

**Keywords:** Exposure duration; Pesticides; Sprayers; Self-reported disease

## Introduction

Pesticides are toxic chemicals used to protect crop against insects, other organisms harmful to cultivated plants including weeds thereby increasing crop yields and efficiency of food production. There are more than 1000 active ingredients, which are marketed as pesticides [1], and developing countries use 25% of the annual global consumption

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fungicides respectively. Furthermore, 135/155 (87.1%) and 145/157 (92.4%) reported that they did not use any personal protective equipment for head and trunk skin, respectively.

### **Self-reported disease symptoms**

Symptoms related to respiratory disease such as wheezing and coughing were the most frequently reported (46/157; 29.3%). In

**Table 1a.** Frequency distribution of exposure groups, exposure history, practice characteristics of sprayers

Variable	Number (n) of respondents	Category variable	Number of counts (%)	p value
Exposure duration	155	3 months	97 (62.6)	N/A
		5 years	58 (37.4)	N/A
Have you been working as a pesticide sprayer in the farms before coming to this area?	155	No	135 (87.1)	N/A
		Yes	20 (12.9)	N/A
How many knapsacks of pesticides do you usually apply per acre every time you spray?	156	375 litres	78 (50)	N/A
		> 375 litres	78 (50)	N/A
How many times is the crop sprayed from planting till harvest?	156	< 11 times/crop	79 (50.6)	N/A
		12 times/crop	77 (49.4)	N/A
How many times do you usually expose yourself through mixing, loading and spraying in a week?	152	2 times/week	141 (92.8)	N/A
		3 times/week	11 (7.2)	NA
Do you protect yourself by wearing PPD against inhaling (nose, mouth) pesticide when mixing, loading and spraying?	155	No	135 (87.1)	N/A
		Yes	20 (12.9)	N/A
Do you protect yourself by using wearing PPD against touching (hands, face/head, foot and trunk) pesticide when mixing, loading and spraying?	157	No	145 (92.4)	N/A
		Yes	12 (7.6)	N/A

**1b. Practice characteristics of new entry and long-term exposed sprayers compared (bivariate analysis)**

Categorized variables	Number (n) of respondents	3 months n (%)	5 years n (%)	p value
Apply 375 litres per acre (n=78)		61 (78.21)	17 (21.79)	<0.001
Apply > 375 litres per acre (n=76)	154	35 (46.05)	41 (53.95)	
Spray frequency per crop 11 (n=77)	154	33 (42.86)	44 (57.14)	<0.001
Spray frequency per crop 12 (n=77)		63 (81.82)	14 (18.18)	
Spray frequency per week 2 (n=139)	150	89 (64.03)	50 (35.97)	0.22
Spray frequency per week 3 (n=11)		5 (45.45)	6 (54.55)	
No mouth protection when spraying (n=133)		84 (63.16)	49 (36.84)	0.785
Protect mouth when spraying (n=20)	153	12 (60)	8 (40)	
No skin-trunk protection when spraying (n=143)	155	90 (62.94)	53 (37.06)	0.752
Protect skin-trunk when spraying (n=12)		7 (58.33)	5 (41.67)	

1knapsack=15 litres of pesticides; PPD=Personal protective devices

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**Table 1:** Exposure history, characteristics of study respondents and their occupational practice as sprayers

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