BIBLIOGRAPHY

ATAS, MANELYN S. APRIL 2013. Awareness Level and Reading Practices on Pesticides Labels of Bangao, Buguias Farmers. Benguet State University, La Trinidad, Benguet.

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ABSTRACT

The study was conducted to know the awareness level and reading practices on pesticide labels of Bangao, Buguias farmers.The study determined the commonly used pesticides of the farmers in Bangao, Buguias; determined their awareness on the meanings of the symbols found on the labels; determined their awareness on the different parts of the labels; determined how do they read the labels in terms of: when do they read the labels, parts of the labels that they read, parts of the labels that they think is very important, parts of the labels that they understand, parts of the labels that they do not understand and determined the common problems that they encountered in the labels of pesticides.

An interview schedule was used in gathering information from the respondents using the Kankanaey language in order to facilitate understanding between the researcher and the respondents.

Majority of the respondents were males, all of them were capable of reading and writing and they came from different age brackets.

Farmers were using insecticides than fungicides or other types of pesticides. Majority of them were not aware on the different symbols found on the labels of the pesticides. The respondents knew how to identify the product name, pesticide type, and directions to use in the label and these were only the parts of the labels that they were reading. Most of them were reading the labels of the pesticides before buying and before using it. The respondents cannot understand some words in the label and there were words that were very big and too small. Based on the findings, concerned agencies about agriculture may conduct seminars to the farmers regarding pesticides labels and symbols for their safety.

INTRODUCTION

Rationale

Information is a need in order for a society to function well. Likewise, people need information to guide them in their everyday life in different ways.In the case of farmers who usually are pesticide users, information is important in influencing their practices in using chemical inputs in their farms.

One means of being informed about this is through the labels of pesticides. This helps them decide on what pesticide is appropriate to their farm. It also provide them information on using and disposing the products safely.

Buguias is a municipality of vegetable plantation with gardens covering plateaus, and strips of leveled plots along creeks and gentle slopes. Buguias has emerged as the highland vegetable capital of the Philippines from where carrots, potatoes, cabbages, pechay, Chinese cabbage, beans and other vegetables are transported to different provinces, even as far as Manila.

In Buguias, farmers are generally using pesticides in their farms as stated by Delfin Rufino,Municipal Agricultural Office. This is so sincepesticides provide many benefits and improve the quality of life when they are used carefully and properly. Pesticides handled in a careless manner can endanger the health of the applicator, other people, animals, plants, or the environment. Thus, handling and applying pesticides requires knowledge, care, and good judgement, and every applicator needs to read, understand, and follow the pesticide label instructions.

A label is the face of the product. Thus, it is important to read and understand the information found on the label. There is a worldwide concern on the labeling and packaging of products specially chemicals. Some of these concerns dwell on the accuracy and transparency of the information, as well as the design or appearance of the labels.Thus, the Philippines came up with regulations in labeling and packaging chemical products.

The section 9 of Presidential Decree No. 1144 (the law that created the Fertilizer and Pesticides Authority (FPA) provides the regulatory framework within which the FPA controls pesticide. This is to promulgate rules and regulation for the registration and licencing of the handlers of these products. It also restricts or bans the use of any pesticide or formulation of certain pesticides or during certain periods upon evidence that the pesticide is an imminent hazard, is causing widespread damages to crops, fish or livestock, public health and the environment. Moreover, FPA also regulates the information that should be present in all pesticide labels.

Choosing the correct pesticide to use is one of the most important segments of carrying out an effective pest control. The pesticides being used by farmers are instrumental in the effectiveness of pest control program.However it will also have direct bearing on the hazards that farmers are subjecting themselves to, as well as other persons and the environment (Bohmont, 2003).

There are certain bands/label which measure the toxicity of the pesticides. These are the green label which is lightly toxic, yellow label that is moderately toxic, blue label which is very toxic and the red label that is extremely toxic. This helps the farmers in determining the right pesticides for their crops.

Excessive use of pesticides to achieve adequate crop protection is not compatible with pesticides management. Such a practice can lead to unnecessary disturbances in the ecosystem and may have long term adverse effects. Human safety is a prime consideration in pesticide can poison if used irresponsibly. This may result from exposure to toxic closes, chronic-law level exposure or from residues.

In Bangao, Buguias, pesticides are commonly used by farmers as observed by the researcher. Since Buguias farmers are usually using pesticides, it is important to find out if they are reading the labels responsibly, especially Brgy. Bangao wherein it has the largest farming area in the municipality.

The results of this study may be used as a basis by the concerned agencies in conducting information campaigns on safe farming practices and other activities such as seminars and trainings for the benefits of the farmers.

Statement of the Problem

The study found out the level of awareness of the farmers in Bangao, Buguias on the labels of pesticides. The study also documented their reading practices on the labels of the pesticides.

This study answered the following questions:

1. What are the top ten pesticides commonly used by the farmers in Bangao, Buguias?
2. Described and analyzed the labels of the top ten pesticides,
3. Are they aware of the meanings of the symbols found on the labels?
4. Are they aware of the different parts of the labels?

5.How do they read the labels in terms of:

a. when do they read the labels?

b. what parts of the label do they prefferedto read?

c. parts of the label do they think is very important?

d. parts of the label do they understand?

e. parts of the label they do not understand?

6.What are the common problems they encountered on the labels of pesticides?

Objectives of the Study

Generally, the study aimed to know thelevel of awareness of the farmers in Bangao, Buguias on the labels of pesticides and their reading practices on the labels.

Specifically, this:

1. determined the commonly used pesticides of the farmers in Bangao, Buguias;

2. Described and analyzed the labels of the top ten pesticides;

3. determined their awareness on the meanings of the symbols found on the labels;

4. determined their awareness on the different parts of the labels;

5. determined how do they read the labels in terms of:

a. when do they read the labels;

b. parts of the label that they preffered to read;

c. parts of the label that they think is very important;

d. parts of the label that they understand;

e. parts of the label that they do not understand; and,

6. determined the common problems that they encountered in the labels of pesticides.

Importance of the Study

The results of the study may help the farmers to give importance on reading the labels and instructions in every products that they are using for their safety, and for taking care of the environment.

In the local level, the findings may be significant to the Municipal Agriculturists' Office of Buguias in establishing and prioritizing their development agenda. It may also help the agencies such as Department of Agriculture (DA) and Fertilizer and Pesticide Authority (FPA Philippines) and other agencieswho have concerns for the safe and good agricultural practices in knowing if the farmers are guided accordingly by the labels of the products.

In addition, it may also serve as a reference or guide for other researchers with the same scope of study.

Scope and Limitation of the Study

The study was conducted from January 2013 to February 2013 at Barangay Bangao,Buguias, Benguet. The researcher focused on the level of awareness on the labels of pesticides of the farmers in Bangao, Buguias. It also included the label reading practices of the farmers in the area.

REVIEW OF LITERATURE

Pesticides Used in Farming

Farmers are the backbone of the country, since agriculture is the primary source of food. Thus, safety of the farmers and the consumers is very important.

Pesticides are modern-day miracles. These chemicals have helped the farmers to grow food abundance and eliminate pests. Unfortunately, many pesticides can also have negative effects both on the environment and on humans. The use of pesticides must consequently be carefully controlled and closely monitored to maximize their benefits and minimize harmful effects (Richman *et al*, 2002).

