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Status and financial performance of organic vegetable farming in northeast Thailand

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ABSTRACT

In line with the national sustainable agriculture development policy of the Government of Thailand, organic vegetable farming (OVF) promotion projects have been implemented in several provinces of the country. Based on data collected through a questionnaire survey of 172 sample vegetable farmers in Mahasarakham Province of northeast Thailand, this study firstly assessed the status of OVF and then, analyzed the financial performance of three main vegetables cultivated, namely: morning glory, green onion and Chinese kale. Finally, sensitivity analyses of the financial performances for all three vegetables were conducted under four assumed scenarios with respect to price of synthetic fertilizers and pesticides, and yield and price of organic vegetables. The findings of the analysis on the status of OVF revealed that organic vegetable farms accounted for very small percentage of the total area used for all vegetables in the study area. Results of the financial analysis also showed that OVF was much less financially attractive than conventional vegetable farming due to low yield which usually does not come with premium price of the vegetables. Still farmers are growing organic vegetables on small scale primarily for household consumption. The findings of the sensitivity analyses indicated that the removal of direct or indirect subsidies for synthetic fertilizers and pesticides, and appreciation in the yield and price of organic vegetables can enhance the financial performance of OVF. In view of the possible rejection of radical policies that encourage OVF by discouraging conventional vegetable farming, this study suggests appropriate policy measures that could directly provide incentives for organic vegetable production and consumption.

Introduction

The demand for organic food products for health reasons has been increasing (IFOAM, 2004). Such demand combined with high economic returns from organic products offer an excellent opportunity for increasing farmers' income (Rigby and Caceres, 2001; Kilcher, 2006; Lockie et al., 2006). Meanwhile, the interest of consumers in organic food has increased in view of the repeated incidence of food safety scares, animal welfare concerns and the more general concerns on the impact of industrial agriculture on the environment. Farmers are also gradually attracted to production of organic food because of the increasing demand for safe food. When environmental impacts from emission of green house gases and energy use are considered, organic agriculture appears superior to conventional agriculture (Wood et al., 2006).

Thailand has adopted a policy on the promotion of organic agriculture since the late 1990s in view of its environmental and economic benefits. The 8th National Economic and Social Development Plan (1997–2001) of Thailand aimed to convert 20% of arable land to organic agriculture farms. This policy gained prominence in 2005 when the government put forward a five-year (2005–2009) organic agriculture promotion program, which among others aimed to reduce the use of conventional fertilizers by at least 50%, convert 13.6 million hectares of conventional agriculture into organic agriculture lands, and improve farmers' income through increased export of organic agriculture products. Currently, this program is implemented in several provinces of the country in collaboration with 16 government and non-government organizations. During the first stage of the program, the government allocated a budget of 1215 million Baht for carrying out the various activities (Mingchai and Yossuck, 2008).

Since Thailand is a leading producer and exporter of agricultural products including food, it has been increasingly concerned about the application of synthetic pesticides especially to products that are intended for export. The Government of Thailand has also been quick in responding to global requirements for food safety by pursuing food-safety policies to ensure that demand for safe Thai food products in both domestic and global markets are met (Srithamma et al., 2005). In this vein, Thailand declared 2004 as "Food-Safety Year" to enhance the awareness of producers and

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consumers on safe food. Since then, exporters have been required to present a "residues free" certification issued by the country's designated authorities prior to exporting food products (ACFS, 2004).

Thailand has also developed its own national standards for agricultural commodities consistent with international standards. The Ministry of Agriculture and Cooperatives (MOAC) through the National Bureau of Agricultural Commodity and Food Standards (ACFS) put into effect the Agricultural Standards Act in August 2008 which aims to ensure food safety by requiring producers to comply with registration, standard inspection and certification of food products. The government proactively responded to the required development of national GAP program (Wannamolee, 2008) by putting its food-safety policy into practice at farm level. National GAP standards have therefore been developed for crops as well as for livestock and fisheries products. The GAP program requires that all stakeholders involved in food production chain should demonstrate their commitment to maintain consumer confidence in food quality and safety by taking necessary safety measures throughout the production processes (Wannamolee, 2008).

