual applications in developing countries reamin scarce.

This paper presents the results of an assessment of the health costs of pesticides by Nicaraguan vegetable farmers. A contingent valuation approach was used to measure farmers' willingness to pay (WTP) for low toxicity pesticides. This approach includes market and non-market health costs and allows to also assess the chronic health effects of pesticides, rarely included in such studies.

Results show that farmers are aware of the health risks of pesticides and have a positive willingness to pay to avoid poisoning. 85 % of the surveyed farmers gave valid WTP estimates and about 80 % of these stated a positive WT*P. A*verage WTP for avoiding health risks is about 28 % of current pesticide expenditure and is higher than actual expenses for acute poisoning. The validity of these results is established through scope tests, comparing WTP for pesticides with different toxicity levels and a two step regression model. Logistic regression is used to analyse positive willingness to pay statements. The variation of the stated WTP is then analysed in a log-linear regression model. The tests show that WTP depends on farmers' previous experience with pesticide poisoning, income, access to finance and pesticide exposure as measured by pesticide use intensity.

The results of this study can contribute to a better targeting of rural health policies and the design of programmes aiming to reduce negative effects of pesticides.

**Keywords:** Economic evaluation, Nicaragua, pesticide poisoning, willingness to pay

**Contact Address:** Hildegard Garming, University of Hannover, Department of Business Administration and Economics, Königsworther Platz 1, Hannover, Germany, e-mail: garming@ifgb.uni-hannover.de