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Impact of Off-Farm Income on Nitrogen Use – Case Study Results from the North China Plain

CHRISTIAN BÖBER¹, ROLAND BARNING²

¹*University of Hohenheim, Institute of Agricultural Economics and Social Sciences in the Tropics and Subtropics, Germany*

²*AHT Group AG, Germany*

Abstract

Income from off-farm activities plays a major role for rural households with 48% of rural labour in China being engaged in both agricultural and non-agricultural activities. Cash income from off-farm activities and reduced family labour available for farming might affect cultivation patterns.

Therefore, this paper focuses on the impact of the income structure on the application of fertiliser based on cluster and regression analysis using data from a survey of 340 farm households in the North China Plain (NCP). To review trends in the agricultural sector in the study region over time, a data set of the Research Center for Rural Economy (RCRE), covering the period 1986–2006 for Hebei province, is analysed with descriptive methods. To validate the impact of farmer's perceptions regarding fertiliser quality on their actual fertilisation behaviour results from qualitative interviews combined with measurements of the quality of fertiliser samples are presented.

Results show that the NCP is characterised by high levels of nitrogen application and a resulting nitrogen surplus. No difference in means of nitrogen input and nitrogen balance between farms with and without off-farm income as well as between farms that have farming and those having off-farm activities as main income source is found. In addition the analysis of the RCRE data reveals that the proportion of full-time farmers is declining and the share of off-farm income rising. Farmer interviews revealed that a rising share of farms is managed by older people; because the younger generations are engaged in non-agricultural activities. During the interviews farmers indicated that they mistrust (fertiliser) sellers. This observation can be seen as another critical point according to the effectiveness of the functioning of the agricultural sector in China.

Future research has to focus on the effects of off-farm income on the efficiency and sustainability of Chinese farming practices, especially with respect to fertiliser. Policy makers need to be aware that a prevalence of small-scale, part-time farm structures, like in the NCP, could have negative impacts on the economic and natural resource base of Chinese Agriculture.

Keywords: Agrarian change, China, fertiliser use, migration policy, off-farm income, rural development