GOVERNMENT OF NEPAL
NEPAL HEALTH RESEARCH COUNCIL

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Knowledge, Handling Practices and Health Risk Perceptions of Pesticides among Farmers in Thaha Municipality, Makwanpur

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OUTLINE

01 Background

02 Research Objectives

03 Methodology

04 Major Results / Findings

05 Conclusion

BACKGROUND

- Pesticides an integral part of modern agricultural practices.[1]
- Harmful by nature.
- Have potential to adversely affect non-target organisms, if handled inappropriately.[2]
- In Nepal, majority of the commercially available chemical pesticides are used in vegetable farming.[3]

[1] Bourguet et al., 2016; [2]Fortenberry et al., 2014; [3] Atreya et al., 2012; Neupane et al., 2014

RATIONALE

- Farmers are extensively engaged in mixing, loading, transporting and applying pesticides, they stand under the **high-risk occupational group**.[4]
- Despite this clear health risk, research on occupational health among Nepali farmworkers is **very limited**.
- Expected concern stakeholders could formulate **evidence-based strategies and interventions** to safeguard farmer health and safety.

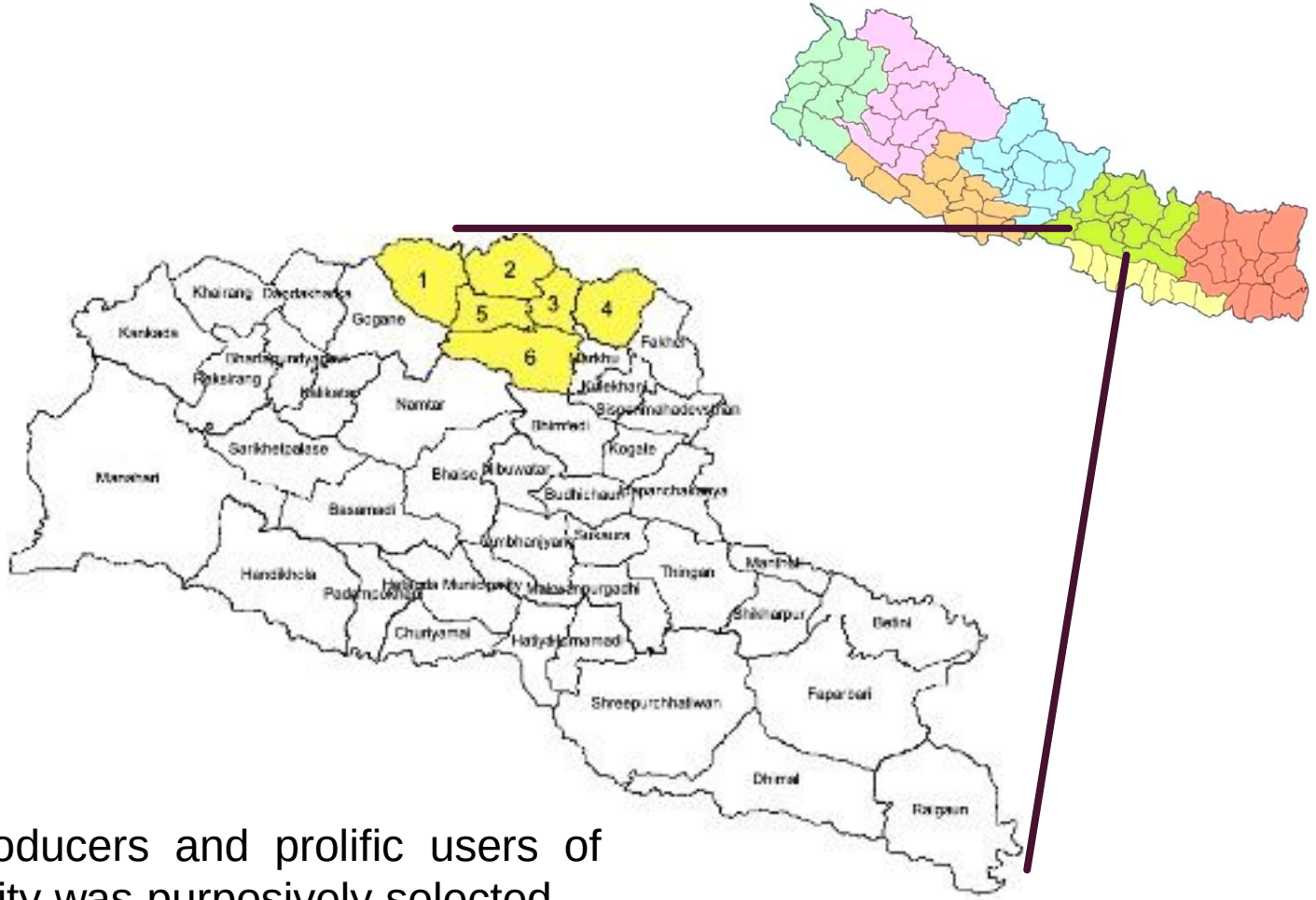
[4]*Neupane, D., Jors, E., Brandt, L. (2014). Pesticide use, erythrocyte acetylcholinesterase level and self-reported acute intoxication symptoms among vegetable farmers in Nepal: a cross sectional study. Environmental health, 13 (1), 98.*

THAHA MUNICIPALITY

Study site

Thaha Municipality,

Makwanpur



Being one of the major vegetables producers and prolific users of pesticides in the district, Thaha Municipality was purposively selected

OBJECTIVES

- To assess the knowledge, safety compliance on pesticide use, and perceived health impacts among vegetable farmers in Thaha municipality, Makwanpur.

