

STRUCTURED INTERVIEW FOR FARMERS (ENGLISH VERSION)

A questionnaire designed to collect information on the “Ecotoxicology of synthetic pesticides in rice growing areas of Karonga district in Malawi”

1.0 Introduction

I am Charity Kanyika–Mbewe a student at Mzuzu University pursuing a Doctor of Philosophy in Water Resources Management and Development under the faculty of Environmental Sciences. Thank you for your participation.

2.0 Purpose

The objectives of the study are to

- (i) Establish farmers’ knowledge and levels of understanding of pesticide usage in the rice-growing areas of Karonga.
- (ii) Examine the toxicological and human health risks of pesticide usage in Karonga.

I would appreciate it if you could spare some time to respond to my questions. This survey will take 20 to 25 minutes to complete.

3.0 Ethical and confidentiality

The data collected will be treated with confidentiality and is purely for academic purposes. Your names and phone numbers will not be used in this study. You are therefore requested to provide accurate information regarding the pesticide usage.

4.0 Duration and risks

The investigation is projected to last 5 days in three EPAs. There are no risks in participating in this inquiry. You shouldn't respond to queries if you think they are intrusive or make you feel uncomfortable.

5.0 Reimbursements

There is no reward nor any incentive when taking part in the inquiry. However, your participation will be highly appreciated and an acknowledgement will be sent to each participant.

6.0 Who to contact

If you wish to ask questions later or seek clarification, you may contact Dr. Russel Chidya (Postgraduate coordinator) from Mzuzu University, Prof. Chikumbusko C. Kaonga from Malawi University of Business and Applied Sciences (MUBAS) using

chidya.r@mzuni.ac.mw (0999317176), ckaonga@mubas.ac.mw (0888855399) and Prof Elijah Wanda from Mzuzu University using elijahwanda@gmail.com (0996723268).

7.0 Participant selection

You are being requested to take part in filling out this questionnaire as one of the farmers, key informants and you may have useful information. Your participation is entirely voluntary. You are encouraged to participate and provide the needed information. If you are not comfortable to participate in the interview you are free to withdraw or refuse to answer any question at any time with no any negative consequences.

8.0 Declaration and certificate of consent

I understand that the data collected from my participation will be used for the thesis or journal publication. I consent voluntarily to participate in this questionnaire for it to be used in that manner.

☐ I agree ☐ I disagree

Signature (respondent)

Signature (interviewer).....

SECTION A: SOCIODEMOGRAPHIC DATA

Date of interview ____/____/____

i. Farmers name (optional)

ii. Farmers phone number (optional)

iii. Village

iv. Tradition Authority

v. Gender: Male ☐ Female ☐

vi. Age range: A. 16 – 25 C. 46 – 55 B. 26 – 35

D. 36 – 45 E. 56 and above

vii. Number of people in the household: Men..... Women..... Children.....

viii. Who is the head of the family

A. Father B. Mother C. Brother D. Sister

D. Others (specify).....

ix. Education level

A. Never attended school

B. Primary education

C. Secondary education

D. University education

- Elevation, m

SECTION B: PESTICIDE HANDLING AND APPLICATION

- A. January-February B. March-April C. May-June
D. July-August E. Others (**specify**)

II. Time of day

A. Morning

B. Noon

C. Afternoon

D. Others (*specify*)

III. Weather

A. Sunny day

B. Rainy day

C. Windy

D. Others (*specify*)

7. How long do you take to apply the pesticides per day?

A. Less than 30 minutes

B. 30 – 59 minutes

C. 60 minutes

D. 120 – 150 minutes

E. Others (*specify*)

8. How many days do you take to apply the pesticide(s) on the whole farm?

A. One day

B. Two days

C. Three days

D. Four days

E. Others (*specify*)

9. How often do you apply this/these pesticide(s)

A. Once a year

B. Twice a year

C. Thrice a year

D. others (*please specify*)

10. Do you usually wear regular (prescription) eyeglasses or sunglasses while mixing or applying pesticides? (Does not include goggles.)