In order to maintain and ensure the good quality and quantity of crop production and to satisfy the increasing human population, farmers must use chemicals to protect their crops from pests and diseases, and pesticide is the widely used. Most chemicals are dangerous not only to the health of people but also to the environment, so following the labels correctly will help on the safety of the users.

According to the Department of the Environment(1996), the quantity of pesticide applied by farmers depends on the level of pests and diseases pressure, climatic conditions, the type of crop and its resistance to pest and diseases, the efficiency of pest management practices, and the influence of economic and policy factors.

In addition, Pesticides vary in their degree of toxicity depending on the type and concentration of their active ingredients (the chemical actually controlling or killing the intended pest, weed and diseases). When pesticides that are less toxic are used, environmental damage may decrease despite increases in pesticide use.

According to (Bestre, 2006) majority of the farmers in Buyacoan, Buguias used the yellow and green bands, their were few who are applied the red band because of its toxicity and effects on humans. Furthermore, the respondents claimed that information on the pesticide utilization mostly came from chemical dealers.

The impact of pesticide use in human health concern the direct effects in terms of exposure to farm workers and the public in the vicinity of spraying. Their are also indirect effects through pesticide residues in food and water consumption, with related concern such as pesticide poisoning, cancer and endocrine disruption. The risks to the environment from agriculture pesticide use concern impacts on terrestrial and aquatic flora and fauna, toxic contamination of soil (Hond, 2003).

Farmers have developed experience with pesticide products. Most farmers know about the hazardous nature of it and their handling. In some cases caused by unfortunate accidents, more often because they have read label instructions or listened to the advise of extension services or agrochemical sales advisors (Yokoi, 2003).

To maintain the economically successful multimillion peso vegetable industry, farmers in the CAR use hazardous chemicals. They have relied almost exclusively on chemical pesticides in their desire to meet the growing demands of the consumers for high quality vegetables, to control pest s that prey on their crops. They also increase their spray dosage and are spraying at closer intervals, including mixing pesticides popularly called "cocktails" to maintain effectiveness (Cheng, 1992 as cited by Gayaso, 2010).

Knowledge/ Awareness on the Information Found on the Label

The general public most of whom have poor understanding of pesticides. This is partly due to lack of understanding of chemical uses and agricultural production practices, but it is also due to fear and misunderstanding brought about through publicity of accidents and misuses involving pesticides. The perception of widespread hazards associated with presumed long term accumulations of pesticides in people, other organisms, or the environment often appears to stem from lack of understanding by the general public of the processing of metabolism, elimination, and degradation that largely preclude such percieved problems (Bohmont, 2003).

He added that individuals using pesticides and those concerned about pesticides use must seek all the facts and become better informed about the benefits as well as the risks of using these technological tools.

Correct application of a pesticide product is accomplished by following the use instructions found on the label. The use instructions will tell you the pests which the manufacturer claims the product will control, the crop, animal, or site the product is intended to protect, when, where, how, and in what form the product should be applied, the proper equipment to be used, the correct dosage, mixing directions, compatibility with other often-used products, minimum time between the application and entry into the treated area for unprotected persons, and possible plant injury problems.

Information Found in the Label

According to the Pesticide Regulatory Policies in the Philippines, certain kinds of information must appear on a pesticide label. Pesticide applicators have the legal

responsibility to read, understand and follow the label directions. Pesticide labels will usually contain the following sections:products common name,ingredient statement,net contents, name and address of the manufacturer of the pesticide,keep out of reach of children precaution, precautionary statements, directions for use,storage and disposal, suitable indication hazard and registration number.

METHODOLOGY

Locale and Time of the Study

The study was conducted at Bangao, Buguias from January 2013 to February 2013.

Buguias is a third class municipality in the province of Benguet. According to the 2007 census, it has a population of 34,507 people in 6,312 households.

The place has vegetables terraces wherein most of the residents are farmers.One can travel from Baguio via the Baguio-Bontoc-Banawe Road, and the town center at Abatan can be reached by three to four (3-4) hours. This is the main route for both human and farm products.

As observed by the researcher, farmers in Buguias are using different kinds of pesticides in their farm. However, some of them are not following the instructions found on the labels such as proper disposal and some precautions. This was supported by a Barangay Kagawad in Bangao, wherein she said that most farmers are not really reading the labels of the pesticides. Most of the time, the farmers opened and used the pesticides directly without really reading through the labels.

Bangao belongs to the barangays of the Municipality of Buguias, which are located in the outlaying area. It has a population of 3,947 according to 2007 census. It has the largest farming area among the 14 barangays of Buguias.Thus, the researcher chose this place to conduct the study.

Respondents of the Study

There were 50 respondents of the study who are farmers in Bangao, Buguias. They were selected through the use of purposive sampling technique.The criteria in choosing the respondents were:they should be farmers;has been farming for five years or more, and pesticide users in farming.

Key informants were also interviewed to further supplement the data gathered. An interviewee came from the Municipal Agriculturists' Office, and another interviewee came from the Brgy. Council of Bangao. A saleslady from a farm supply was also interviewed.

