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“Filling gaps and removing traps
for sustainable resource management”

Rice Farmers’ Perception of the Three-Controls Technology (3CT) in Guangdong Province, China

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Abstract

Over the past decades, the overuse of fertiliser in China has led to decreased fertiliser use efficiency, stagnating yields, and heavy environmental pollution causing disastrous effects on the climate, soils, water, and human health. In order to combat this problem in rice production, the Three-Controls Technology (3CT) was developed and released in Guangdong Province in 2007 as a best management practice to reduce rice farmers’ fertiliser use, while decreasing the number of unproductive rice tillers and controlling for diseases and insects. By use of the new technology, nitrogen fertiliser input is typically reduced by 20 % while rice yields increased by 10 %. From an agronomic perspective, the technology has been successful and thus has also been introduced to other Chinese provinces. However, the aspects regarding farmers’ satisfaction with the 3CT and their long-term adoption behaviour have not yet been studied. Hence, the main objective of this study is to investigate farmers’ perception of sustainable development through 3CT. In particular, the aim is to examine how the three pillars of sustainability – economic, social and environmental – have changed since 3CT introduction. A quantitative survey questionnaire has been developed and data will be collected via tablets with the CommCare application. In total, 150 farmers will be surveyed in Huicheng county, Guangdong Province, in April 2019. Farmers’ perceived personal benefits or drawbacks regarding their financial situation, changes in biodiversity, knowledge, and capacity building will be evaluated and presented. The results will be analysed using uni- and multivariate statistics. Additionally, an econometric and psychometric statistical analysis will be performed to determine the significance of farmers’ perceptions with regard to adoption satisfaction. Data will be examined taking into account three key elements of development: (1) economic level, which is output oriented, (2) social level, which is behaviourally oriented, and (3) intervention level, which is modification oriented. The implications will be discussed with regard to the long-term adoption of 3CT, which may lead to a better understanding of effective sustainable best management practices that benefit the environment as well as the farmers’ businesses and livelihoods.

Keywords: Best management practices, China, fertiliser, input use, perception