Specific Objectives:

- *To determine the prevalence of commercial pesticide use in vegetable farming in Thaha municipality;*
- *To assess farmer's knowledge on pesticide and its use;*
- *To determine the compliance level of safety precautions during pesticide handling;*
- *To identify perceived health effects associated with pesticide exposure among vegetable farmers.*

METHODOLOGY

Study design

Cross-sectional descriptive

1

Study tool

Household survey questionnaire

2

Study population

Registered Vegetable farmers

3

Sample size

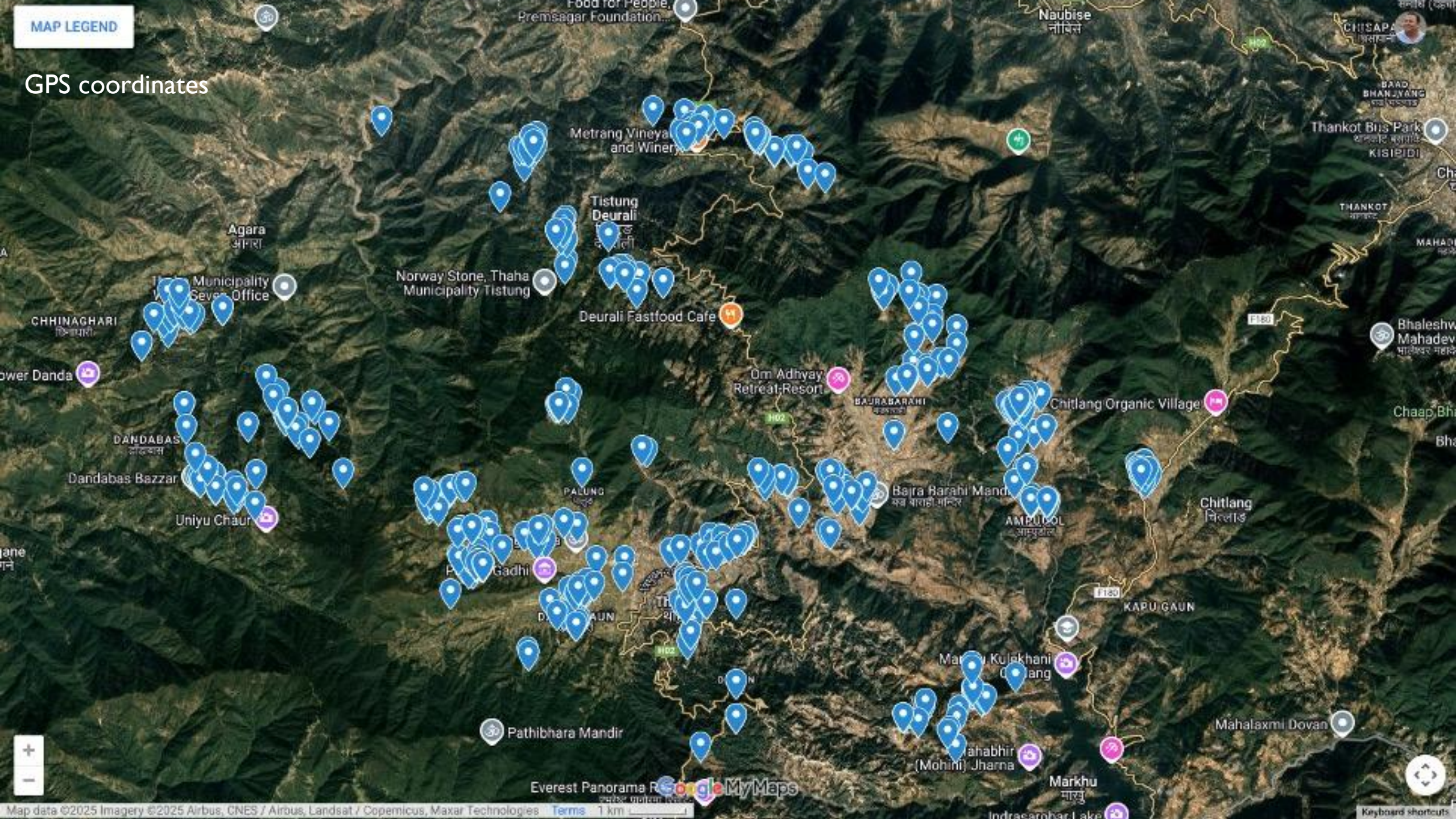
542

4

Sampling technique

Probability Proportionate to Size (PPS)

