

MALE AND FEMALE RICE FARMERS' PERCEPTION OF INSECTICIDE AND HEALTH PROBLEMS: A CASE STUDY OF VIETNAM

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ABSTRACT

A survey of 99 rice farmers revealed that farmers were not aware the chronic effect of chemical toxicity on their health. They experienced the immediate effect of insecticide during and right after spraying such as skin sores, dizziness, throat dryness, tiredness, headache, vomiting, difficulty in breathing, and eye sickness. Only 23% of farmers feel that they had long-term effect due to insecticide spraying and these health problems were positively significantly correlated to number of years using insecticide. Insect-plant interaction knowledge was negatively correlated to the farmers' number of diseases. Training did not have any effect on farmers' health because the implementing the IPM Program in Vietnam only in recent years. The farmers' perception of insecticide and its use was significantly different by gender and IPM training.

Key words: insecticide, IPM, environment, health

INTRODUCTION

The negative impact on human health and the environment by the use of chemicals has not been known, especially, by farmers. The intensive use of pesticide among farmers was strongly affected by the attractive advertisement from chemical sale agents. To reduced this environmental hazard, IPM program was introduced to Vietnam to impart scientific knowledge to farmers. However, the poor awareness of insecticide toxicity still exist among rice farmers.

This study is to assess the health problems of farmers who attended IPM training and of those who were not trained. It also assessed farmers' perceptions of insecticide and its use.

METHODS OF DATA COLLECTION AND ANALYSIS

A survey of 99 rice farmers in 1977 was conducted in directly seeded rice village-Thoilong, Omon of Cantho province. The information of attending IPM training, health problem were gathered. To know the relation of farmers' health with their knowledge of insect pest management, 55 closed-ended questions were used. A set of key answers prepared by Price and David (1996) were used as indicator to evaluate farmers' knowledge. A Pearsonian correlation analysis was employed to determine if the knowledge scores are correlated with farmers' health. The Fisher's Exact test was used to determine the differences in perception of trained and non-trained as well as male and female farmers.

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RESULTS AND DISCUSSION**Farmers' perception and use of insecticide**

most of trained farmers (93% trained males and 88% females) used insecticide because most of them perceived insecticide as an effective control method.

Table 1 shows that all the non-trained males and females used insecticide and

Table 1. Farmers' perceptions and use of insecticide (N=99)

Item	Male (n=60)		Female (n=39)	
	Non-trained %	Trained %	Non-trained %	Trained %
Use insecticide	100	93	100	88
Perception of effectiveness of insecticide				
Highly Effective	77	50	74	25
Effective	20	37	13	63
Less Effective	3	7	13	0
Not Effective	0	3	0	0

Duration of farmers' use of insecticide spraying and health status

More than half of male farmers did not involved in long term of spraying insecticide. The rest have been sprayed

for 4.7 years (non-trained male) or 7.5 years (trained male). Non-trained females who involved in insecticide application have been sprayed for 6.2 years. This was 4.9 years for the trained female (Table 2).

Table 2. Number of years farmers have been spraying

Years of Spraying	Male (n= 60)		Female (n=39)	
	Non-trained	Trained	Non-trained	Trained
Farmers involved in long term spraying (%)	40	50	52	63
Years involved in long term spraying (year)	4.7	7.5	6.2	4.9
Range (year)	0-30	0-30	0-28	0-20

Perception of long-term effect on health

Even though the farmers have been involved in spraying for some years, the majority (77%) believe that spraying has not had any long-term effect on their health. The minority (23%) who responded that spraying effected their

health reported experiencing body weakness, tiredness, eye weakness, sickness, headache, and dizziness (Table 3).

Farmers (30% trained and non-trained males and 13% trained and non-trained females) have experienced a long-term effect from spraying insecticide. When they were asked what kind of problems

have been caused by this long-term effect, they (10% non-trained males, 20% trained males, and 10% non-trained females) answered body weakness, followed by often feeling tired (10% non-trained males, 3% each of trained males and non-trained females). The other effect was eye weakness reported

by 3% each of non-trained males and trained males. Regardless of training, both trained and non-trained farmers have experienced certain long-term effects on health because of their spraying for many years. Attendance in the IPM training has been only in recent years (1991 to 1996).