Figure 1. Map of Benguet showing Buguias municipality, the locale of the study

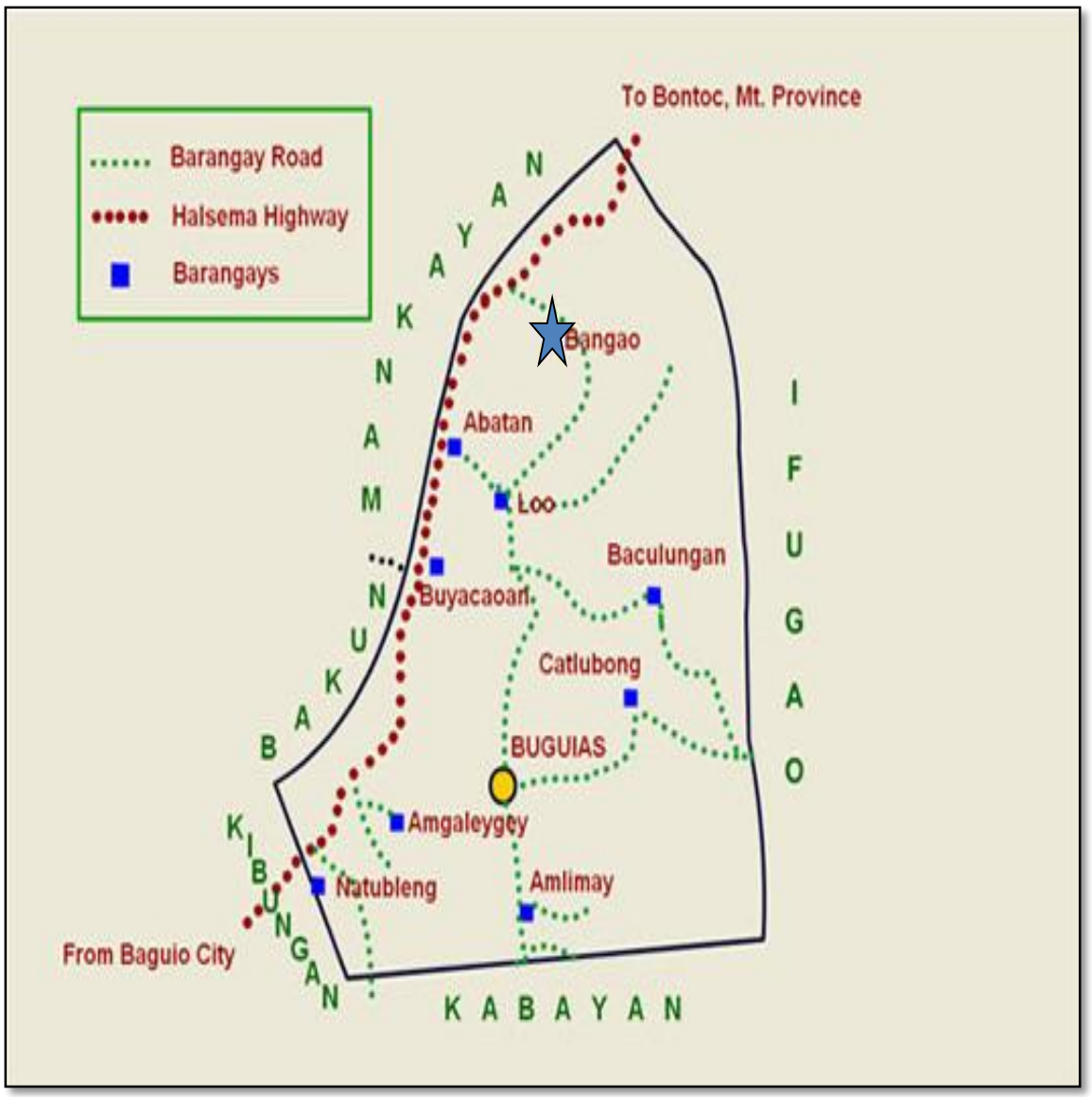

Figure 2. Map of Buguias showing Barangay Bangao, the specific location of the study

Data Collection

For the level of awareness of the respondents on the labels, the researcher let the respondents chose the meaning of the symbols and identified the parts of the labels from the choices provided.

An interview schedule was used in gathering information from the respondents using the Kankanaey languagein order to facilitate understanding between the researcher and the respondents.

The researcher also used observation and interviewed people to further validate the claims of the respondents.

Data Gathered

The gathered data were the socio-demographic profile of the respondents; the commonly used pesticides by the farmers of Poblacion, Buguias; theirlevel of awareness on the labels of the pesticides and the label reading practices of the respondents.

Data Analysis

All of the gathered information from the respondents were ranked, tabulated, analyzed and interpreted using descriptive frequency and percentage. Other data were qualitatively analyzed and presented.

RESULTS AND DISCUSSION

Socio-Demographic Profile of the Respondents

Table 1 shows the socio-demographic profile of the respondents which included their age,sex, educational attainment and years of being a farmer.

Age. Out of 50 respondents, twenty four (48%) belonged to the age bracket of 20-30years old. Five (10%) of them belonged to the age bracket of 31-40 years old and twelve (24%) belonged to the 41-50 years old. Nine (18%) belonged to age bracket 51-60. The youngest respondent was 21 years old while the oldest was 60 years old. Such would imply that the respondents came from different age brackets.

Sex. Majority of the respondents were males 78% and there were eleven (22%) females.The results imply that more males are involved in farming in the Bangao, Buguias.

As observed by the researcher during the conduct of the study, most females stayed in their house while the males were working in the garden.

*Educational attainment.*Twenty six (52%) of the respondents were high schoolgraduate and there were three (6%) high school under graduate while nine (18%) of them were elementary graduate and seven (14%) were elementary undergraduate. There were four(8%) of them who were college graduate while one (2%) was a college undergraduate.Such would imply that majority of them are capable of reading and writing.

Years of being a farmer. Thirty three of the respondents belonged to the age bracket of 5-15 years of farming and eight belonged to the age bracket of 16-30 years of farming while nine (18%) belonged to the age bracket of 26-35 years of farming. The results imply that all farmers have been farming for five years and above.

Table 1. Socio-demographic profile of the respondents

	CHARACTERISTICS	FREQUENCY (n=50)	PERCENTAGE (%)
Age	20-30	24	48
	31-40	5	10
	41-50	12	24
	51-60	9	18
TOTAL		50	100
Sex	Male	39	88
	Female	11	22
TOTAL		50	100
Educational Attainment			
	Elementary graduate	9	18
	Elementary undergraduate	7	14
	High school graduate	26	52
	High school undergraduate	3	6
	College graduate	4	8
	College undergraduate	1	2
TOTAL		50	100
Years of being a farmer			
	5-15	33	66
	16-25	8	16
	26-35	9	18
TOTAL		50	100

Commonly Used Pesticides by the Farmers

Table 2 shows the top ten commonly used pesticides by the respondents. There were fifty two (52) identified common names of pesticides that the farmers were using. These pesticides were ranked according to how many farmers were using it. Lorsban was ranked as number one and Bida came next. Dithane, Manager, Siga, Rober, and Fenos, also got significant number of responses (11-19).

According to the website of Dow Chemical Company, Lorsban is one of the most-widely used insecticides in the world. It is non-systemic to plants because the active ingredients are not taken up by the plants. Itwas first registered in 1965 andhas been in the market for more than 40 years.

Results show that most farmers were using insecticides than fungicides or any other types of pesticides. This supports the statement of Tirado *et. al* (2008) that insecticides are by far the most used type of pesticide in the Philippines; they represented 56% of the total pesticide trade in the country in 1996.

This also relates to the statement of Martokoesoemo (1987) that the use of insecticides on vegetables is estimated at 20% of the total Philippines usage because vegetables are prone to diseases.

Table 2. Top ten commonly used pesticides

PESTICIDE NAME	PESTICIDE TYPE	NO. OF USERS
Lorsban	Insecticide	27
Bida	Insecticide	24
Dithane	Fungicide	19
Manager	Fungicide	16
Siga	Insecticide	13
Rober	Fungicide	13
Fenos	Insecticide	11
Padan	Insecticide	9
Somicidine	Insecticide	7
Success	Insecticide	7

*Multiple responses

Description and Analysis of the Labels
of the Top Ten Pesticides

The study analyzed the labels of the top ten pesticides based on the labeling guidelines set by FPA (Appendix 2). This study focused on the product name, pesticide type, ingredients, formulation, directions for use, precautionary statements, first aid instruction and toxicological information only.

Lorsban. Figure 3 shows that the product name was put in the upper part of the label. he pesticide type was classified as insecticide, and under yellow label. The ingredients were present.

The product name is printed in a big font size; and so are the type of pesticide and while the other parts are very small so there is a possibility that farmers cannot read the other parts. The other symbols are not found here since they use the color symbol.