However, efforts made to promote organic agriculture in Thailand have not generated impressive results. In 2001, only about 2400 ha of land had been cultivated for organic crops including rice and vegetables. Although the area under organic crops was already about 13,900 ha in 2002, this accounted for only 0.07% of the total agricultural land area of the country (Willer and Yussefi, 2006). The question therefore arises as to why organic agriculture made very little progress in the country. Studies on adoption of agricultural innovations have established the roles of several biophysical, socioeconomic, institutional and policy factors in influencing farmers' decision to adopt agricultural innovations including organic agriculture (Oladele, 2005; Quoc et al., 2006; Teklewold et al., 2006; Vannasouk, 2006; Knowler and Bradshaw, 2007; Kasem, 2010). Of the various factors, the economic returns that farmers get from any agricultural innovations, including organic agriculture, play a significant and important role in adopting such innovations particularly when these are expected to be adopted for commercial purposes (MacRae et al., 1990; Padel, 2001; IFAD, 2003; Kuminoff and Wossink, 2005). Since adoption of innovations would incur costs and investments in terms of time, labor and money, farmers do not usually adopt innovations that cannot offer them attractive financial returns for their investments (Rehman et al., 2007; Kasem, 2010).

In view of the important role of financial returns in adoption of organic vegetable farming, this study analyzed the financial performance of organic vegetables under current and some assumed situations in a province in Thailand. Starting with an assessment of the current status of organic vegetable farming in the study area followed by financial analyses of three main vegetables produced under current and assumed situations, this paper concludes with the final section that dwells on detailed discussion on the findings and draws important conclusions. Findings of this study have established very useful implications for devising policies on the effective promotion of OVF in Thailand and elsewhere.

Research methods

Study area

This study focused on Mahasarakham Province of northeast Thailand, which has an area of 5223 km^2 with 11 administrative districts, 133 sub-districts and 1934 villages. The elevation of the Province ranges from 130 to 230 m above mean sea level and topographically, it comprises upland and lowland areas. The population of the Province was 935,691 in 2006 with an average density of 179 persons/km^2 (DoA, 2006). The Province is characterized to have relatively low quality sandy soil and long dry season from February to May. The average temperature in the Province is approximately 34 °C during the rainy summer season (June–October) and 22 °C during the winter season (October–February), and the annual average rainfall is 1,239.7 mm with 104 rainy days.

Rice, cassava and sugarcane are the main crops cultivated in the Province, although crop cultivation is largely dependent on the rainfall. Rice is cultivated once a year in areas where irrigation is not easily available but in irrigated areas, which account for about 18,000 ha or 6.5% of the total agricultural area, rice is cultivated twice in one year. Poverty is one of the major development problems in Mahasarakham Province where in 2004, it was home to about 45,000 poor people with monthly average income of about USD $75/person (DoA, 2006). Farming is the main occupation of the majority of the households which could be characterized as small holdings and low income. The provincial government has adopted a policy to increase the productivity and income from farming though the promotion of organic vegetables as their prices are higher than the synthetic inputs-based vegetables. Emphasis is also being laid on the sustainability of productivity by enhancing soil fertility through proper management practices including the application of organic fertilizers and cropping diversification. The core agricultural development strategy of the government aims to promote safe and toxic-free products in order to ensure the health of consumers and increase the income of farmers.

Sampling and information collection

The data for the financial analysis was collected through a household survey using a structured questionnaire comprising questions related to area and type of organic and conventional vegetables, inputs used, cost of inputs, and marketing including the price of organic and conventional vegetables. The information required for the assessment of the status of OVF in the province as a whole was obtained from the Provincial Department of Agricultural Development and the Alternative Agriculture Network, an NGO engaged in the promotion of organic agriculture. For the primary information, a list of organic farmers was first obtained from the Department of Agriculture of Mahasarakham Province which included the existence of 548 farmers engaged in growing organic vegetables. Since the total number of organic vegetable farmers was small, we decided to survey 172 farmers, accounting for about 32% of the all organic farmers.

Organic vegetable farmers are spread over 11 districts of Mahasarakham Province from which four districts, namely, Mueng, Borabu, Kosum Phisai, and NaChuak were selected for the household survey as these districts had the higher concentration of farmers. The households surveyed were randomly selected from the list of organic vegetable farmers. The heads of the sample households were interviewed using a structured questionnaire comprising both closed and open-ended questions. In addition, supplementary primary information was collected through two group discussions held with the organic vegetable farmers. All information required for the study was collected from August 2006 to January 2007.

Results of the reconnaissance undertaken prior to the household survey indicated that farmers in the study area grew several types of organic vegetables such as cabbage, celery, cucumber, eggplant, asparagus, green onion, Chinese kale, morning glory, lettuce and basil. However, morning glory, green onion and Chinese kale were the most prominently cultivated in terms of area. Thus, detailed information was collected for these three vegetables commensurate with the total number of farmers engaged in the cultivation of each vegetable. Of the 172 farm households surveyed, 72 were growing morning glory, 56 were growing green onion, and 44 were growing Chinese kale.