5


MAP LEGEND
GPS coordinates
Food for People, Premsagar Foundation...
Naubise
नौबिसे
CHISAPA
BAAD BHANJYANG
Thankot Bus Park
KISIPIDI
THANKOT
Metrang Vineyard and Winery
Tistung Deurali
Agara
आगरा
Municipality Sewer Office
Norway Stone, Thaha Municipality Tistung
Deurali Fastfood Cafe
CHHINAGHARI
Om Adhyay Retreat Resort
BAJRABARAHI
Chitlang Organic Village
DANDABAS
Dandabas Bazzar
Uniyu Chaur
PALUNG
Gadhi
Bajra Barahi Mandir
AMPUGOL
Chitlang
KAPU GAUN
Pathibhara Mandir
Mahalaxmi Dovan
Markhu
मार्खु
Everest Panorama
Google MyMaps
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Terms
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METHODOLOGY [CONTD…]

Funding

- Faculty Research Grant, University Grant Commission
  [reference no. FRG-76/77-HS-01]

विश्वविद्यालय अनुदान आयोग
University Grants Commission

Ethical Consideration

- Written consent from local government i.e., Thaha municipality
- Ethical approval from Nepal Health Research Council

RESEARCH

MAJOR FINDINGS

Socio-demographic Findings

N=542

Among the surveyed farmers,

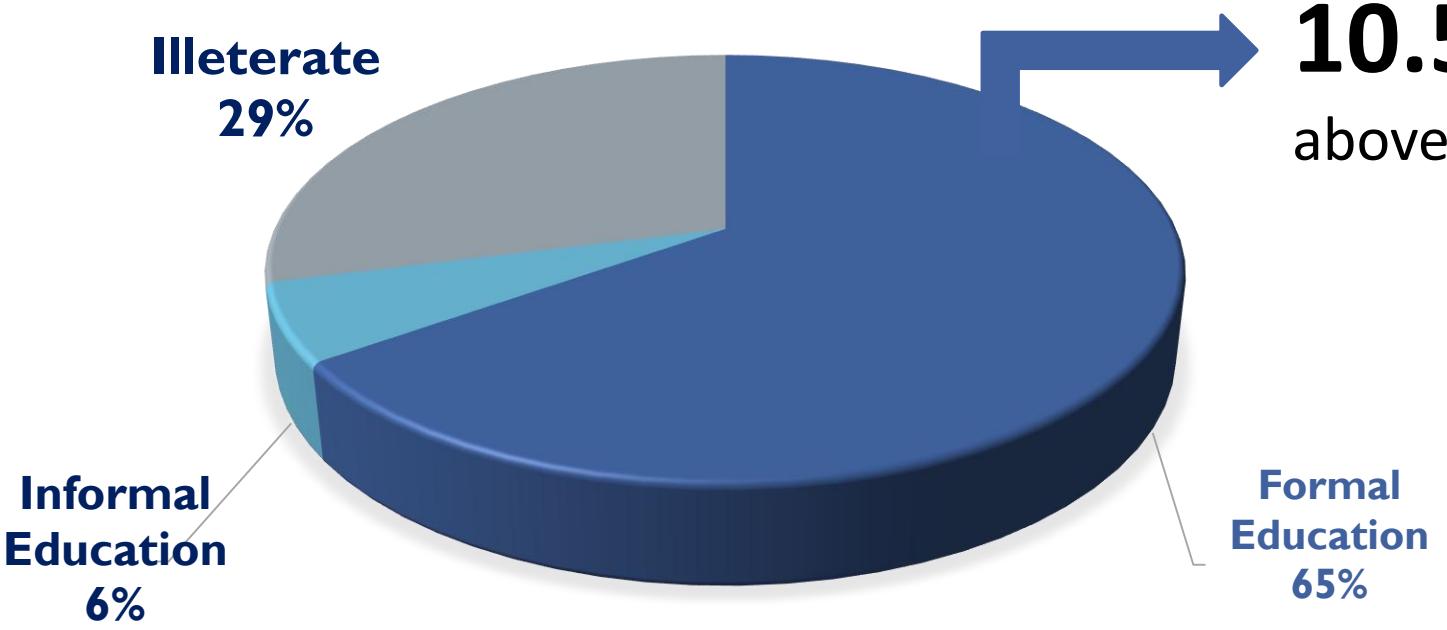
84.87% were ***Janajati*** followed by *Brahmin/Chhetri* (14.58%) and *Dalit* (0.55%)