A. Yes

B. No

11. Do you and your family members work on your farm when someone is applying pesticide on a farm adjacent to or close to yours?

A. Yes

B. No

12. Do you or any other person in close proximity inhale the pesticide(s) during application?

A. Yes

B. No

C. Not sure

13. What would you say about the effectiveness of these pesticides on pests or herbs?

A. Not effective

B. Effective

C. Very effective

D. Not sure

E. I don't know

14. How many pesticides have you applied so far?

A. One

B. Two

C. Three

D. Others (specify)

15. What are the forms of pesticides?

A. Single

B. Mixture

C. Not sure

16. What doses do you follow when applying pesticides?

A. Recommended dose

B. Overdose

C. Not sure

17. Do you change pesticides every year?

A. Same Pesticide used

B. Alternative pesticide used

C. Others (specify)

18. Do you take any precaution measures before or after spraying pesticides?

I. Covering head

A. Yes

B. No

II. Protecting mouth by using mask

A. Yes

B. No

III. Covering body with cloth

A. Yes

B. No

IV. Using hand gloves

A. Yes

B. No

V. Washing hand with soap

A. Yes

B. No

VI. Washing body

A. Yes

B. No

VII. Disposing empty containers

A. Yes

B. No

VIII. Protecting domestic animals

A. Yes

B. No

IX. No precaution measure

A. Yes

B. No

19. Where do you draw the water for diluting the chemicals?

A. Borehole

B. Within rice fields

C. River

D. Well

E. Swamps

F. Others (specify)

20. What ratio of pesticide to water do you use for dilution?

A. 1:5

B. 1:10

C. 1:15

D. 1:20

E. Other (specify).....

SECTION C: SAFETY AND PRECAUTION MEASURES

21. Do you wash hands after handling pesticides?

A. Yes

B. No

22. If no then go to question 23. If **YES** what do you use for washing hands

A. Water only

B. Water and soap

- C. Others (specify)
23. Do you protect yourself and your family members when handling pesticides?
 A. Yes B. No
24. If **YES**, how do you protect yourself and your family during the application?
 A. Using PPE B. Bathing and washing hands
 C. Others (specify)
25. What types of protective equipment do you usually use when you personally handle pesticides? (**Mark all that apply.**)
- A. ☐ Never use protective equipment B. ☐ Respirator, gas mask
 C. ☐ Dust mask D. ☐ Full face shield E. ☐ Hat
 F. ☐ Goggles G. ☐ Chemically resistant gloves H. ☐ Apron
 I. ☐ Chemically resistant boots J. ☐ Cloth coveralls (complete suit)
 K. ☐ Disposable outer clothing L. Others (specify).....
26. Which part(s) of your body were exposed to the pesticide during handling and application? (**Mark all that apply.**)
- A. ☐ Head and/or face B. ☐ Arms and/or Hands C. ☐ Chest/back/abdomen
 D. ☐ Lungs and respiratory tract (from breathing fumes) E. ☐ None
 F. ☐ Others (specify).....
27. How soon after this pesticide incident were you able to wash your exposed body part(s)?
- A. Less than 30 minutes B. 30–59 minutes C. 1–3 hours
 D. 4–6 hours E. 7–9 hours F. More than 9 hours after the incident
28. Do you mix, load, handle or apply more than one pesticide product in a working day? (**please choose one**)
- A. Yes B. Often Yes C. sometimes No D. No
29. If **No**, please go to question 30. If **Yes**, where do you mix these pesticide concentrates? (**please choose one**)
- A. Indoors B. Outdoors C. Indoors and outdoors
 D. Others (specify)

30. Do you usually store mixed chemicals before application?

- A. Yes B. No

31. Are agricultural or commercial pesticides ever stored (even temporarily) in your home? **(Mark all that apply.)**

- A. ☐ Yes, in home ☐ B. Yes, in basement ☐ C. Yes, in garage
D. ☐ Yes, in attached out – building or shed E. ☐ No
F. ☐ Others (**specify**).....