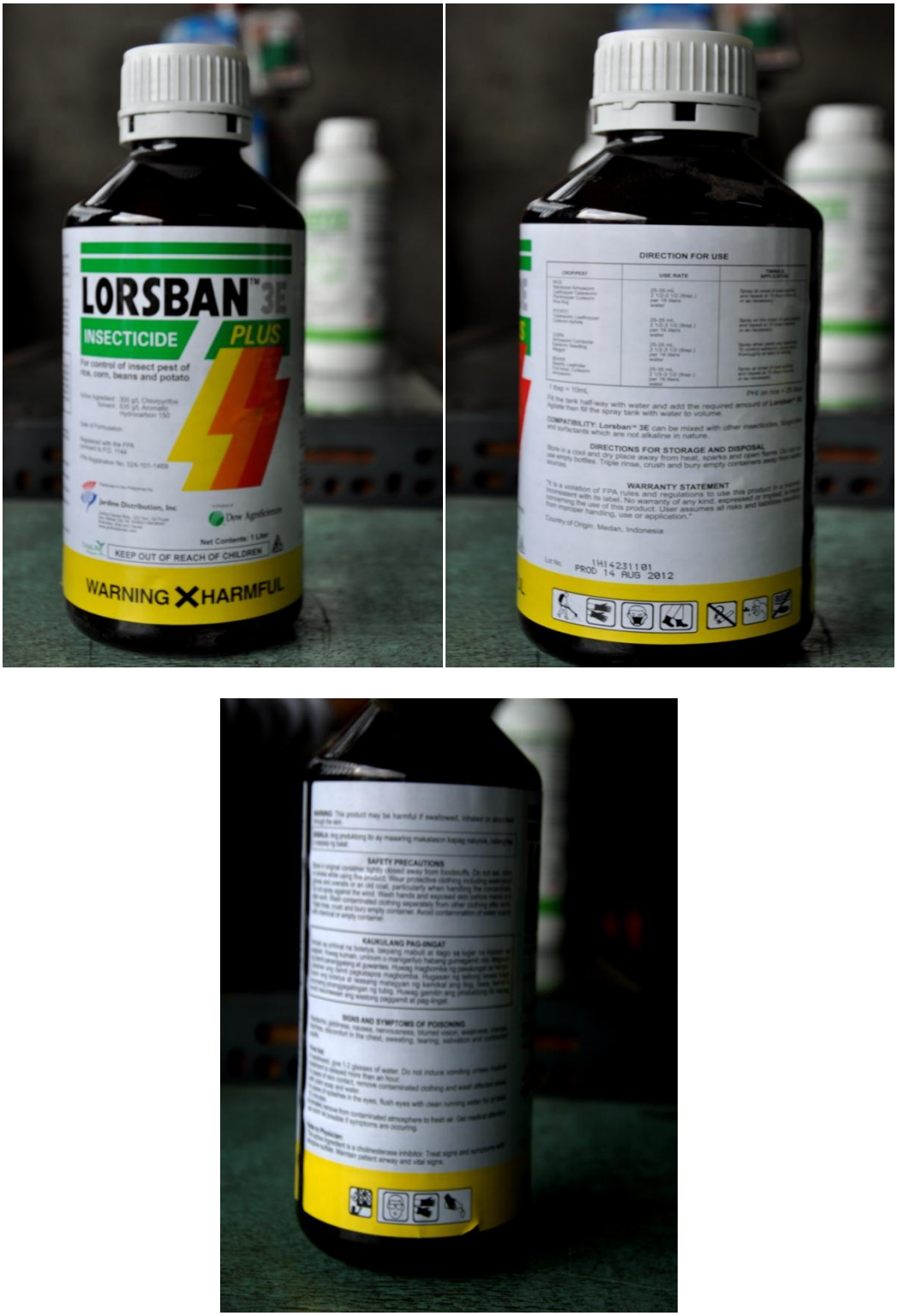

Figure 3. Label of Lorsban

Bida. The product name of this pesticides was put in the upper part of the label. It is a yellow label pesticides as shown in the bottom of the label with the word “warning harmful” and the poisonous (skull) symbol appears on the bottle. The label is attractive due to its color combinations. Some words are very small and it is difficult to read. It has a complete parts of the label that was set by the FPA. This was shown in Figure 4.

Figure 4. Label of Bida

Dithane. Pictures were put in the front while the text are at the back. The label has a wide space due to its big size. The font size are easily read as well as words used are easily understood and has a simple design. Dithane used color symbol as a warning symbol, and it is green label pesticide which means the product is slightly toxic. There were also pictures that serves as basis for other farmers who cannot read. The label has a complete parts.

Figure 5. Label of Dithane

Manager. Figure 6 shows that the label of manager has a colorful appearance. It is a green label pesticide which means slightly toxic.The product name was printed in a big

font size while the other parts were very small, it is why sometimes a farmer do not read the other parts of the label because it is too small. The text also in the label are well-organize. Some parts were translated into filipino to be easily understood by the farmers.

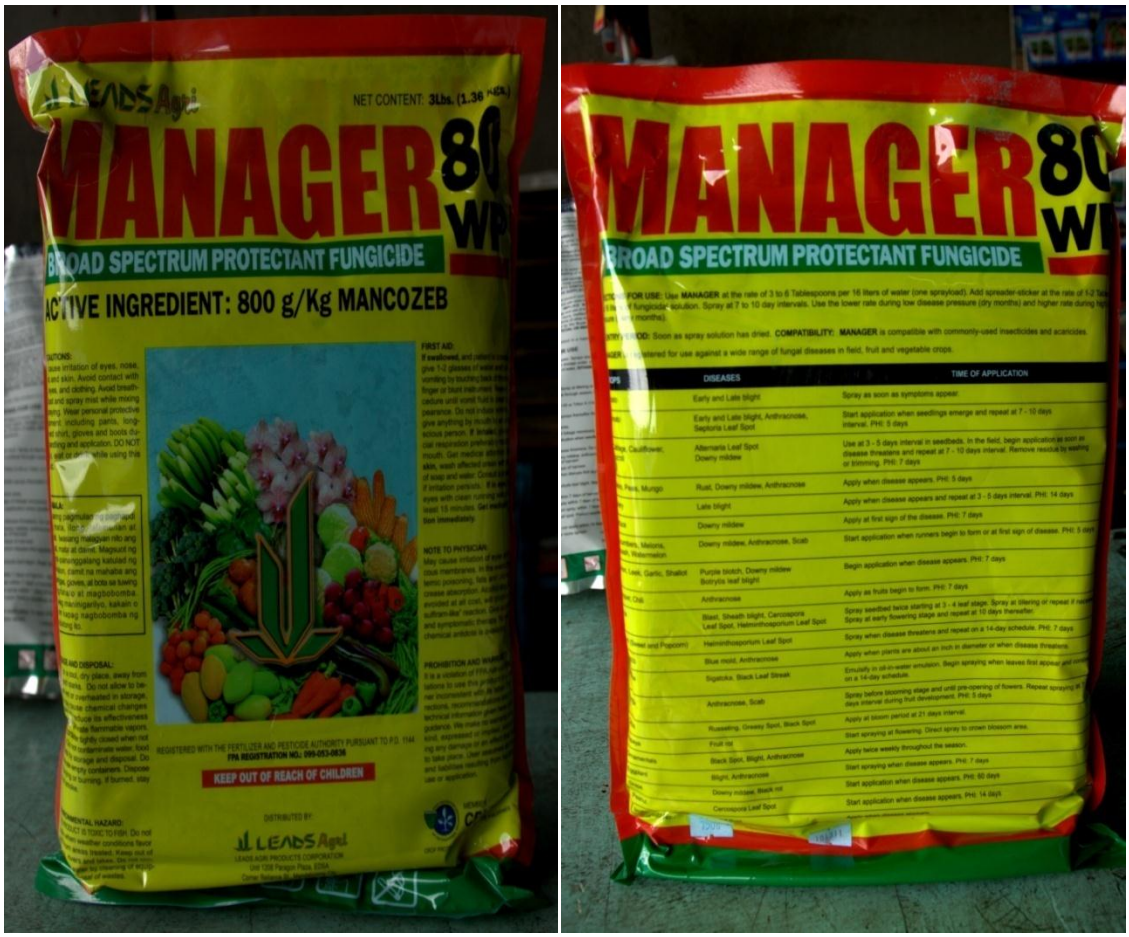

Figure 6. Label of Manager

*Siga.*Figure 7 shows that Siga is a yellow label pesticide andthe design was very simple. The color also emphasize its toxicity. The product name has a big font size. Some words are not easily read because of its size. The pictures used were clear.