Mean duration of farming

Socio-demographic Findings

Educational status

N=542



10.52% had +2 and above level study

FARMING DETAILS

N=542

74.17%

Major source of family income

77.46%

Land ownership

FARMING DETAILS

N=542

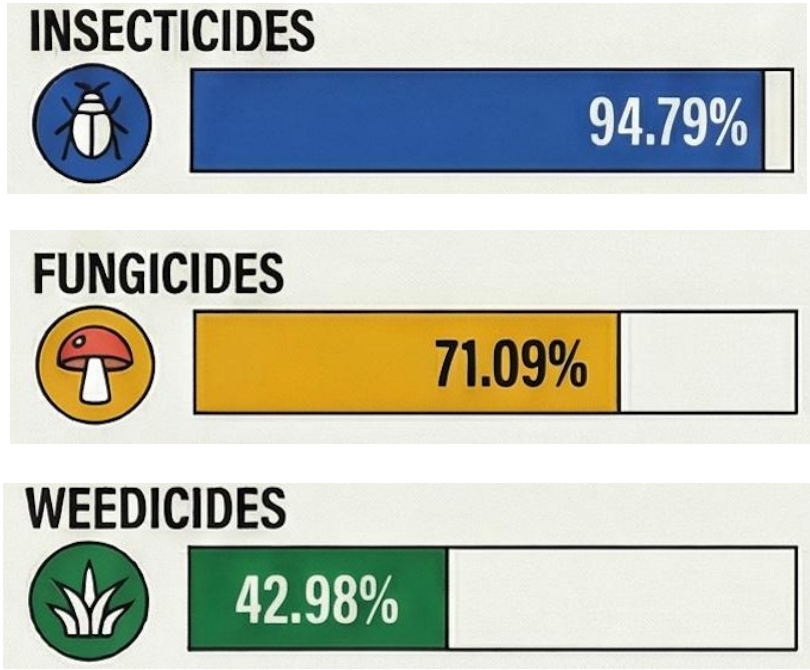
90.78% *households*

used commercially available chemical pesticides in vegetable farming

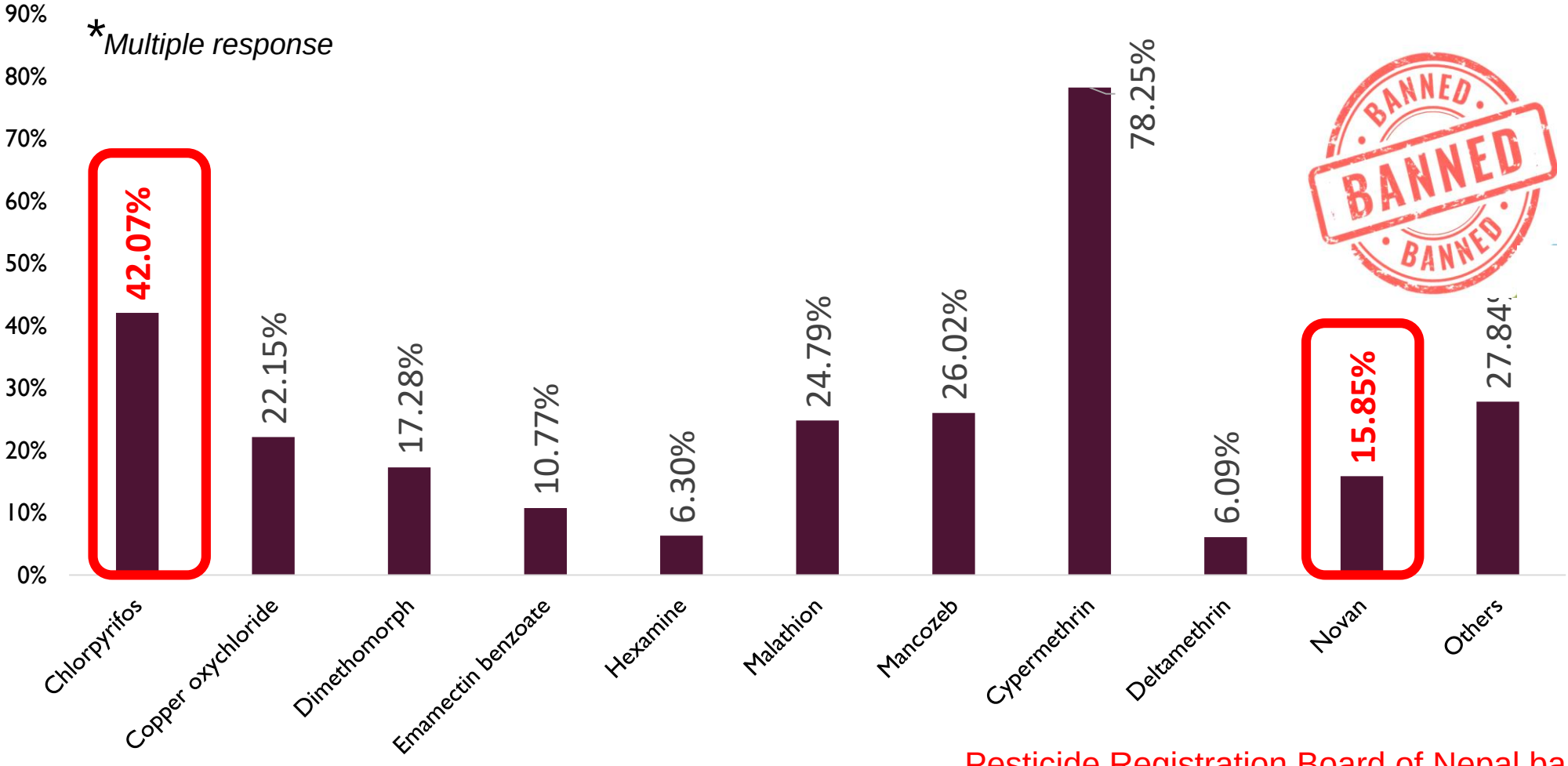
COMMONLY USED PESTICIDES

Multiple response

Most were from **insecticides genre** followed by fungicides and weedicides respectively.



