

Knowledge Management by Farmers in the Win-Win Relationship Project in Land Reform Areas, Northern Thailand

Wallratat Intaruccomporn and Suraphol Sreshthaputha

Department of Agricultural Economy and Development, Faculty of Agriculture,
Chiang Mai University,
Chiang Mai 50200, Thailand

wallratat.i@cmu.ac.th, suraphol.s@cmu.ac.th

Abstract

From research findings, it was found that knowledge level had a relationship with knowledge management in rice planting of farmers, but age, educational level, paddy farm size, farm income from rice, rice planting experiences, training experience and extension contact had no relationship with knowledge management on rice planting at all. From a comparative study, it was found that there was no difference in farmers' knowledge in each Sub-district. Nakornchum Sub-district had total average knowledge score higher than that in Baankaeng Sub-district and Mae Koa Tom Sub-district. From the comparison of farmers' knowledge management between each Sub-district, it was found that there was no difference at all.

Problems and obstacles of farmers were the high cost of production leading to the loss of profit, therefore the farmers were in need of training on using fertilizers, "Good Agricultural Practice" (GAP) in planting organic rice, plant protection to increase yield per rai and the use of bio-extract products in the paddy fields in order to reduce production costs. Also, to increase good quality products which will have higher income than present.

Keywords: Knowledge Management, the Win-Win Relationship Project, Land Reform Areas

1. Introduction

With reference to the celebration of 81 years old of King Bhumipoladulayadej in 2008 in order to pay respect and loyalty to His Majesty and to develop Land Reform Area in the aspects of "Land Reform", "Farmer Reform" and "Management Reform" more concretely by allowing the community to participate in solving their problems through people participation process by performing community development activities so as to help solving community's problems in the form of land, farmers and management. The Land Reform Office, Kasetsart University and other universities and Local Administration Organizations had also cooperate in this project in terms of budget, human resources, body of knowledge by linking body of knowledge of the university to create development innovations. Land Reform Office had supported budget, personnel, area-based information and mapping as well as various activities involved. Local Administration Organization also supported budget, personnel and other local organizations. Operational driver approach by using mechanism called "Five mechanism network" which consisting of government sector, educational institutes, private sector, local organizations and farmers by utilizing the power of farmers to think and build up the community together so as to set up "Sub-district Model of Development" in each Sub-district in the Land Reform area by following "The Philosophy of Sufficiency Economy" to be the development approach under the fifth of "The WIN-Win Relationship Project" in the land Reform areas.

This plan was to develop individual Sub-district in 65 provinces. There were 81 Sub-districts all together to set up the model and to change community development into 3 dimensions, namely, "Knowledge", "Attitude" and "Understanding". Knowledge was evaluated by attitudinal change in occupations and way of life. As far understanding, it was assessed by structural adjustment of land use in each plot. Concerning skill, it was evaluated by the increase of individual income in order to set up networking system into 5 linkages between government

sector, educational institutes, private sector, Local government and farmers were expected to disseminate this development approach to other areas.

Chiang Mai University had cooperated with government sector to set up this aforementioned project. Researcher, therefore, was interested in “Farmers Knowledge Management” under The Win-Win Relationship Project in Northern land reform areas. (The responsible areas were Chiang Rai Province, Sukhothai Province and Kampaengpet Province) in order to apply this information to be used in the “Development Master Plan” in Land Reform areas in the future. The objectives of the study were to study the rice farmers’ management in the Win-Win Relationship Project in Land Reform zone in Northern Thailand, to analyze various factors relating to farmers’ knowledge management under the project, to compare the knowledge level and farmers’ knowledge management under the project and to investigate problems and obstacles of rice farmers under the project.

2. Research Tools and Methods

The population used in this research was 80 rice farmers and farmer leaders of “Rice Farmers Groups” under Land Reform areas in Northern Thailand whereby Chiang Mai University was responsible for this Win-Win Relationship Project in 3 provinces, namely, the land reform area of Mae Koa Tom Sub-district, Muang District, Chiang Rai Province (30 persons), the land reform area of Baan Kaeng Sub-district, Srisatchanalai District, Sukhothai Province (25 persons) and the land reform area of Nakornchum Sub-district, Muang District, Kampaengpet Province (25 persons). The research tool was questionnaires which were divided into 4 sections as follows:

Section 1: Basic data related to infrastructure, personal characteristics, and socio-economic factors.