There are also words that most farmers cannot understand however,there are illustrations in the label that farmers can easily follow.

Figure 7. Label of Siga

Rover. The label used only one color to emphasize its toxicity. Figure 7 shows that the label of Rover used drawings instead of pictures and it was a green label pesticide. The font size is hard to read because they are very small. It is almost plain text label. The label has a complete parts.

Farmers are sometimes fun of viewing pictures, and they are easily get bored if they are reading materials that are plain text. This may be one reason why farmers are not reading the labels of the pesticides.

Figure 8. Label of Rover

Fenos. Figure 9 shows that the design of the label of Fenos was simple. It is a green label pesticides. The text are small and some words that are difficult to understand. The simplicity of the labels sometimes affect the reading practices of the farmers because most of them are looking for something that may relieve their stress and exhaustion. This label has complete parts as required by the FPA.

CROP	PEST(s)	Rate (mL prod/ 16 L water)	Rate (mL prod/ ha)	Spray Volume/Ha.
Cabbage	Diamond-backed moth, cabbage worm and cutworm	3 - 4	50 - 75	320
Eggplant	Tip borer and fruit borer	3 - 4	75 - 100	500
Tobacco	Budworm and cutworm	3 -4	50 - 75	320
Stringbeans	Pod borer and cutworm	3	50	320

Figure 9. Label of Fenos

Padan. The label is very colorful and has many picture. This lively label may attract the eyes of the users to atleast read some of the important parts.Figure 10 shows that Padan is a blue labeled pesticides thus, it is moderately toxic. It also has illustrations at the bottom for the farmers to follow. Some words are easily understood while some are technical. The pictures of the pests present in this label are sometimes the basis of the farmers specially for those who are not capable of reading.

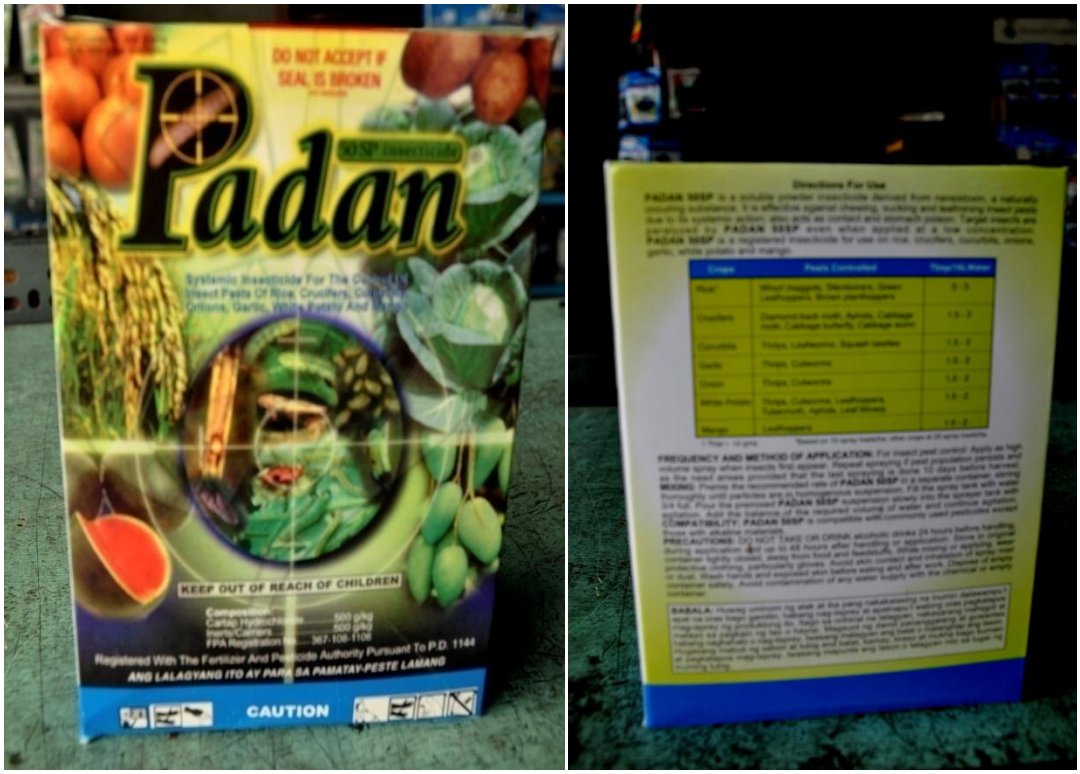

Figure 10. Label of Padan

Somicidine.The product name has big font size while the other parts were very small. It is a green label pesticide as shown at the bottom of the label. There are also pictures in the label of the vegetables and fruits that the product can protect. These also pictures may guide the farmers specially those who are not capable of reading. The back portion is a plain text and there are words that are easily understood the font size are very small as shown in Figure 11.

Figure 11. Label of Somicidine

Success. The design of the label was very simple and has plain text especially in the back portion that is maybe why the farmers can just read on what is in the front then ignore the other parts . It is a green label pesticide. The information were complete however the text are very small due to the small size of the bottle which farmers cannot easily read the words as shown in Figure 12.

Figure 12. Label of Success

Awareness of the Respondents on the Labels

Awareness on the Meanings of the Hazard Symbols Found in the Label. The awareness level of the respondents toward the pesticide labels were measured by showing them the standard symbols regulated by FPA to be present on all labels; and letting them choose their answers from the choices provided.

Table 3 shows the respondents' awareness on the meanings of the symbols found on the labels of the pesticides.

Table 3. Respondents' awareness on the meanings of the hazard symbols

SYMBOLS	NO. OF AWARE	PERCENTAGE %	NO. OF UNAWARE	PERCENTAGE %
 Crossbones	39	78	11	22
 Corrosive	18	36	32	64
 Flammable	23	46	27	54
 Explosive	10	40	40	80

*Crossbones.*This symbol appears as skull with a cross symbol in it, and thismeans that the product is poisonous or the product is highly toxic due to oral, dermal, or inhalation exposure. A taste of a teaspoon taken by mouth could kill an average-sized adult.

Out of 50 respondents, thirty nine (78%) of them were aware of the meaning of this symbol while there were eleven (22%) who are unaware. This implies that majority of the respondents know the meaning of the symbol.

Respondents who were aware of the symbol said that the pesticides with that symbol is deadly because they learned it from other farmer.They also gained their awareness on this since these pesticides were banned by FPA.