COMMONLY USED PESTICIDES



Pesticide Registration Board of Nepal banned in **August 2019**

FARMER'S KNOWLEDGE

ON **PESTICIDE AND ITS USE**

Farmer's Knowledge

Community awareness initiatives on safe pesticide use

Farmer's Knowledge

N=542

N=542

70.10% *still considered* ***Pesticides are medicines*** *indented to cure plants*

37.82% *are not aware about* ***distinct color coding*** *in pesticide container to represent its toxicity level*

Extremely toxic | Highly toxic | Moderately toxic | Slightly toxic

10.89% *are not aware of the fact that pesticides* ***can enter into human body through skin***

Farmer’s Knowledge

N=542

N=542

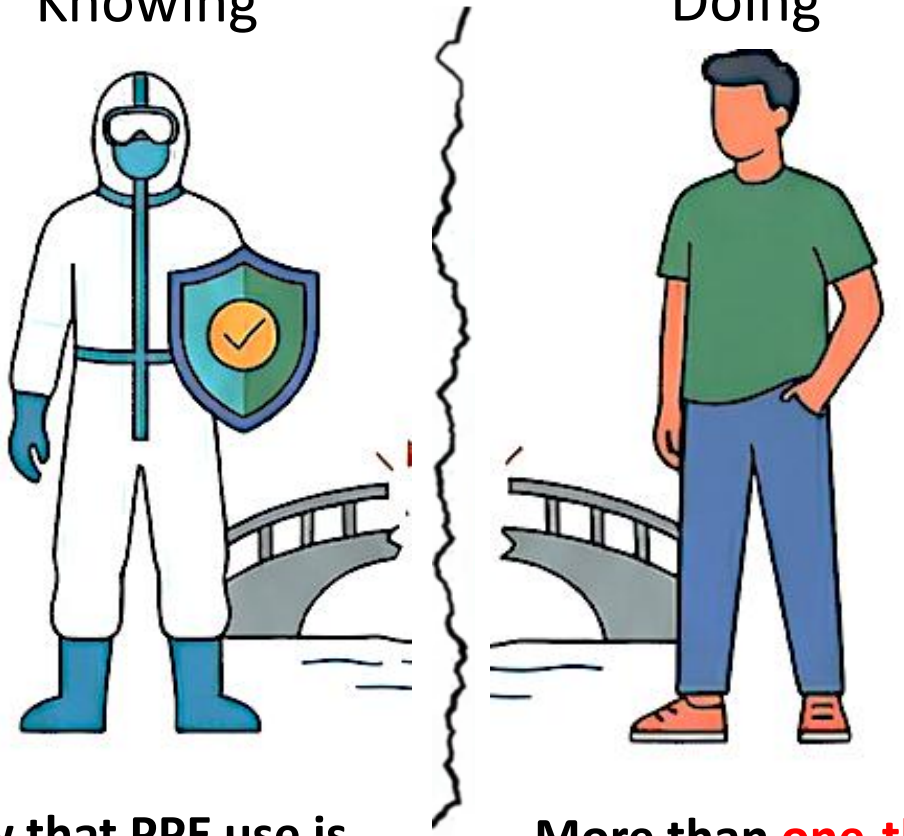
93.17% *appreciated* ***importance of PPE*** *in preventing from pesticide exposure*

Safety Gap

Knowledge VS. Practice

Knowing

Doing



Majority (93.17%) know that PPE use is important to protect from pesticide exposure

More than one-third (37.16%) had poor compliance to PPE use.

