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Overuse of Agricultural Inputs and Awareness of Environmental Consequences: The Case of Hebei Province, PR of China

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Abstract

The declining quality of natural resources especially of water and land, is a growing concern across most areas of China. In areas of intensified agriculture there are concerns about the contribution of farming practice on soil and water pollution. The present case study on Hebei province assesses farmers' fertilisation behaviour, the socio-economic factors influencing it, the local institutions for knowledge transfer, and the awareness of farmers about the relationships between the quality of natural resources and agricultural output.

Different quantitative and qualitative methods were applied: (1) From a secondary panel data set summary statistics were used to obtain the overall use level of urea fertiliser from 1995 to 2002. (2) These data were also used to identify determinants of urea fertiliser use via panel data Tobit regression models. (3) Qualitative interviews with farmers, village heads, extension workers and fertiliser sellers were conducted. One aim of these interviews was to identify information sources regarding farming practices and input use as well as the awareness of environmental problems. (4) To evaluate the recent use of agricultural inputs in rural Hebei with respect to environmental effects, fertiliser samples were collected and analysed in a laboratory. The results of the analysis were then compared with the content ratios stated on the fertiliser bags.

The results prove that the quality of nitrogenous fertiliser is distorted. In addition, there is evidence of the overuse of nitrogenous fertiliser. The price of fertiliser, the area of farm land available per household, and the household size have a significant effect on the amount of fertiliser purchased. Farmers are not always provided with sufficient and current information on fertiliser use for sustainable crop management. The results indicate the necessity of systematic soil analysis and fertiliser quality control. It is important to strengthen local institutions with well trained staff and sufficient funding in order to provide recommendations and raise awareness about the environmental consequences of intensive agriculture.

Keywords: Extension service, fertilisation practice, panel data, sustainable agriculture

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