Moreover, some of the respondents said that they do not know the meaning of the symbol because they were not giving attention to the labels as long as they know the name of the pesticides.

*Corrosive.*This symbol appeared as finger bones and it means that the product can cause eye damage and severe skin burns.There were eighteen (36%) of the respondents who were aware, while thirty six (64%) were not aware on the meaning of this symbol.

Results show that majority of the respondents were not aware of the meaning of this symbol. According to some respondents, the symbol is not familiar to them, because most of them did not encounter this symbol and even if they saw this kind of symbol, they did not bother to know what it means.

Flammable.This flame symbol means that the pesticide can cause fire. Forty six percent of the respondents were aware on this symbol while 54% are not aware. This implies that most of the respondents do not know the meaning of this symbol. Some respondents said that even if they saw the symbol upon using the pesticide, they did not bother to know what it means.

*Explosive.*The explosive symbol means that the pesticide can explode especially when it was pressurized in can. There were 20% of the respondents who were aware of this symbol while 30% were not aware.

This result implies that majority of the respondents are not aware of the meaning of this symbol with the same reason that they rarely cared to know the meaning of the symbol.

Symbols, as defined by Gorgen (1995) in her book, are sometimes representing abstract ideas such as “danger” or representing natural phenomenon such as sun, storm, or fire.

These are so common that even small children learn and recognize them. However, knowing the meaning of these rarely happens.

In addition, according to the rules of FPA (Fertilizers and Pesticides Authority), the pesticide company has the responsibility to let their technicians explain the meanings of the symbols to the farmers.

However, respondents said that the technicians were not discussing the meanings of the symbols because the orientations they conducted were focused on advertising the products.

*Respondents' Awareness on the Warning Symbols Found in the Labels.*The awareness levels of the respondents toward the warning symbols were measured in the same manner where the symbols were shown and choices were provided.

Table 4 shows the awareness level of the respondents on the warning symbols.

*Caution.*This triangular shape symbol means low hazardous that may cause slight eye or skin irritation. Out of 50 respondents, 22% were aware of the meaning of this symbol while 78% were not aware. This implies that majority of the respondents do not know the meaning of this symbol. Some respondents said that they were not giving attention to the symbols because they have no idea on their meanings or they never heard about it at all.

Warning. This Diamond shape (4 sided) symbol means moderately hazardous that can cause moderate eye or skin irritation. There were 20% of the respondents who are aware on the meaning of this symbol while 80% are not aware.

Table 4. Respondents' awareness on the warning symbols

SYMBOLS	NO. OF AWARE	PERCENTAGE %	NO. OF UNAWARE	PERCENTAGE %
 Caution	11	22	39	78
 Warning	10	20	40	80
 Danger	11	22	39	78

Majority of the respondents were not aware on the meaning of this symbol. Some respondents were not aware because they do not have time to check on meanings so they ignored the symbols.

A saleslady in one of the farm supplies said that most farmers who bought pesticides from them did not bother to ask about the meanings of the symbols nor checked on the symbols.

Danger.This octagonal shape (8 sided) symbol also means highly hazardous that can cause irriversible eye damage or severe skin injury. Twenty two percent of the respondents were aware of the meaning of this symbol while 78% were not aware. Results show that most of the respondents do not know the meaning of this symbol. A respondent said that he is not checking or looking at the labels as long as the other farmers recommended that the product is effective to use.

This results were the same with the other objectives that they rarely see these kinds of symbols they appear as hazard symbols, warning symbols, or color symbols but have the same meanings,

According to FPA guidelines, these shapes and their warning would tell the degree of hazard of the pesticides. The greater the number of sides of the shapes, the more hazardous the product is.

In an interview with a Municipal Agriculture Officer, she said that they are no longer conducting seminars regarding the symbols in the pesticides. Years ago, they have been integratingit in some of their activities like FFS (Field Farmers School) or GAP (Good Agricultural Practices) however, they are no longer conducting it because they are campaigning on organic agriculture.

Awareness of the Respondents on the Color Symbols Found in the Labels. Table 5 shows the respondents' awareness on the color symbols on labels.

*Green label.*This means that the pesticide is lightly toxic. This symbol found on the bottom part of the label is green and is sometimes accompanied by the word caution.

Forty eight (96%) of the respondents were aware of the meaning of this symbol while two (4%) were not aware.These results show that great majority of the respondents were aware on the meaning of the green symbol.

Some of the respondents said that green labeled pesticides are safer to use so most of the respondents are using it. However, they also related that they have doubts on it sometimes because it may not kill the pests.

Table 5. Respondents' awareness on the color symbols

SYMBOLS	NO. OF AWARE	PERCENTAGE %	NO. OF UNAWARE	PERCENTAGE %
GREEN	48	96	2	4
BLUE	17	34	33	66
YELLOW	22	44	28	56
RED	43	86	7	14

Blue label. This means that the pesticide is moderately toxic. This symbol was colored blue, found on the bottom of the label with the word warning or caution.

Seventeen (34%) of the respondents were aware of the meaning of this symbol while thirty three (66%) were not aware. This implies that majority of the respondents were not aware of the meaning of the blue symbol.

Some of the respondents who were not aware said that they do not care anymore about the labels as long as their "boss" or supplier instructed them on how to use the pesticides.

Yellow label. This means that the pesticide is very toxic. This symbol was colored yellow found on the bottom of the label, sometimes with the word danger.

Twenty two (44%) of the respondents know the meaning of this symbol while twenty eight (56%) do not know. This implies that most of the respondents do not know the meaning of the yellow symbol since only few of them are using the products with yellow label.

Red label. This means that the product is extremely toxic. This symbol appears as red found on the bottom of the label sometimes with the word danger.

Forty three (86%) of the respondents were aware of the meaning of this symbol while seven (14%) were not aware.

Result show that majority of the respondents were aware of the meaning of the red symbol. Some respondents said that most of the red labeled pesticides were banned here in the Philippines because of its high toxiciy.Such may imply that when red-labeled products are involved, it becomes known to the farmers because most of these product were banned.

Respondents' Awareness on the Different Parts of the Label

The awareness levels of the respondents on the different parts of the label were measured by showing them a sample label, specifically Padan insecticide, and letting them name the important parts as stipulated by FPA.

Parts of a label that were analyzed in the study were the product name, pesticide type, ingredients, formulation, directions for use, precautionary statements, first aid instructions and toxicological information. The descriptions below were based on FPA's information material on labeling of pesticide products.

Product name pertains to the distinctive brand or trademark that is permanently displayed in the label.

The pesticide type is a description of the intended purpose of the product (herbicides, insecticides and fungicides).

The ingredients pertain to the active ingredient, which is identified by its established common name and the concentration in the formulation (% by weight or by volume).

The formulation is a description of the physical form of the product such as dust, liquid, wettable powder, etc.

The directions for use pertain to species that are intended targets of the product, dosage rates, timing of application and limitations for use of the product.

The precautionary statements presents information on hazards relating to handling, storage, display, distribution and disposal. Instructions on how to eliminate the hazards should also be outlined here.

The first aid instructions give practical information on what to do in the event of poisoning or injury by the product.