Handling Practices

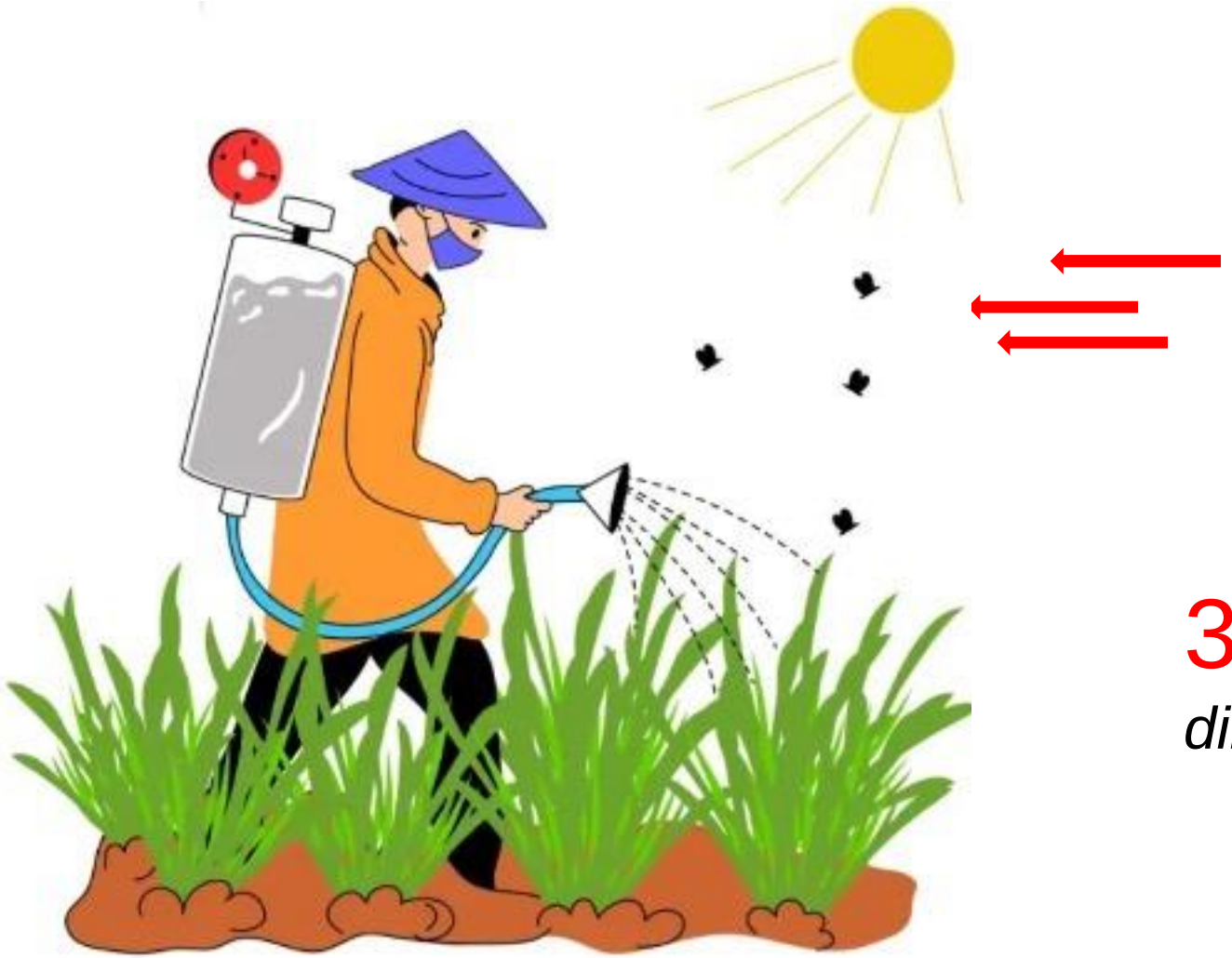
91.87% *reported to* ***wash*** *hand with soap and water every time after spraying pesticides*

Handling Practices

Recommended dose by agriculture expert

25.81% *one-fourth had tendency to use pesticide in* ***higher*** *than recommended dose*

Handling Practices



31.30% *never considered wind direction while pesticide spraying*

Handling Practices

15.65%

do not adhere waiting time/
Pre-harvest interval

Vegetables were often harvested while the chemicals ingredients were still active…

Significant Factors

associated with Practices on Pesticide Use

Variables		Practices on Pesticide Use		p-value (Chi-square test)
		Good f (%)	Poor f (%)	
Education	Illiterate	59 (43.4%)	77 (56.6%)	**0.003***
	Able to read and write	20 (52.6%)	18 (47.4%)	
	Basic education	100 (53.8%)	86 (46.2%)	
	Secondary education	80 (65.6%)	42 (34.4%)	
	Higher Secondary	8 (80%)	2 (20%)	
Family Income	≤ 4,850	12 (41.4%)	17 (58.6%)	**0.001***
	4,851-14,550	28 (34.6%)	53 (65.4%)	
	14,551-24,350	54 (52.4%)	49 (47.6%)	
	24,351-36,550	62 (57.4%)	46 (42.6%)	
	36,551-48,750	42 (57.5%)	31 (42.5%)	
	48,751-97,450	50 (68.5%)	23 (31.5%)	
	≥ 97,451	19 (76%)	6 (24%)	
Land Ownership type	Self-owned	194 (51.3%)	184 (48.7%)	**0.039***
	Rented	8 (53.3%)	7 (46.7%)	
	Both	65 (65.7%)	34 (34.3%)	