32. Do you wash your pesticide application equipment after using it?

- A. Yes B. No

33. If **No** go to question 35, If **Yes**, how often do you personally clean your pesticide application equipment? **(Please choose one)**

- A. Twice a day B. Daily C. Weekly
D. After each spray round E. Other (please specify)

34. How is the pesticide applying equipment generally washed at the end of the application? **(Mark all that apply.)**

- A. ☐ Wash using bare hands B. ☐ Clean nozzle
C. ☐ Rinse tank D. ☐ Hose down sprayer
E. ☐ Don't know F. ☐ Others (**specify**)

35. How far is your home from the nearest rice field where pesticides are applied?

- A. Less than 100 metres B. 100–199 metres
C. 200–299 metres D. Others (**specify**)

36. How far is your home from the nearest area where pesticides are mixed?

- A. ☐ No pesticides mixed on farm B. ☐ Less than 50 metres
C. ☐ 50–100 metres D. ☐ Others (**specify**)

43. In your household, how are clothes usually washed after they have been worn when mixing or applying pesticides?

- A. Always wear disposable clothing
- B. Mixed with family wash
- C. Soaked separately then mixed with family wash
- D. Washed separately
- E. Others (specify)

44. If you finish mixing or applying pesticides in the morning, when do you usually wash yourself? (Mark all that apply.)

- A. ☐ Hands/arms only right away
- B. ☐ Complete bath/shower right away
- C. ☐ Complete bath/shower at lunch
- D. ☐ Hands/arms only at end of day
- E. ☐ Complete bath/shower at end of day
- F. ☐ Other (specify)

45. After mixing or applying pesticides, where do you usually wash up or shower?

- A. Bathroom in home
- B. Outside shower
- C. Other area outside home
- D. Others (specify)

46. Are the clothes (not PPE) you use when working with pesticides usually washed separately? (**please choose one**)

- A. Yes
- B. No

47. Do you usually take your work boots or shoes off before entering your home after working with pesticides? (**please choose one**)

- A. Yes
- B. No

48. Do you think that pesticide use and/or exposure, overall, has any negative short-term impacts on your health?

1	2	3	4	5	6
No effect	Little effect	Some effect	Large effect	Fatal effects	I don't know

49. Do you think that pesticide use and/or exposure, overall, have any negative long-term impacts on your health (i.e. cancer)?

1	2	3	4	5	6
No effect	Little effect	Some effect	Large effect	Fatal effects	I don't know

50. When you apply pesticides, do you use at least the recommended personal protective equipment and engineering controls e.g that isolate people from the hazard? **(please choose one)**

A. Never

B. Often

C. Rarely

D. Always

E. Sometimes

51. What is your opinion about the bad effects of using pesticides? **(Tick Marks)**

Reduction of beneficial species	
Enhance pest resistance	
Secondary pest resurgence	
Damaging soil fertility	
Hampering growth and production of fish	
Causing health risk to farm workers	
Harmful to domestic animals	
Contaminating surface water sources	
Adding toxic elements in underground water	
Causing human diseases due to pesticide residues in food	
Increasing technical knowledge and skills of farmers	
Creating social awareness of environmental pollution	

SECTION D: FARMERS KNOWLEDGE ON PESTICIDE USAGE

52. Have you ever received basic training on the safe handling and application of pesticides?

A. Yes

B. No

53. If **YES**, did that training also include training on how to use protective equipment and clothing?

A. Yes

B. No

54. Who were your main sources of information for each:

	NGO's	Agriculture officials	Fellow farmers	Pesticide suppliers or companies	Others (specify)
Safe handling					
Use (crop, dose, dilution, etc)					
Protective equipment & clothing					

55. If **no basic training**, did you have access to someone who could provide such training?

A. Yes B. No

56. If **yes**, who?

57. When purchasing pesticides, are you usually supplied with information on the pesticide, such as pamphlets or instructions, describing safety issues or procedures?

