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## **Farmers' Needs for Advise Appropriate Pesticide Application from Sellers in Roi Et Province**

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The objectives of this research were to study the extent of pesticide use by the farmers in Roi Et province, to study the farmer needs of sellers' advice on safe handling and use of pesticides and to determine the problems and constraints concerning the farmers on the use of pesticides. Data for this study were obtained from the sample of 250 farmers in selected RoiEt province through questionnaire, then were analyzed using Descriptive Statistics. This research findings revealed that the studied farmers were mostly male, married, age of 51-60 years with education of primary school or lower. Their professional experiences were around 31-40 years and their annual household incomes were approximately 20,001-30,000 baht. Most of them were members of Bank for Agriculture and Agricultural Cooperative. However, most of them were never been trained on how to use the pesticides safely and received information from various sources including local radio and pesticide stores. Regarding the needs for knowledge and suggestions on pesticide practices from the sellers, it was shown that the farmer needs was described as "medium" level. The highest-level need was the concern of health effects while the high-level were, ranking from the highest, the properties of pesticides, how to observe the symptoms of diseases and pests, and safe handling and use of pesticides, respectively. Such information was preferred to be verbally informed. The problems and constraints found that the farmers were lack of education, labour and capital.

**Keywords:** Farmers needs, advice, use of pesticides, appropriate pesticide.

### **Introduction**

Nowadays, the pesticide usage is difficult to avoid. Pesticides have been increasingly utilized because they were convenient and are believed by the farmers to be effective. However, the pesticides are said to no longer help decrease the outbreak of diseases or eliminate the insect pests because the pests

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are capable of adapting to survive and reproduce more. As a result, farmers are required to use larger amount of pesticides in order to control and eliminate pests more effectively.

Nevertheless, the problem is farmers are lack of understanding and responsibility for the health, economic, social and environmental effects which can harm the farmers themselves and crop consumers. Kornsupan (2008) Many farmers buy the chemical pesticides from local stores and tend to seek for advice from the sellers. Therefore, the sellers are significant in providing useful instruction of safe handling and use of pesticides to the farmers. At present, the department of agriculture has developed the regulations to control the practices of pesticides in order to promote the knowledge and understanding of how to use it safely as well as to provide accurate advices to the farmers.

Roi Et province has been promoted to aware of the hazard from using pesticides because they have been extremely utilized by the farmers. The pesticides have been overused and misused. In addition, the farmers do not follow the directions given on the manual. Therefore, the sellers are required to take the pesticide training courses so that they can provide the correct knowledge to the farmers about the safe use of pesticide.

Since it has been proved that farmers are likely to rely on the sellers, the research was conducted in order to find out of to what extent the farmers need advice from the pesticide sellers. This research was expected to be useful in the development of the role of sellers in giving advices to the farmers on how to use the chemical pesticide safely, and was also expected to be beneficial to the relevant authorities.

Objectives:1.To study the situation of farmers in appropriate pesticide application.

2.To study farmers needs for advise on appropriate pesticide application from sellers.

3.To study problems and constraints of farmers in buying and applying appropriate pesticide.

## **Materials and methods**

This research had the main objective to study the farmers needs for advice appropriate pesticide application from sellers in Roi Et province. The study has been conducted through the sample group, data collection and data analysis as follows.

### 1. Population and sample group

1.1 The study population selected for this study was the farmers who purchased the chemical pesticides from the 699 total stores in Roi Et provinces.

1.2 The sample group was the farmers who bought the pesticides from the local stores. Using Taro Yamane's formula (1967), a selected farmer from each store was interviewed. Thus, the farmers found in the 250 different stores were 250 different farmers from different districts.

## 2. The tools used in the research

The research was conducted through a questionnaire whose viability by a panel of experts and its reliability was confirmed by Cronbach's alpha coefficient (0.97). Additionally, the questionnaire was tested with 30 farmers in Roi Et Province to ensure the reliability. The questionnaire consists of 4 parts of questions as follows.