** 0.05 level of significance*

SELF-REPORTED
ACUTE HEALTH EFFECTS

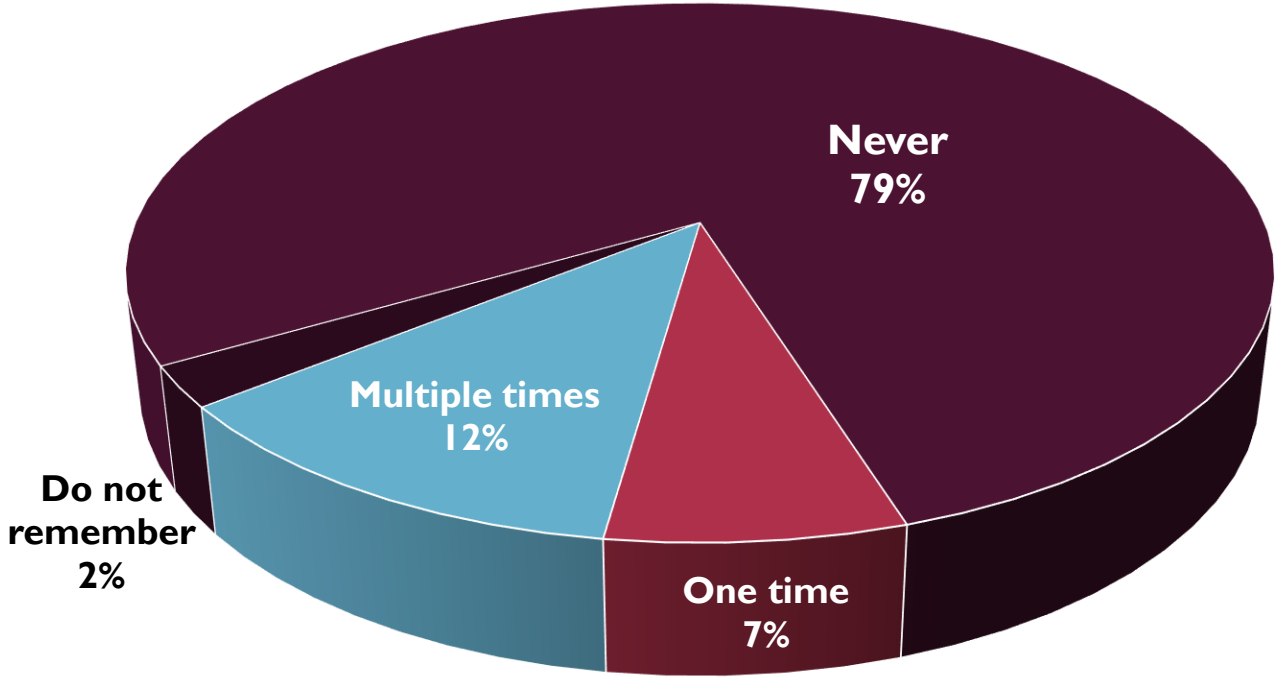
Perceived Health Effects

Illness reported within 48 hours after pesticide use

N =542

19% farmers

reported of at least one episode of acute health issues in the previous 12 months



Perceived Health Effects

Top five acute health issues

N =103

Multiple response

Headache dizziness 86.17%

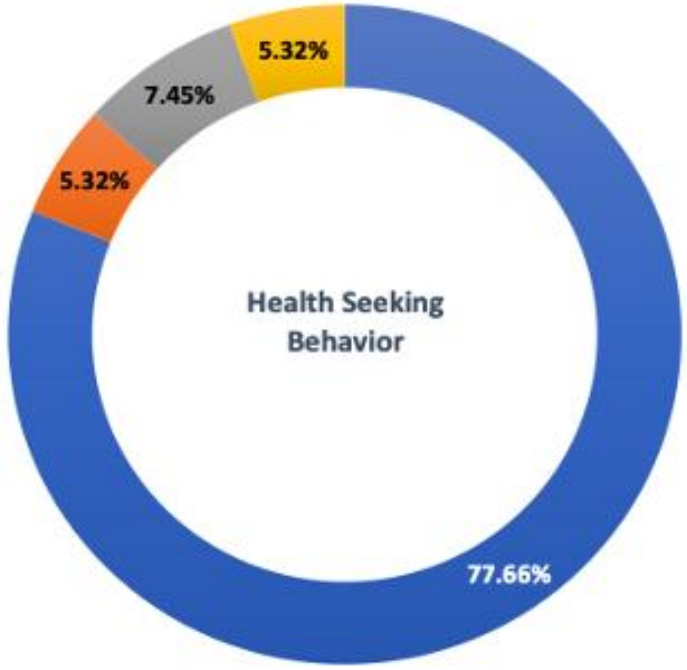
Watering eyes/red eyes/blurred vision 31.91%