Section 2: The information related to knowledge about rice planting of farmers under the land reform areas.

Section 3: This was associated with knowledge management in rice planting.

Section 4: This was related to problems and recommendations of farmers in planting rice in land reform zone

Data analysis was conducted by the use of:

1. Percentage, Arithmetic means, Maximum-minimum, standard deviation to analyze basic data on personal characteristics and socio-economic factors.

2. Chi-square test to analyze the relationship between independent variables and knowledge management in rice planting.

3. F-test and LSD to compare the distinction between farmers’ knowledge management in 3 Land Reform zones.

3. Results

From research findings, it was found that independent variables, namely, only knowledge level were statistically related to knowledge management of farmers at 0.05 level of significance. This might be due to farmers who receive more knowledge in rice planting tended to put more knowledge into practice. As regards other independent variables, there was no relationship with knowledge management, namely, age, educational level, paddy farm rice, income from rice, planting rice experiences, training experiences and extension contact.

3.1 Knowledge in rice planting of farmers

1. Farmers had knowledge at “minimum” level (average score at 0.00-0.25). Concerning the factor that Kao Dok Mali 105 (Fragrant rice) is photo-sensitive light-responsive variety, the first fertilizing for each soil type, the control of rice grain moisture before storage.

2. Farmers had knowledge at the “moderate” level (average score at 0.26-0.50) in the aspects of R.D. 1 rice being non-glutinous and photo-insensitive, day to seedling transplant, optimal water level in the rice plot after transplanting for controlling optimal weeds, and when to apply second fertilizing.

3. Farmers had knowledge at “good” level (average score at 0.51-0.75) in the areas of dormancy period of rice seeds, time limit for uprooted seedling to remain viable for transplanting, ploughing land and keeping water in the rice plot to ease transplanting, time for rice harvesting and sun drying.

4. Farmers had knowledge at “best” level, (average score at 0.76-1.00) regarding land preparation before transplanting, suitable timing for sowing, water release to rice plot after sowing, suitable germination rate of seeds, supplementary fertilization in nursery plot, result of injured seedlings after uprooting depth of seedlings transplant, clipping of rice leaves, ploughing, the usefulness of ploughing and harrowing before transplanting, suitable timing for the second fertilization, good land preparation, suitable timing for weeding, major rice diseases, effects of excess nitrogen input, attack of brown planthopper, aphides and rice stem borer; time when field crabs might attack, effects of water shortage during rice pregnancy period, effect water of decline in rice plot, suitable timing for harvesting, the result of harvest at the suitable timing, and the result of exercise field drying of harvested paddy.

3.2 The comparison of farmers’ knowledge in planting rice

When compare the average score of farmers’ knowledges in planting rice in 3 Sub-districts by using F-test, it was found that F-value was equal to 9.31 at 0.05 level of significance. That means there was difference of farmers’ knowledge in 3 sub-districts. (Table 1)

Table 1. Comparison of average score in planting rice in each sub-districts

Sub-district	Number	Average score	F-value
Mae Koa Tom	30	0.68	
Baan kaeng	25	0.70	
Nakornchum	25	0.82	
Total	80	0.73	9.31

*Significance at 0.05 level

As regards farmers’ knowledge in planting rice, it was found that the average score in planting rice at Mae Kao Tom Sub-district was 0.68 while farmers at Baan Kaeng Sub-district had average score in planting rice was 0.70 and farmers at Nakornchum Sub-district had average score in planting rice was 0.82 and the total average score was 0.73.