Table 3. Farmers' perception of whether spraying insecticide has a long-term effect on health

Item	Male (n=60)		Female (n=39)		Total %
	Non-trained %	Trained %	Non-trained %	Trained %	
<i>Long-term effect</i>					
Yes	30	30	13	13	23
No	70	70	87	87	77
<i>Problem by long-term effect</i>					
Body weakness	10	20	10	0	12
Tired often	10	3	3	0	5
Eye weakness	3	3	0	0	2
Sick often, headache, Dizziness	7	3	0	13	4

Most the farmers answered “no long-term effect” even if they have been involved in spraying. Other farmers said there might be long-term effects, but they do not feel any problems. This is explained by the study of Rola and Pingali (1993), which revealed that the chronic effect of long-term contact with toxicity is not recognized by the farmers. They use toxic insecticides, but are not aware of the harmful effects nor do they recognize the problems caused by such insecticides.

Farmers' health problems during and after spraying

Of 99 farmers, insecticide spraying was mostly done by men (88%), 9 % of the farmers were women who did spray

(Table 4). The other 3% of the farmers did not use insecticide for the whole rice stage.

Insecticide spraying effected farmers' health status. Table 5 shows that they experienced skin sores, dizziness, throat dryness, tiredness, headache, vomiting, difficulty in breathing, and eye sickness. During and after spraying insecticides, most of farmers (57% of non-trained males, 60% trained males, 39% non-trained males, and 38% non trained females) said that they felt tired. Headache, dryness of throat, dizziness, eye sickness, skin sores and difficulty in breathing are other problems which were reported by farmers. There was 3% of trained males who vomited after spraying.

Table 4. Male and female rice farmers involved in insecticide spraying (%)

Groups of farmers	Husband	Wife	Not using insecticide
Trained male farmers	28.3	0	2
Trained female farmers	6.0	1	1
Non-trained male farmers	26.4	4	0
Non-trained female farmers	27.3	4	0
Total	88.0	9	3

Table 5. Farmers' problem during and after insecticide spray (%)*

Item	Male (n=60)		Female (n=39)	
	Non-Trained	Trained	Non-Trained	Trained
Tiredness	57	60	39	38
Headache	23	7	26	25
Skin Sores	7	17	13	0
Dizziness	23	13	23	13
Throat Dryness	13	13	32	13
Vomiting	0	3	0	0
Difficult to Breath	3	10	0	13
Eye Sickness	17	10	16	25
None	30	23	42	13

* Multiple responses

A considerable percentage of farmers who were not trained (30% males and 47% females) reported "no problem" than the trained group (23% males and 13% females). The "no problem" response may be due to the fact that farmers did not noticed the problem during and after spraying. They did not mind the problem because it appeared in a short moment. After spraying, they rested and did not feel any problem. Farmers at the study sites reported that they rested and drank a glass of lemon juice with sugar and felt nothing wrong with their health. The farmers seem to have "taken for granted" the minor ailments because spraying as one of the farming tasks is a part of farmers' practices. Then do not pay attention on chemical toxicity.

Relation of farmers' health status to gender, socio-economic factors, selected control practices, knowledge and training

Table 6 shows that the number of years involving in insecticide spraying and insect-plant interaction knowledge were significantly related to farmers' number of diseases (number of health problems). The number of years involve in insecticide spraying was positively correlated to the number of diseases. The farmers with longer years of insecticide spraying faced more health problems due to the chronic effect of long-term exposure to toxic chemical components of insecticides. On the other hand, farmers' insect-plant interaction knowledge was negatively correlated to the farmers' number of diseases.

Knowledge gained from IPM training was not significantly correlated to farmers' health problems because IPM

program has been organized in recently meanwhile the occurrence diseases reported by farmers several years ago.

