



Tropentag, October 9-11, 2007, Witzenhausen

“Utilisation of diversity in land use systems:
Sustainable and organic approaches to meet human needs”

Integrated Modelling of Farmers’ Decision Making on Pesticides’ Use: The Case of Vereda La Hoya, Colombia.

GIUSEPPE FEOLA, CLAUDIA R. BINDER

University of Zürich, Social and Industrial Ecology, Department of Geography, Switzerland

Abstract

Pesticides’ use in agriculture poses serious threats to human health and the environment in rural areas especially in the least developed countries. As a consequence, a transition to a more sustainable use of pesticides is required. This implies a full understanding of the farmers’ decision-making process, which is embedded into social structures and the environmental context and, conversely, affects them. Most of the behavioural models developed have focused mainly on socio-economic (e.g. education, wealth) or environmental variables (e.g. soil characteristics) or risk-perception. An integration of psychological, socio-economic and environmental factors has rarely been pursued in these approaches.

We present a behavioural model, aiming at bridging this gap and understanding the farmers’ decision-making process. The model relies on the Theory of Interpersonal Behaviour (H.C. Triandis) and the Structuration Theory (A. Giddens).

In this model, farmers’ behavioural options are defined as quantity and typology of pesticides applied and choice of using safety practices. The probability of farmers’ behaviour is influenced by internal and external drivers. The internal drivers include intention and habit whereas the external ones consist of contextual factors, e.g. weather conditions, soil characteristics, prices of products. Intention itself is determined by: **i**) attitude (the product of beliefs about the outcomes), **ii**) subjective culture (product of individual/collective norms and roles) and **iii**) affect (the feelings associated with the act). Farmers’ actions have desired consequences such as avoiding yield losses, and unintended consequences such as health and environmental impacts. These consequences give birth to a double feedback loop, i.e. towards internal and external behavioural drivers, consequently influencing the decisions in the future.

Thus, the model is able to integrate multiple levels of analysis (individual, collective) and dimensions (social, economic, environmental), providing the basis for a comprehensive quantitative analysis of the decision-making process.

We will present the conceptual framework of the model and show how it can be operationalized for the case of pesticide management in Vereda la Hoya, Colombia. In particular we will focus on how the link between environmental and health aspects and farmers decision-making can be analyzed. First insights into weaknesses and strengths of the selected approach will be presented.

Keywords: Behavioural model, decision-making, pesticides