Part 1 The general characteristics of farmers

Part 2 Information and Practice in the use of pesticides of farmers

Part 3 Farmers needs of buying pesticides

Part 4 Problem and constraints of farmers in buying and use of pesticides in RoiEt province

As for the data collection, we have collected the data through questionnaire and sample group interview. The data were collected and then recorded into computer and processed by statistic programs.

## 3. The method of data analysis

The descriptive statistic was implemented in the study. Thus, the frequency, percentage, mean and standard deviation were used.

## Results

Regarding the data analysis from the research "Farmers Needs for Advise Appropriate Pesticide Application from Sellers in Roi Et Province", we have used the data from the sample group, collected in the number of 250 sets in order to analyze by statistical method according to the objective of the research and then proposed the analysis results in 4 parts as follows.

Part 1 The general characteristic of the sample group

Part 2 Information and practice in the use of pesticides of farmers

Part 3 Farmers needs of buying pesticides

Part 4 Problem and constraints of farmers in buying and use of pesticides

**Part 1 Analysis result of the general characteristics of the sample group**

**Table 1 Sex.**

Sex	Amount	Percentage
Man	164	65.60
Woman	86	34.40
Total	250	100

From the table 1, it was found 65.60 percent of the participants were male and 34.40 percent were female.

**Table 2 Age.**

Age	Amount	Percentage
21-30 years old	-	-
31-40 years old	-	-
41-50 years old	38	15.20
51-60 years old	163	65.20
Above 61 years old	49	19.60
Total	250	100
Average		56.50
maximum		70.00
minimum		40.00

From the table 2, it was found that 65.20 percent were in the age of 51-60 years and 19.60 percent were in the age of above 61 years. The average age was 56.50 years and the minimum age was 40 years and the maximum age was 70 years.

**Table 3 Status**

Status	Amount	Percentage
Single	4	1.60
Marry	209	83.60
Divorce	14	5.60
Widowed	23	9.20
Total	250	100

From the table 3, it was found that 83.60 percent were married, 9.20 percent were widowed, 5.60 percent were divorced, and 1.60 percent were single.

**Table 4** Level of education

Level of Education	Amount	Percentage
Lower Primary	229	91.60
Primary School	12	4.80
Secondary School	-	-
Diploma	-	-
Bachelor degree/high	9	3.60
Total	250	100

From the table 4, it was found that most of the participants (91.60%) were graduated with lower primary. 4.80 percent of them had primary school education while those with bachelor degree or higher were in the lowest amount which were only 3.60 percent.

**Table 5** professional experience

professional experience	Amount	Percentage
1-10 years	-	-
11-20 years	-	-
21-30 years	19	7.60
31-40 years	177	70.80
41 years and over	54	21.60
Total	250	100

From the table 5, it was found that 70.80 percent had 31-40 years of professional experiences. 21.60 percent of them had 41 years and more while 7.60 percent had the lowest amount of years, which was 21-30.

**Table 6** Income

Income	Amount	Percentage
Less than 20,000 baht	52	20.80
20,001-30,000 baht	125	50.00
30,001-40,000 baht	33	13.20
40,001-50,000 baht	15	6.00
more than 50,001 baht	25	10.00
Total	250	100
Average	41,396	
maximum	340,000	
minimum	0	

From the table 6, it was found that the majority of the participants 50 percent had household income of 20,001-30,000 baht while 20.80, 13.2, 10.0 and 6.0 percent of them had the income less than 20,000 baht, between 30,001-40,000, more than 50,001, and between 40,001-50,000 baht respectively.

**Table 7** Social status

Social Status	Amount	Percentage
Agriculture Member	60	24.00
Bank for Agriculture Member	103	41.20
Agriculture Cooperative Member	10	4.00
Community Member	-	-
Million Fund Member	77	30.80
Total	250	100

From the table 7, it was found that 41.20 percent were members of the Bank for Agriculture, 30.80 percent were Million Fund member, and 24.00 percent were Agriculture members.