Comparing the average score on knowledge in planting rice of 3 Sub-districts by looking at LSD, it was found that average score on farmers’ knowledge in planting rice of 3 Sub-districts by looking at LSD, it was found that average score on farmers’ knowledge in planting rice at Mae Kao Tom Sub-district and Baan Kaeng Sub-district were equal to -0.1379 and -0.1166 respectively meaning that there was statistically significant at 0.05. This was shown that farmers’ knowledge in planting rice at 2 Sub-districts was different. (Table 2)

Table 2. Comparison of average farmers’ knowledge score between each Sub-district

Sub-district	Sub-district	LSD.	Significance
Mae Kao Tom	Ban Kaeng	-0.0213	0.529
	NakornChum	-0.1379	0.500
Baan kaeng	Mae Kao Hom	-0.0213	0.529
	NakornChum	-0.1166	0.001
Nakornchum	Mae Kao Tom	-0.1379	0.000*
	Ban Kaeng	-0.1166	0.000*

*Significance at 0.05

From the classification of farmers’ knowledge management level, it was found that farmers’ knowledge on “spacing” of planting rice during transplanting was at low level. As for farmers’ knowledge management at the “moderate” levels, they were as follows, suitable timing for sowing seedling, fertilizing before and after transplanting, harrowing for making patch, maintaining water level in the plot, weed protection and the time period for drying rice. Although all of these things were basic knowledge for planting rice, the farmers did not pay attention to these matters and they might think that these were minor problems. Anyway, if the spacing of planting rice was not suitable, it will affect the growth and yield of rice. As for the other managements in the fields, the farmers had knowledge management at “good” and “best” levels.

4. Discussion

From this study, it was found that farmers at these Sub-districts had different knowledge in rice planting. As for knowledge management in planting rice which was the basic matter which farmers showed know and should have knowledge management at “the best” level. This may be because the farmers did not pay attention in every process of planting rice, for example, farmers might think that the spacing of transplanting rice was not affect the production of rice. Therefore, the farmers only estimated by their own eyes as had been practiced before.

There were 7 issues concerning knowledge management of farmers at the “moderate” level, for example, not allowing flooding the rice plot immediately after sowing, suitable age of seedlings for transplanting, protection of brown plant hopper aphids and rice stem borer, draining water out of the fields to get rid of field crabs, checking grain moisture before storage, drying wet grains before storage.

Farmers’ knowledge management at the “good” level, appeared in 9 issues, for example, suitable timing for sowing, putting chemical fertilizer and manure, harrowing to make tracks and inundating rice plots before transplanting, maintaining water level in rice plots after second ploughing to control weed, and during early rice pregnancy period, fertilization according to soil types, the second fertilization, weed control before rice pregnancy period, and the timing of grain drying.

Farmers’ knowledge management at “the best” level was evident in 18 issues, for example, assuring the use of the right rice variety before planting, soaking rice seeds before sowing, mixing rice seeds with chemicals against fungi before planting, selecting rice seeds with suitable percentage of germination for sowing optimal timing for sowing seeds, broadcasting seeds at suitable plant density seed, careful seedling uprooting, completing the transplanting within one day, suitable depth of seedling transplanting, clipping tip of rice leaves before transplanting, suitable number of seedling per clump for transplanting, maintaining water level in the plot from transplanting period until harvesting period, land preparation for planting by primary ploughing, secondary ploughing and harrowing, controlling rice leaf blight at early attack, assuring no water shortage during rice pregnancy and flowering periods, draining water out of the plots, suitable timing for field drying of harvested rice and method.

As for various factors affecting farmers’ knowledge management, it can be described as follow:

1. Knowledge level had the relationship with farmers’ knowledge management in planting rice, meaning that if the farmers had knowledge in rice planting properly, concurrent with Chanpuang (2000). It will result in good knowledge management as well. Having knowledge enables the farmers to apply knowledge to put into practice and they were able to solve problems arising from rice planting if they follow GAP method.

2. Education level had no relationship with farmers’ knowledge management according to their behavior they got used to do it before. Therefore, neither high educational level nor low education level had no result in farmers’ knowledge management which was concurrent with Kunkorn (2005) saying that education level had no association with knowledge management in rice planting Kao Dok Mali 105 of farmers at Thung Kula Rong Hai, Roi-et Province.