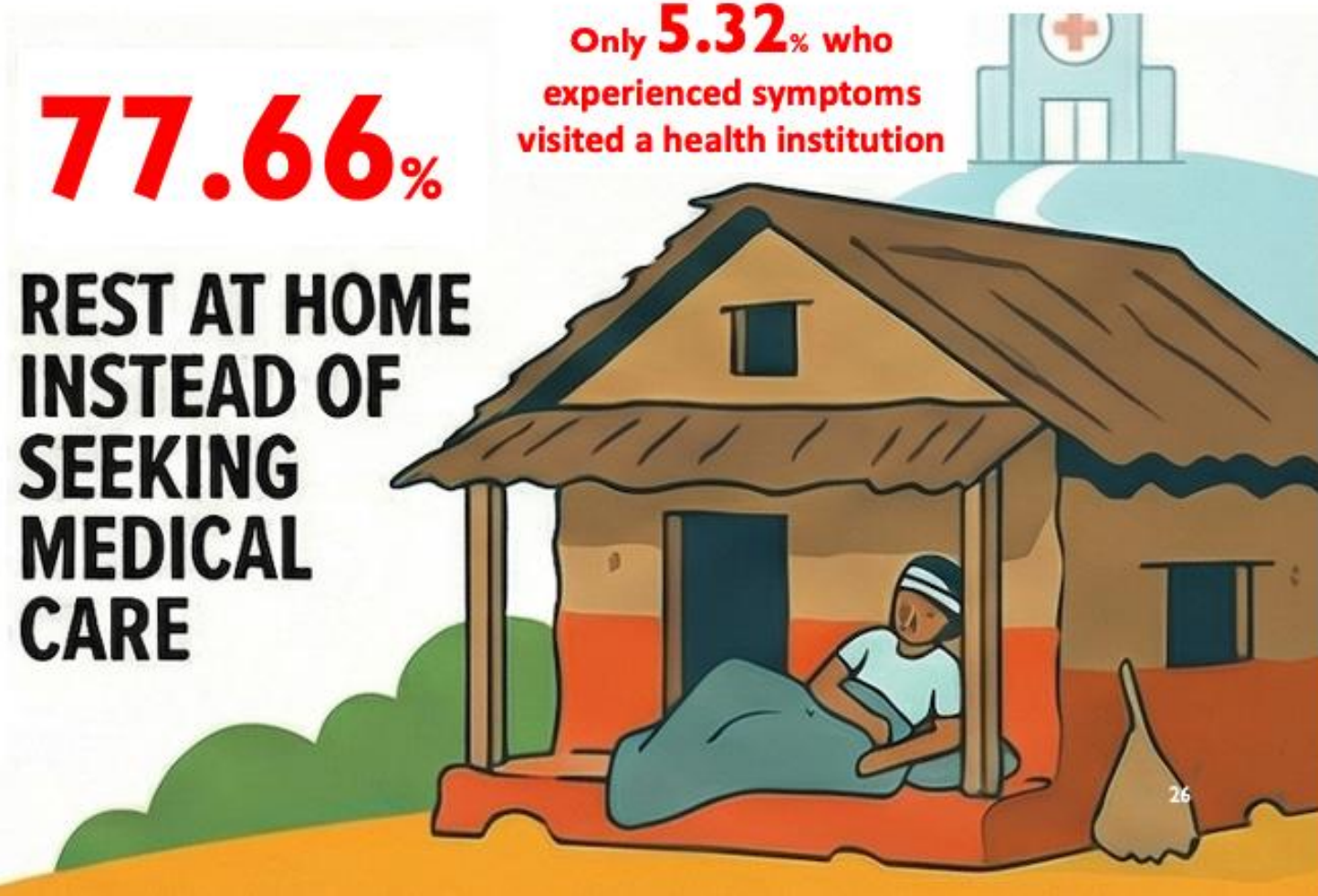
Nausea/vomiting 22.31%

Skin irritation/rashes 21.28%

Weakness 13.8%

Health-Seeking Behavior





Take home message

High prevalence

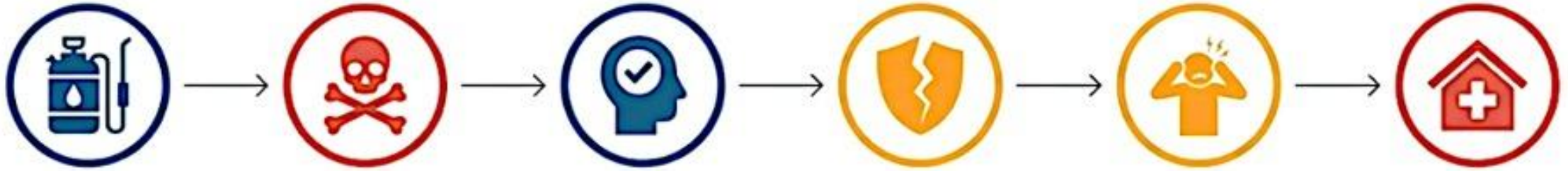
Moderately hazardous and banned pesticides in use

Fair risk awareness

PPE use is inconsistent

Significant acute health illness

Inadequate formal medical care



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- PAHS MBBS Batch XIIth students
- Mr. Chiniya Lama, Ms. Kweta Bista

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*Selected references only

If you ate today, let's be thankful to our farmer…

Thank You!

BIO-BRIEF

- Mr. Ajay K. Rajbhandari is an Associate Professor in Department of Community Health Sciences, School of Medicine, PAHS
- He is also a visiting faculty at various academic institution including Kathmandu University, Institute of Medicine and Nepal Open University
- Being University topper in MSc Environmental Science, was honored with *Mahendra Vidya Bhusan 'Kha"* in 2004