**Table 8** Training

Training	Amount	Percentage
Training	85	34.00
No Training	165	66.00
Total	250	100

From the table 8, it was found that 66.00 percent were never been trained and only 34.00 percent were trained.

## **Part 2 Analysis result of the situation of the sample group Information and Practice in the use of pesticides of farmers.**

**Table 9** Information source

Information Source	Mean	S.D.	Meaning
Agricultural extension officer	2.86	0.91	Medium
Training	2.20	0.60	Low
Neighbor	3.35	0.71	Medium
Agency	2.65	0.55	Medium
Store	3.46	0.68	Medium
Middle man	2.53	0.63	Medium
Newspaper	2.97	0.95	Medium
Radio	3.66	0.65	High
Television	2.51	0.58	Medium
Other	1.63	0.56	Low
Total	2.78	0.47	Medium

From the table 9, it was found that radio was in a described high level as the information source for farmers. In the “medium” level, the information sources for the farmers were, ranking from the highest, stores, neighbours and newspapers. Training was in the “lowest”.

**Table 10** The practice in the appropriate pesticides application

Practice in the use of pesticide	Mean	S.D.	Meaning
Agricultural extension officer	2.87	0.92	Medium
Neighbor	2.20	0.60	Low
Store	3.35	0.71	Medium
Newspaper	2.65	0.55	Medium
Radio	3.46	0.68	Medium
Television	2.53	0.64	Medium
Experience	3.69	0.47	High
Training	2.32	0.47	Low
Media online	1.70	0.46	Low
Other	1.34	0.47	Lowest
Total	2.61	0.30	Medium

From the table 10, it was found that the major influence on farmers' perception of pesticides was their own experiences ( $\bar{X}=3.69$ ). The next was the advices from radio channels and the stores.

### Part 3 Analysis result of the farmers needs to requirements in buying pesticides

**Table 11** The farmers' needs of buying pesticides

Farmers needs for Advise in the use of pesticides from seller	Mean	S.D.	Meaning
1.Types of pesticide	2.60	0.49	Medium
2.The generic names of pesticides	3.21	0.75	Medium
3.Buying Appropriate Pesticide	3.81	1.47	High
4. Check the color of the bar and level on package of pesticide	3.21	0.75	Medium
5. How to observe symtoms of the disease and pesticide	4.02	1.54	High
6. Properties of pesticide control	4.41	0.80	High
7. How to use hormones and pesticide control correctly	4.01	1.09	High

Farmers needs for Advise in the use of pesticides from seller	Mean	S.D.	Meaning
8. Practice and safty in the use of pesticide	3.80	0.40	High
9. Efficiency and intensity of pesticide	3.41	1.19	Medium
10. Use of pesticide effectively	2.62	1.01	Medium
11. The residual effect of pesticide	3.61	0.80	High
12. The shelf life of each type of pesticide	3.20	0.75	Medium
13. Mixing the pesticide correct	2.80	0.40	Medium
14. Appropriate pesticide for the area	3.01	1.09	Medium
15. Cost of buying appropriate pesticide	3.21	1.16	Medium
16. How to keep the pesticide when remained	2.61	0.80	Medium
17. Removal the container of pesticide	2.61	0.80	Medium
18. Practice when farmer get toxic of pesticide	3.80	0.40	High
19. Health effects	4.60	0.49	Highly
20. Environmental impact	3.60	0.49	High
Total	3.41	0.74	Medium

From the table 11, it was found the the farmers needs of the sellers' advices on pesticide practice was addressed as medium level (  $\bar{X}$ = 3.41 ). To clarify, the "highest-level" concern of the farmers was health effects from pesticide use. The properties of pesticides, how to observe the symtomps of diseases and pests, and safe handling and use of pesticides were the "high-level" while the effectiveness and hazard of pesticides, their costs, and their generic names were at described medium level.