3. Age age of farmers had no relationship with farmers’ knowledge management. This means that elder farmers may not have proper knowledge management. Farmers may manage this own knowledge according to their behavior which they got used to do it and kept practicing it from the past which was similar to the research conducted by Kunkorn (2005) saying that age had no connection with knowledge management in planting Kao Dok Mali 105 of farmers at Thung Kula Rong Hai, Roi-et Province.

4. Paddy farm size had no relationship with farmers’ knowledge management. This may be because farmers who owned either large or small farms had similar knowledge management which was concurrent with Kongsomboon (1988) stating that paddy farm size had no relationship with integrated pest management (IPM) of farmers around Bangkok.

5. Income from rice growing had no relationship with farmers' knowledge management in rice planting. That is, run through farmers earned high- or low-income farm rice, they would have no difference in knowledge management. This may be because farmers never thought that good have problems in planting rice. In fact, farmers do need assistance from extension workers, but they did not have willingness to receive advice on GAP from the extension workers from the beginning. This is the reason why extension contact did not have any effect to farmers' knowledge management.

5. Conclusion

This research enables to show basic data, knowledge management in planting rice as well as to know the problems and obstacles of farmers concerning Win-Win Relationship Project in the Land Reform zone in Northern Thailand. All of these data and information can be used for planning the project in the aspect of "Farm Reform", giving knowledge concerning planting rice to farmers in the area where the farmers did not practice it properly. Besides, this research will enable the farmers to understand "knowledge management" than before.

References

- Narit Kongsomboon. *The use of chemical to eradicate rice pest of farmers in Singburi Province*. Independent Study for Master of Science in Agricultural Extension. Graduate School. Chiang Mai University, 1988.
- Torpong Chanpuang. *Knowledge and Practices concerning to Integrated Pest Management of farmers in Great Bangkok Zone*. Master of Science in Agricultural Extension. Graduate School. Chiang Mai University, 2000.
- Thanyaporn Kunkorn. *Knowledge Management of Farmers in Planting Khao Kao Dok Mali 105 at Thung Kula Rong Hai, Roi-et Province*. Master of Science in Agricultural Extension. Graduate School. Chiang Mai University, 2005.

Biographies

Wallratat Intarucomporn is an Deputy Dean, The Graduate School, Chiang Mai University, Director, Huai Som Poi Royal Project Development Center, Chom Thong District, Chiang Mai Province, Associate Professor, Department of Agricultural Economy and Development, Faculty of Agriculture, Chiang Mai University. Earned B.S. in Agribusiness & Management from Maejo University, Thailand. M.S. in Agribusiness & Management, with Ph.D. in Rural Development, Central Luzon State University, Philippines. He is Editorial Board, Journal of Agricultural Research and Extension Innovation and Technology Transfer Section, Office of Agricultural Research and Extension, Maejo University, Chiang Mai, Thailand and Chairperson of the Program Committee M.Sc. in Agricultural Extension and Rural Development, Faculty of Agriculture, Chiang Mai University. Expertise in Agricultural Economic, Agribusiness and Agricultural & Rural Development.

Suraphol Sreshthaputha is an Associate Professor, Department of Agricultural Economy and Development, Faculty of Agriculture, Chiang Mai University and former Vice President of King Mongkut's Institute of Technology Ladkrabang (KMUTL), former Associate Dean, Faculty of Agriculture, Chiang Mai University and appointed a Director of University Academic Services (UNISERV). He earned B.Agri.Tech. in Agricultural Extension from Maejo University, Thailand. Master's degree and Doctoral degree in Rural Development, Central Luzon State University, Philippines. Teaching the undergraduate and graduate students in the course of agricultural development, agricultural development project planning and evaluation, methods of agricultural extension, administration of training program, rural sociology and rural community development and organizational theories worked experiences closely to the peoples-client in the development and implementation of agricultural extension dissemination programs. Research interested in program planning, farmer institute and organization, people participation, small and medium-sized enterprises (SMEs) and information technology.