ABSTRACT

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CHIANGMAI FARMERS' BEHAVIOR IN APPLICATION OF BLUE-GREEN ALGAE AS BIOLOGICAL FERTILIZER FOR SOIL IMPROVEMENT IN PADDY FIELDS

By

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The objectives of this research were to investigate 1) rice farmers' knowledge, attitudes, skills and aspirations in applying blue-green algae as biological fertilizer; 2) some factors related to their behavior in applying blue-green algae; 3) relationship between those factors and the farmers' blue-green algae application behavior; and 4) their problems and obstacles concerning the application of blue-green algae as fertilizer in rice fields. The data was collected by means of interview schedules from 300 samples of rice farmers in 24 villages in Chiangmai who participated in the extension project of blue-green algae application launched by the Department of Agricultural Extension, and then analyzed by using the SPSS/PC^{+}.

The findings revealed that over three-fourths of the respondents were 50 years old on average, had completed a primary school, were heads of families and married. The average number of family members was 4. Almost three-fourths of them had no position in communities, but 70.33 percent were members of certain groups, one of which having the highest number of members was the Bank for Agriculture and Agricultural Cooperatives (BAAC). The respondents' average annual agricultural income was 68,063

baht per family: an average of 18,663 baht from rice farming and 41,460 baht from off-farm activities. They had an average of 9.40 rai of farm land per family and depended on irrigation. Herbicide was used most in rice fields and pesticide, in growing other crops. Over 75 percent of the respondents used farm machines to assist in rice farming and 7.67 percent indicated that natural disasters damaged over 50 percent of their produce. The respondents had an average of 23.42 years of rice farming experience, all of them have used chemical fertilizers on rice and other crops, and 97.00 percent have used blue-green algae as fertilizer. Vegetables have been mostly grown in rice off-season. Only 38.67 percent have been trained in farming occupation, 8.67 percent have observed farming activities in other places and 60.67 percent needed more knowledge of agriculture.

The respondents were found to agree, at a low level, with the agricultural extension officers' work in public relations, product inspection, and provision of knowledge of technologies, and a moderate level with provision of training, extension periods, demonstration days, demonstration plots, notice boards, and contact with agricultural extension officers.

Most farmers agreed, at a high level, with environmental conservation and observability of blue-green algae application and a moderate level with utility and confidence, storage complexity, and trailability.

The study on the four aspects of biological fertilizer application behavior revealed that the respondents had a good knowledge of biological fertilizer, a moderate level of attitudes toward biological fertilizer, a high level of skill i.e. practicability, and a high level of aspiration of blue-green algae application.

The respondents' knowledge was found to be significantly correlated with group membership, study tour, extension methods, and appropriateness of technology.

Their attitudes toward the extension officers were significantly correlated with application of herbicides, insecticides and fungicides; attitudes toward fertilizer efficiency, being village committee and village head, and application of herbicides and pesticides; attitudes toward fertilizer application, being village committee, application of insecticides, application of other chemicals to other crops, agricultural training, and study tour. Their overall attitudes were significantly correlated, at a low level, with extension methods, but at a moderate level with appropriateness of technology.

The respondents' ability to apply technology was significantly correlated with being village committee and application of herbicides and other chemicals; ability to apply technology correctly, being village committee and application of chemicals in rice fields to destroy weeds and pests, and fungicides; ability to apply technology rapidly, being village committee and application of herbicides and pesticides as well as the use of weedicide with other crops. Their overall attitudes were significantly correlated, at a low level, with extension methods and appropriateness of technology.

Their aspiration was significantly correlated with the use of herbicides and insecticides as well as farm machines. It was significantly correlated, at a low level, with extension methods and appropriateness of technology.

The problems concerning the application of biological fertilizer included non-attendance at the meetings by some farmers participating in the project and unclear advice provided by the agricultural extension officers. Biological fertilizer itself and rice field and environmental management were not much a problem.