#### Part 4 Analysis result of the problem and constraints of farmers in buying and use of pesticides

**Table 12** The problem and constraints of farmers in buying and using of pesticides

The problems and constrains	Mean	S.D.	Meaning
1.Problem of perception information	2.90	0.54	Medium
2.Problem by themselves (lack of knowledge, lack of labor and capital)	3.96	0.76	High
Total	3.43	0.50	Medium

From the table 12, it was found that the problems and constraints of farmers on buying and practice of pesticides were at the “medium” level ( $\bar{X} = 3.43$ ). Precisely, lacking of knowledge, labor and capital were the major concern ( $\bar{X} = 3.96$ ), while the perception of pesticides was identified as “medium” level of problem.

#### Discussions

In general, the research “Farmers’ Needs for Advise Appropriate Pesticide Application from Sellers in Roi Et Province” has demonstrated many important points which were discussed as follows.

1. From the data of general characteristics of the sample group, it was found that most farmers in Roi Et province were male, married, age of between 51-60 years with education of lower primary. Their professional experiences were around 31-40 years and male were found to be interested in agricultural more than woman. Most of them had the average income between 20,001-30,000 baht. It was discovered that most of farmers were middle aged and have experienced in agriculture for long time and their incomes from agriculture were insufficient. Most of them were Agricultural and Cooperative Bank member, and some also the members of the millionaire fund. Most of them have never been trained to use of pesticide safely which was consistent with Thalaynoi (2008) that reported that most farmers were never trained on the safe handling and use of pesticide. Most farmers were found to have received the

information from various sources but still believed in their own experiences, which could be false.

2. As for the result of the study of farmers' needs of knowledge regarding buying and applying pesticides, it was unearthed that most of them needed advice from the sellers concerning the health effects. This was consistent with previous findings of Hongsakrai (1999), who found the relationship of knowledge of agricultural chemicals and their usage, of recognizing the unfavourable effects of agricultural chemicals on consumer health and environment quality, and of belief in health impacts and safe practices of agricultural chemicals. In addition, the result was also consistent with Kornsupan (2008) who found that most of the farmers were aware of health and environment effects from the use of agricultural chemicals. Farmers need advice from the sellers regarding many issues, i.e. the properties of chemical pesticides, how to observe symptoms of the crop diseases, how to use hormone and chemical pesticides safely, how to select the certain types of pesticides, practices and safety of pesticides, the methods of protection used against pesticides, and the environmental effects of pesticide residues.

3. As for the study result of the problem and constraints of farmers in pesticides purchase and usage, it was revealed that the problem was mainly from themselves lack of knowledge, techniques, labour, and capital. The next major problem was the perception information. This was consistent with Potjanasoonthorn (2011) who found that primary problem and constraints of farmers were high cost of pesticides and lack of knowledge, techniques, and capital, while the problem causing from perception information of farmers were described as "medium" level.

## **Conclusion**

In this study, the research result can be concluded as follows:

1. The sample group were 65.60 percent male and in age of between 51-60 years with average lifespan of 56.50 years. 83.60 percent of them were married and most of them were graduated with lower primary. 70.80 percent of them have experienced in agriculture for 31-40 years and 50.00 percent of them had annual household income of 20,001-30,000 baht with average income amount was 41,396.00 baht. For social status, 41.20 percent were the members of Agricultural and Cooperative Bank. 66.00 percent were never trained on how to practice pesticide. In addition, most of them received information from radio and tend to use pesticide according to their own past experiences.

2. In the overall, farmers' needs of advice from the sellers regarding on health effects was at "highest" level. At "high" level, the needs of knowledge

concerning the properties of pesticides, of how to observe symptoms of the disease, and of how to use hormone and pesticide correctly had highest average scores, respectively. At “medium” level, knowledge of practices and safety from the use of pesticide, of the cost of pesticides, and of the generic names of pesticides respectively had highest average scores. Concerning the problems and constraints of farmers in buying and using of pesticides, lacking of knowledge, and capital was “high-level”, while the problem of perception information was at described medium level.

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