The toxicological information gives information essential to treatment is a person is injured, or poisoned by the product. Includes the symptoms of poisoning, antidote or remedial measures and identity of other ingredients (such as petroleum distillates) in the product that may effect treatment. May list the re-entry time.

Sixty percent of the respondents identified the product name and directions for use correctly. Further, 56% of them identified the pesticide type correctly.

Results show that most of the respondents can identify the product name, directions for use and pesticide type only. Some of the respondents said that only these parts were the ones they were reading because it is where they referred to when it comes to dosage and proper mixture of the product.

However, only few of them can identify the registrant's name and address, net contents, degree and nature of hazards, precautionary statements, and toxicological information.

When the researcher probed on why some of them were not aware of the health-related information, some of them said that since pesticides are already part of their lives, they have this assumption that they already know how to adjust themselves from untoward incidents that may occur such as accidental poisoning.

This result can be considered alarming since FPA notes that pesticide users must seek all facts and are responsible in knowing both the benefits and risks of using these technological tools.

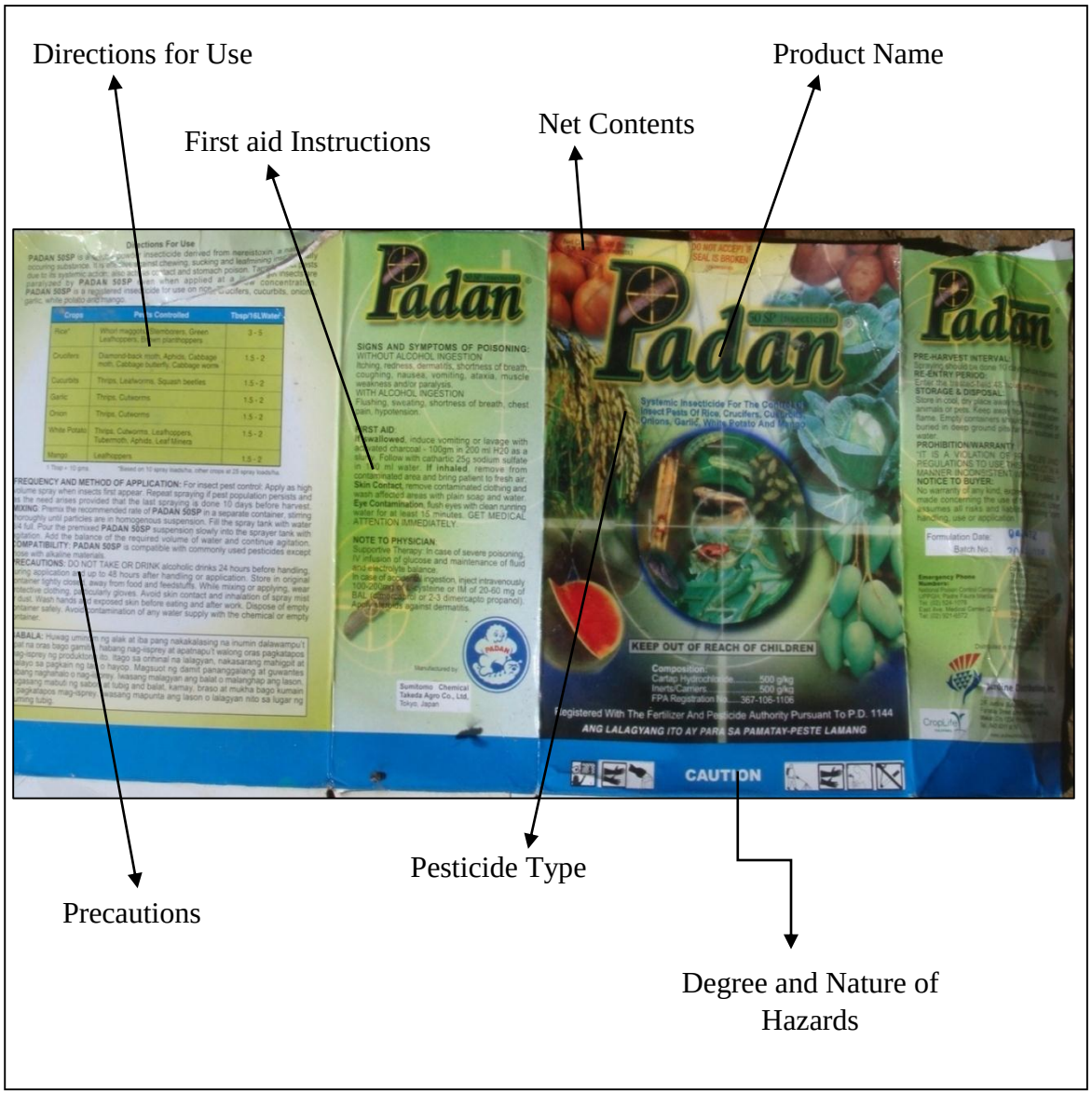

Figure 13. A sample of pesticide label with different parts based on FPA guidelines

Table 6. Respondents' awareness on the different parts of the label

LABEL PARTS	FREQUENCY (50)	PERCENTAGE (%)
Product name	30	60
Directions for use	30	60
Pesticide type	28	56
Registrant's name and address	13	26
Net contents	13	26
Degree and nature of hazards	11	22
Precautionary statements	11	22
Toxicological Information	10	20

*Multiple responses

Respondents' Reading Practices on the Pesticides Labels

Table 7 shows when do the respondents read the labels of the pesticides. Result shows that thirty four (68%) of the respondents were reading the labels before buying while nine (18%) of the respondents were not reading the labels.

This implies that majority of the respondents are reading the labels of the pesticides before they will buy.

In addition, forty five (90%) of the respondents were reading the labels of the pesticides before using. Such implies that majority of them were reading the labels before using it. Some respondents also said that they no longer read the labels before buying since their "bosses" or "suppliers" gave the pesticides to them to use already.

Table 7. When do they read the labels

BEFORE BUYING	FREQUENCY (n=50)	PERCENTAGE %
YES	34	68
NO	9	18
OTHERS	7	14
TOTAL	50	100
BEFORE USING		
YES	45	90
NO	5	10
TOTAL	50	100

However, there were five (10%) who were not reading the labels. They said that they do not need to read the label of some pesticides since they have been using it for long time already thus they perceived that they are aware of the important information based on their experiences.

Parts of the label that they preferred to read. Results show in Table 8 that majority of the respondents preferred to read only the product name (88%) and the directions for use (80%).

There were 42% who preferred reading the pesticide type to determine if the product is an insectide, a fungicide or weedicide and other types of pesticides. Results imply that majority of the respondents read only the product name and directions for use.

Some respondents said that directions for use provided them the proper amount of dosage and instructions they needed since they perceived that following it is important. They

further related that in some instances, they applied more than the recommended dosage but it was just a waste so they referred back to the directions for use.

Alarmingly, only some of them preferred to read the health-related information found in the labels, which included precautionary statements, first aid instructions and toxicological information. Such would imply that most of the respondents do not prefer to read health-related information even if this is seen important in responsible use of pesticides.

