

DECISION ANALYSIS FOR ALTERNATIVE APPROACH TO SUSTAINABLE VEGETABLE PRODUCTION AND FARMING SYSTEMS: THE CASE OF CHILI

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Keywords: sustainable, farming systems, perceptions, production practices.

Introduction

The green revolution has successfully increased agricultural production through the use of modern technologies. The use of pesticides and herbicides has replaced biological, cultural and mechanical methods of controlling pest, diseases and weeds. Chemical fertiliser has replaced manure and compost to increase productivity of agricultural activities. However, it also created environmental and health deterioration through water and air pollution and harmful chemical residues in the foodstuff. Thus sustainable agriculture is a way to combat the harmful effects of conventional farming system through the substitution of "natural on-farm produced resources" for purchased agricultural chemicals (i.e. fertilisers, insecticides, fungicides and herbicide). According to the Department of Statistics, Malaysia imported RM 978.3 million inorganic fertilisers and RM 136.0 million agro-chemicals (herbicide, insecticide and fungicide) in 1995, an increase of almost 30 % from 1990. Some 30%-80 % of applied inorganic fertiliser and significant amount of applied agrochemical are lost to the environment to contaminate water, food and fodder and the atmosphere. Consequently, the objective of this study was to investigate the sustainable agricultural practices among the chili producers in selected areas in Malaysia and their perception and attitude towards sustainable agriculture as an approach to agriculture, which provides for the needs of current and future generations while conserving natural resources.

Materials and Methods

The study consisted of collection of primary data. A questionnaire was constructed based on the farming practices and farmer perception on sustainable production systems. The questionnaire comprised three sections. The first section consisted of farmers' demographic and socioeconomic factors; the second of farm practices; and the third of farmers' perception towards sustainable agricultural practices. Three areas were identified as suitable sites for undertaking the survey, namely Kota Baru, Kuala Terengganu and Batu Pahat. A total of 45 farmers was interviewed. The analysis was car-

ried out based on the outcome of the survey and was divided into 3 sections: descriptive analysis – demographics and socio-economics; farming practices and factors associated with sustainable practices; and farmers' perception and attitudes towards sustainable agricultural practices.

Results and Discussion

A total of 45 respondents were interviewed, 28 were Malays, 16 were Chinese and 1 was Indian. With regards to age, 26 % of the farmers were between 27-40 years old, 42 % were between 41-50 years old and 32 % were between 51-70 years old. About 30 % of the respondents do not have any formal education, 60 % have some formal education and 10 % completed at least secondary school. In term of experience in chili planting, approximately 50 % of the farmers had more than 5 years of experience. of the 45 farmers 70 % of them were full time and the 30 % were part time. With regard to factors that influence the farmers to cultivate chili, the most important factor was price stability and secondly was experience. The least important factors to consider were climate and soil. The latter factors can be managed through farm management whilst the price factor was beyond their control. The farmers were asked to rate whether they were using more or less of the inputs in their production activities. About 50 % and 70 % of the farmers indicated that they used more of chemical fertilisers and organic fertilisers now as compared to the last 3 years respectively. Whilst they used less or the same amount of agro-chemical such as herbicide, fungicide and insecticide as compared to the last 3 years. on average the farmers were aware about the effect of excessive use of chemical fertiliser and agro-chemicals to the environment and health. Almost 100 % of the farmers agreed that the use of organic fertiliser will help to prevent environmental degradation and 50 % of them agreed that the used of agro-chemical according to the level suggested can also help to prevent environmental pollution. Almost 100 % of the farmers' agreed that the use of excessive agro-chemical can cause environmental pollution and detrimental to human health.

Conclusions

On average the farmers' were aware of environmental and health degradation caused by the use of excessive chemical fertilisers and agro-chemical in farming practices. But due to economics, the farmers are not willing to sacrifice the reduction in output for that of sustainable farming systems. The ever increasing demand for chili through out the years and the stability of prices (at higher level) as compared to other vegetables has caused the farmers' not to adopt or reluctant to practice sustainable farming systems. Legislation has to be promulgated to regulate the use of agro-chemicals in farming systems and environmental standards must be formulated and monitored to regulate the amount of chemical residues in the agriculture produce.