Table 6. Correlation of health status to gender, socio-economic factors, control practices, knowledge score and training

Factor	Number of diseases
Gender	-0.02
Age	-0.03
Education	0.04
Land size	0.008
Household size	-0.06
Household income	-0.04
Years involving in spraying	0.36**
Expenditure for insecticide use in dry season	0.03
Expenditure for insecticide use in dry season	0.07
Total knowledge score	0.07
Entomological knowledge score	-0.10
Insect-plant interaction knowledge score	-0.24*
Insecticide knowledge score	-0.08
Training	-0.05

** = significant at 0.01; * = significant at 0.05

Test for the differences in farmers' perception of insecticide and insecticide use to gender and training

The differences between farmers' gender and training in relation to their perceptions of insecticide and insecticide use was analyzed by using Fisher's Exact Test (2 Tailed). This statistical tool determines the significant differences in responses of males and females and among trained and non-trained farmers. The level of significance was set at 5%.

Differences by gender the perceptions of insecticide and its use was significantly different by gender. The male and female farmers' perceptions were different to the items such as "spray insecticides upon seeing insect to make

certain of a good crop yield", "sprayed insecticides if your neighbors sprayed to avoid movement of insect", "the damage from stemborer is most dangerous to the plant early in the season", "five percent of tillers damaged by stemborer will decrease by five percent crop yield", and "brown planthopper (BPH) are most dangerous when they appear along with many spiders and water bugs. This is a sign of BPH problem out of control". The data indicate that female farmers had misperception more than male farmers.

Differences by trained and non-trained. The test also shows there was significant difference in perceptions by trained and non-trained farmers to insecticide and its use. The differences in perception of

trained and non-trained farmers. This reflects that the non-trained farmers had misperception of insecticide and its use.

CONCLUSIONS

Though the IPM-FFS have been implemented in Vietnam for more than five years with the aims to discourage farmers to use of insecticide for their rice fields, most of farmers still use insecticide as the primary control method because they perceived insecticide as effective control measure. However, the trained farmers sprayed insecticide at lower extent compared with non-trained farmers. Not all trained farmers gave up insecticide use but only 3%. Though farmers under long-term involved in insecticide spraying but most of them (77%) do not ware of long term effect on their health. The rest (23%) had experience body weakness, tiredness, eyes weakness, sickness, headache and dizziness. The number of diseases caused by long-term spraying was highly correlated with the number of years involving in insecticide spraying.

The farmers' health problems still exist because they had misperception of

insecticide and its use. This misperception was higher among female farmers than male farmers and also higher among non-trained farmers compared with trained farmers. The IPM training has improved farmers knowledge but at a certain extent. Accordingly, their use of insecticide reduced slowly and farmers still experienced health problems due to spraying insecticide even among trained farmers. This opens area for the further study of long term monitoring farmers' IPM practices and their health status. Farmers do not aware of toxicity hazard, the extension and communication services should increase their attention to this aspect and make farmers understand the negative impact of agro-chemicals.

References

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TÓM TẮT

Tình trạng sức khỏe và sự nhận thức của nông dân về thuốc sát trùng

Kết quả điều tra 99 nam nữ nông dân có và không có tham dự lớp IPM cho thấy phần lớn nông dân đều dùng thuốc trừ sâu và không hiểu tác hại lâu dài của thuốc đối với sức khỏe của họ. Các ảnh hưởng tức thời do phun xịt thuốc gồm có bỏng da, chóng mặt, khô cổ, mệt, nhức đầu, ói, khó thở và mờ mắt. Có 23% nông dân báo cáo cơ thể yếu đi, mệt mỏi, thường hay bị bệnh, nhức đầu và chóng mặt là do bị ảnh hưởng của phun xịt thuốc lâu dài và ảnh hưởng này tương quan thuận với thời gian phun thuốc. Sự nhận thức về thuốc và dùng thuốc rất khác biệt một cách có ý nghĩa giữa nam và nữ, và giữa nông dân có dự lớp IPM và không dự lớp IPM.