Table 8. Parts of the labels that the respondents preferred to read

LABEL PARTS	FREQUENCY n-50	PERCENTAGE %
Product Name	44	88
Pesticide Type	21	42
Ingredients	6	12
Formulation	3	6
Directions for use	40	80
Precautionary Statements	3	6
First Aid Instructions	3	6
Toxicological Information	1	2

*Multiple responses

Parts of the labels that they percieved are very important. Results shown in Table 9 reflect that majority of the respondents chose product name and directions for use as the most important parts of the label. Forty four percent of the respondents also chose pesticide type.

Some of the respondents said that product name, directions for use and pesticide type are enough to guide them in using the product. They further said that it is a waste of time for them to read the other parts of the label.

The findings support the previous findings that they were aware only on the product name, directions for use and pesticide type because these are the parts that they preffered to read.

Table 9. Parts of the labels the respondents percieved are very important

LABEL PARTS	FREQUENCY n=50	PERCENTAGE %
Product Name	45	90
Pesticide Type	22	44
Ingredients	4	8
Formulation	3	6
Directions for use	40	80
Precautionary Statements	2	4
First Aid Instructions	2	4
Toxicological Information	2	4

*Multiple responses

Parts of the label that they understood. All of the respondents understood the product name and majority of them understood the pesticide type and the directions for use. Again, these results support the previous findings that these three parts of the label were preferred by the respondents to read.

Only a few of them can understand the other parts of the labels such as ingredients, formulation, precautionary measures, toxicological information and others as shown in Table 10. This alarming result reflects once again that most of the respondents do not understand health-related information found in the labels.

Some of the respondents said that even if they will read the other parts of the label, they will not understand it because their comprehension level is not enough for them to fully comprehend with it.

This may be contradictory the previous finding that majority of the respondents are literate.

Table 10. Parts of the labels that the respondents understood

PARTS OF THE LABEL	FREQUENCY n=50	PERCENTAGE %
Product Name	50	100
Pesticide Type	47	94
Ingredients	8	16
Formulation	16	32
Directions for use	42	84
Precautionary Statements	13	26
First Aid Instructions	10	20
Toxicological Information	8	16

*Multiple response

Parts of the label that they did not understand. Results in Table 11 show that 56% of the respondents did not understand the ingredients and some of them did not understand the toxicological information, formulation and first aid instructions.

This is related to the result of the previous objective wherein they do not see these parts as important to be read. This may indicate that they did not undertand these parts since they did not read it in the first place.

Some of them also said that there were some words that they did not understand in some parts of the labels like "Systemic", "m45" and "50 sp". These words are only understood by the technicians and experts, according to them.

This relates to the statement of Cuneo, et al (1993) that wordings in the labels must be easily understood.

Table 11. Parts of the labels that they did not understand

LABEL PARTS	FREQUENCY (50)	PERCENTAGE(%)
Product Name	0	0
Pesticide Type	8	16
Ingredients	28	56
Formulation	16	32
Directions for use	2	4
Precautionary Statements	10	20
First Aid Instructions	14	28
Toxicological Information	17	16

*Multiple responses

<u>Common Problems Encountered by the Respondents in Reading the Label</u>

Some of the respondents said that the label shown to them was not easily read because of the small size of letterings. As observed by the researcher, most labels of the pesticides were hard to read due to its size.

Some respondents also said that there are words in the label that were too small while there were too big. They specifically mentioned that the names of the pesticides were large in font size, while the rest of the labels were in small font size. These responses are supported by Figure 14 wherein it shows the name of the pesticide in large font size and the other parts were done in small font size. Further, based on the analysis of the researcher, seven labels had these characteristics that posed problem to the respondents.

Moreover, some labels also contained technical words that were difficult to understand, according to the respondents. Some of difficult words were coadjuvants and FC 480.

Moreover, according to some respondents, there were pictures of pests in the labels that the product can kill and crops that the pesticides may protect, but some respondents related that the graphics are not accurate, or applicable in the highland setting.

Their lack of interest to read the rest of the labels is another problem mentioned by the respondents. Some of them said that if they have read the pesticide's name, direction for use and type, they are no longer interested to read the net content, first aid instructions, and precautionary statements, among others. To them, the rest of the label is not important.

The lack of interest is also due to their limited to read the labels. Some of them remarked that "*no basbasa-en mi adi din label et maagew duwan min adi malpas ubla mi*" (if we will read all the parts of the label, the sun will come out and we will not finish our work on time). Based on the observation of the researcher, the respondents sprayed pesticides as

early as 5:00 AM, while the sun did not yet rise. They did this since the odour of the pesticide is not much strong at that time of the day, according to them.

Figure 14. Example of pesticide label that has too big and small font size

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The study aimed to know the level of awareness of the farmers in Bangao, Benguet on the labels of pesticides and their reading practices on the labels. Specific objectives of the study are to: determine the commonly used pesticides of the farmers in Bangao, Buguias; determine their awareness on the meanings of the symbols found on the labels; determine their awareness on the different parts of the labels; determine how do they read the labels in terms of: when do they read the labels, parts of the labels that they read, parts of the labels that they think is very important, parts of the labels that they understand, parts of the labels that they do not understand and determine the common problems that they encountered in the labels of pesticides.

There were 50 respondents of the study who are farmers in Bangao, Buguias. An interview schedule was used in gathering information using guide questions. The study was conducted in Bangao, Buguias. Data were ranked, consolidated, analyzed and interpreted quantitatively using frequency and percentage, other data were qaulitatively analyzed and presented.

Result showed that most of the respondents were using insecticides than fungicides or other types of pesticides. Most of the respondents were aware on the crossbones or skull symbol while only few of them were aware on the other symbols. Majority of them were aware only on the green and red label but some of them were not aware on the labels especially the blue and yellow label.

In addition, majority of the respondents knows how to identify the product name, pesticide type, and directions for use in the label while most of them cannot identify the other parts.

Majority of the respondents were reading the labels of the pesticides before buying and before using it. They also read the product name, directions for use and pesticide type because according to them, these parts of the pesticides label are the most important. However, most of them do notunderstand the other parts like the ingredients, precautionary statements, toxicological information, first aid instructions and some other words like systemic, 50 sp, m45.

Some of the respondents said that they have no problems with the label of the pesticides while others said that sometimes there are pictures of pests in the labels that the product can not kill. There were also words that are very small while others are too big. The technical words used in the labels also posed a problem to the understanding of the respondents.

Conclusions

Based on the results, the following conclusions were derived:

1. Farmers in Bangao, Buguias are relying on pesticides to control pests in their farms;

2. Farmers are not reading the health-related information found in the labels of pesticides;

3. Farmers in Bangao are more prone to health risk because of not reading the labels of pesticides;

4. Other species in the farms like wild animals are in danger because of misuse and sometimes overuse of pesticides;

5. Farmers in Bangao, Buguias are not aware on the symbols found on the labels of pestcides; and

6. Vegetables in Bangao are more prone to insect pests than any other pests.

Recommendations

1. Municipal agricultural office may conduct seminars to the farmers especially in the remote areas to explain the meanings of the symbols found on the labels of the pesticides.

2. Agriculture technicians may also include discussing the importance of reading the labels of the pesticides.

3. IEC materials such as posters may be produce regarding safe pesticides use.

4. Further study may conducted to the other barangays of Buguias and municipalities of Benguet on their reading practices and awareness on the label of the pesticides.

5. Farmer orientations may be considered by the pesticide companies so that farmers will have wider knowledge on how to use the pesticides safely.

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