

## Analyzing of the use of PPE on the incidence of pesticide poisoning in oil palm farmers in the Kuala Pesisir District of Nagan Raya Regency

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**Abstract:** In increasing the production and quality of agricultural products, the use of pesticides cannot be avoided by farmers. The latest pesticide poisoning data in 2016 according to the Nagan Raya District Health Office Data, from 217 farmers only 15 farmers were not poisoned, as many as 5 people experienced severe poisoning, 120 were moderately poisoned, and 77 were lightly poisoned. The purpose of this study was to determine the effect of using PPE on the incidence of pesticide poisoning in oil palm farmers. This type of research is an analytical survey with a cross sectional study design. The study sample was 80 employees. Analysis of the study using the chi square test. The results of the study were based on bivariate analysis with the chi square test and prevalence ratio obtained by the relationship Knowledge (P Value = 0,000), Attitude (P Value = 0,000), Action (P Value = 0,014). The conclusion is there is a relationship between Knowledge, Attitudes, and Actoin with Pesticide Poisoning. It is recommended for oil palm farmers to use PPE when spraying so as not to cause pesticide poisoning during work.

**Keywords:** knowledge, attitude, action

### Introduction

The application of Occupational Safety and Health (OSH) is very important to be applied in preventing work accidents. The application of the OSH management system does not only apply to workers in formal companies but also applies to informal workers such as oil palm farmers. The OSH program has long been applied in the formal sector, except in the informal sector. This is due to the lack of government attention in protecting informal workers in various sectors (Ministry of Health, 2010).

The application of OSH in the informal sector must certainly be a concern of the government as stipulated in PMK No. 100 years of 2015 about the Occupational Health Business Post (OHBP). The establishment of the OHBP post is aimed at protecting informal workers from staying healthy and productive at work including oil palm farmers (PMK, 2015).

The occupational risks of farmers are very complex, one of which is exposure to pesticides. The use of pesticides must be done properly to avoid poisoning. Based on PP Number. 6 of 2010 concerning Plant Protection as the elaboration of Law No.12 of 2008 provides instructions on how to use pesticides properly, effectively and efficiently as well as negative impacts on human health and the environment. These instructions are listed in article 15 paragraph (1) which reads "The use of pesticides in the context of controlling plant-disturbing organisms carried out appropriately is; right type, right dosage, right way, right target, right time, and right place. Protection of workers' health can be prevented through the use of Personal Protective Equipment (PPE). (Khaidir, 2016).

Data shows that the level of poisoning is getting higher, it is estimated that there are 3 million workers in the agricultural sector who use pesticides. There are 18,000 people of whom die every year. This happens along with the increasing use of pesticides in developing countries and the low education of farmers so that the way to use pesticides is not safe (WHO, 2017).

Personal Protective Equipment (PPE) is a tool that must be used when working. This type of PPE is used based on the respective hazard risks. Personal protective equipment cannot eliminate or reduce all hazards, but can reduce the impact of work hazards. The use of PPE when working is an effort to avoid exposure to the risk of danger on the job site. (Tarwaka, 2017).

In accordance with its function, PPE is very important, especially if a job has a potential hazard to workers, workers can be exposed through direct contact or through environmental exposure. One job that is at risk through direct contact with sources of danger, among others, in jobs that have chemical hazards such as laboratory workers, chemists, toxicologists or other professions that in essence use chemicals in their work. One worker in the informal sector who uses chemicals in his work process is a farmer, especially a pesticide sprayer (Suma'mur, 2017).

## Research Methods

The research method uses a quantitative approach with a cross sectional study design with a sample size of 80 farmers. The results of the study used uni variate, bivariate data analysis with chi square test.

## Results and Discussion

### Results

#### Overview of Research Location

Kuala Pesisir has 3 settlements which are divided into 16 villages. Area of Kuala Pesisir BPP office  $\pm 267, 39\text{Km}^2$ . The Kuala coastal sub-district has various forms of land and coastal areas. The Kuala Beach District has a diverse population of livelihoods consisting of food commodities, plantations, animal husbandry, horticulture and fisheries.