A. Yes B. No

58. If **YES**, do/did you read and understand the instructions on the pamphlets?

A. Yes B. No

59. Do you know any way(s) of managing pesticides?

A. Yes B. No

60. If **YES**, where did you get pest control advice?

A. Pesticide dealers/ Company agent D. Radio/ TV
 B. Extension worker E. Relatives
 C. Fellow farmers/village heads F. Neighbors
 G. Others (specify)

61. What is your opinion about factors influencing farmer's knowledge and perception about pesticide use? (Tick Marks)

Formal school	
Training on IPM	
Contact with extension personnel	
Exposure to mass media (Radio/TV)	
Exposure to social media (FB, Whatsapp, twitter, Instagram, LinkedIn)	
Experience in rice production	
Socio – economic condition of the farmers	

SECTION E: HEALTH EFFECTS AFTER EXPOSURE

62. Have you ever had symptoms (such as headache nausea, difficulty breathing, vomiting, dizziness, skin or eye irritation, diarrhea, fever, convulsion etc) after applying pesticides under normal circumstances? **(please choose one)**

- A. Never B. Often C. Rarely D. Always E. Sometimes

63. Do you think that the symptoms you experienced were caused by exposure to pesticides?

- A. Not sure B. Yes C. I don't know

64. During previous years, did you have any incident(s) with pesticides that caused you unusually high personal exposure (for example from accidental spillage or failure of personal protective equipment)? **(please choose one)**

- A. Yes B. No

If No, please go to **Section F**

65. How many incidents like this (these) did you have previously?

- A. Less than 5 incidents B. 5 – 10 incidents C. 11 – 20 incidents
D. Others (**specify**)

If No, please go to **Section F**

66. Did you consult your doctor following any of these incidents?

- A. Yes B. No

67. If **YES** were you hospitalized following any of these incidents?

- A. Yes B. No

68. Have you or any member of your family ever experienced any health problem that requires emergency medical attention after the application of pesticides?

- A. Yes B. No

69. If **yes** how long did this problem last?

- A. Few minutes B. Few hours
C. A day D. More than a day.

70. Have you ever experienced any change on your skin since you started using pesticides?

A. Yes

B. No

71. Have you or any member of your household suffered from the following diseases after handling or being exposed to pesticides:

Disease	Yes	No
Nausea		
Seizure		
Respiratory disorder		
Blurred vision		
Loss of appetite		
Lacrimation Nervous disorder		
Stomach ache		
Head ache		
Others (specify)		

SECTION E: ENVIRONMENT (WATER SOURCES)

72. Do you use public water source for household use?

A. No

B. Yes

73. What kind of water source do you use as main source of your drinking water?

A. Borehole

B. Tap water

C. Protected well

D. Unprotected well

E. River

F. Others (specify)

74. Is the drinking water source covered or exposed.

A. Covered

B. Exposed.

C. I don't know

75. How far is the water source from the field?

A. Less than 20 metres away

B. 21 – 40 metres away

C. 41 – 60 metres away

D. 61 – 80 metres away

E. 81 – 100 metres away

F. Others (specify)

76. How far is your drinking water source from the nearest area where pesticides are mixed/applied?

- A. Less than 50 metres
B. 51 – 500
C. More than 100 metres
D. Don't have private well
E. Others (**specify**)

77. Have you ever heard of any of the pesticide-related accidents below in your local area?

- I. Water contamination: A. Yes B. No
 If **YES**, please specify
- II. Air contamination: A. Yes B. No
 If **YES**, please specify
- II. Death of fish, frogs, birds etc: A. Yes B. No
 If **YES**, please specify

78. Do you eat organisms (such as fish, locusts birds etc) caught from your farm's environment?

- A. Yes B. No

79. If **Yes** how long are these living organisms caught after the application of pesticides?

- A. Less than 7 days B. 7 – 14 days C. 15 – 21 days
F. 22 – 28 days E. I don't know

Thanks for your cooperation.

Name of the Researcher:
(Charity Kanyika-Mbewe)
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Name of the Supervisor:
Dr. R. Chidya
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