The number of family heads in the Kuala coastal sub-district is 4,489 households, the number of male population: 9,342 people, 9,133 women. The total number of men and women was 18,579 people, the number of heads of farm households was 1,386 households, non-farmers 3,668 households. (Data from the Kuala Pesisir Agricultural Counseling Office, 2019).

### Univariate Analysis

#### Knowledge

##### 1. Knowledge

**Table 1. The Frequency Distribution of Oil Palm Farmers' Knowledge**

Knowledge	Frequency	Percentage
Good	36	44,4
Less	44	55,6
Total	80	100

Data Processed, 2019.

##### 2. Attitude

**Table 2. Frequency Distribution of Attitudes of Oil Palm Farmers**

Attitude	Frequency	Percentage
Positive	33	40,7
Negative	47	59,3
Total	80	100

Data Processed, 2019.

### 3. Action

**Table 3. Frequency Distribution of Palm Farmer Actions**

Action	Frequency	Percentage
Positive	38	46,9
Negative	42	53,1
Total	80	100

Data Processed, 2019.

### Bivariate Analysis

#### Knowledge

**Table 4. Relationship of Knowledge with Pesticide Poisoning in Oil Palm Farmers**

Knowledge	Pesticide Poisoning				Total		P Value	OR CI 95 %
	Yes		No		f	%		
	N	%	n	%				
Good	8	22,2	28	67,8	36	100	0,000	12,173
Less	34	77,8	10	29,2	44	100		

Data Processed, 2019.

**Table 5. Relationship between Attitudes and Pesticide Poisoning in Oil Palm Farmers**

Attitude	Pesticide Poisoning				Total		P Value	OR CI 95 %
	Yes		No		f	%		
	n	%	N	%				
Positive	7	21,2	26	78,8	33	100	0,000	11,143
Negative	40	75,0	7	21,2	47	100		

Data Processed, 2019

**Table 6. Relationship of Actions with Pesticide Poisoning in Oil Palm Farmers**

Action	Pesticide Poisoning				Total		P Value	OR CI 95 %
	Yes		No		f	%		
	N	%	n	%				
Positive	9	23,7	29	76,3	38	100	0,000	12,173
Negative	33	79,1	9	23,7	42	100		

Data Processed, 2019

### Discussion

#### Influences of Knowledge with Pesticide Poisoning on Oil Palm Farmers

Based on this research there is an influence between knowledge and poisoning of oil palm farmers. Chi-square test results indicate the value of P value. = 0,000 is greater than the value of  $\alpha = 0.05$  with an OR value = 12.173, indicating that low knowledge has 12 times greater occurrence of pesticide poisoning in farmers compared with those who are well-informed.

Knowledge is one of the factors that influence poisoning to farmers because knowledge is information that can affect farmers' attitudes and actions. (Nurrahmani, 2014).

#### Influences of Attitude with Pesticide Poisoning on Oil Palm Farmers

Based on this research there is an influence between the attitudes of the respondents with poisoning of oil palm farmers with the result that P value = 0,000 is greater than the

value of  $\alpha = 0.05$  OR 11,143, indicating that a negative attitude has 11 times the risk of pesticide poisoning than that of farmers who have a positive attitude. Attitude can be interpreted as an act based on the establishment or way of working someone in a job. A positive attitude is influenced by the knowledge of farmers (Azwar, 2016).

### **Influences of Action with Pesticide Poisoning on Oil Palm Farmers**

Based on the results of the study, it was found that the influence between the action variables with poisoning in farmers with p value = 0.014  $\alpha = 0.05$  with OR value = 3.537, showed that negative actions had 3 times the risk of pesticide poisoning compared with positive actions. Actions are the result of farmers' responses after their thoughts, responses and attitudes. The positive action of farmers will affect the occurrence of pesticide poisoning to farmers.

### **Conclusions**

There is a significant influence between the variables of knowledge, attitudes and actions towards pesticide poisoning in oil palm farmers in the district of Kuala Barat, West Aceh.

### **Suggestions**

It is expected that farmers use PPE when spraying to avoid pesticide poisoning. To the relevant government, especially the Nagan Raya District Health Office, to carry out routine work health counseling to oil palm farmers so that farmers' knowledge increases and influences positive attitudes and actions on farmers.

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