**Appendices**

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**Appendix 1:** **Description of the dependent (Knowledge) and independent variables imported into the multiple linear regression model (N=156), Ogun state, Nigeria, 2019.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Dimension** | **Description** | **Min** | **Max** | **Mean/SD** |
| Knowledge | Knowledge of farmers | 3.00 | 14.00 | 9.35(±2.86) |
| **Independent variables** |
| Gender | Measured using dummy variable, 0 is given to male and 1 to female. | 0 | 1 | 0.23(±0.42) |
| Age | The age of the responded, measured as a continuous variable. | 1 | 5 | 2.41(±1.35) |
| Education | A total number of years that the respondent has spent in school, measured as a continuous variable. | 1 | 6 | 2.44 (±1.41) |
| Farming experience | A total number of farming experience, measured as a continuous variable | 2 | 40 | 14.62 (±8.716) |
| Household size | The number of members per household, measured as a continuous variable | 1 | 15 | 8.40 (±2.61) |
| Total hectares of land | The total hectares of farmland, measured as a continuous variable | 1 | 10 | 3.23 (±1.22) |
| Extension workers train on pesticide usage | Training given by extension workers to farmers on pesticide usage, measured as ordinal | 1 | 3 | 1.71 (±0.86) |
| Trainings on danger of pesticides is important | The importance of training on the danger of pesticides, measured as dummy variable where 0 is assigned to no while 1 assigned to yes | 0 | 3 | 1.17 (±0.49) |
| Distributor of pesticides | Distributor of pesticides as a source of information on pesticides important to farmers before purchasing pesticides | 0 | 3 | 2.05 (±0.73) |
| Government agencies | Government agencies as a source of information on pesticides important to farmers before purchasing pesticides, measured as continuous variable | 0 | 3 | 1.82 (±0.77)  |
| Other farmers | Other farmers as a source of information on pesticides important to farmers before purchasing pesticides, measured as a continuous variable | 0 | 3 | 2.78 (±0.57) |
| Label of pesticides | Label of pesticides as a source of information on pesticide important to farmers before purchasing pesticides, measured as a continuous variable | 0 | 3 | 2.12 (±0.83) |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Previous knowledge | Previous knowledge as a source of information on pesticide important to farmers before purchasing pesticides, measured as a continuous variable | 0 | 3 | 2.83 (±2.83) |

**Appendix 2: Descriptive result of personal protective equipment**

|  |  |  |
| --- | --- | --- |
| **Item** | **Mean** | **SD** |
| Coverall | 2.08 | 0.94 |
| Respirator | 2.63 | 0.74 |
| Nose mask | 1.66 | 0.85 |
| Gloves | 1.70 | 0.86 |
| Hat | 2.31 | 0.89 |
| Boots | 2.21 | 0.94 |

**Appendix 3: Descriptive result of reason for not wearing personal protective equipment**

|  |  |  |
| --- | --- | --- |
| **Item** | **Mean** | **SD** |
| It makes me uncomfortable | 1.35 | 0.71 |
| It is too heavy | 1.96 | 0.99 |
| It is too expensive | 1.24 | 0.95 |
| It is not important | 1.51 | 0.84 |

**Appendix 4: Descriptive result of attitude of farmers towards usage of pesticides measured as continuous variable**

|  |  |  |
| --- | --- | --- |
| **Item** | **Mean** | **SD** |
| Do you think pesticide is indispensable for high crop yield? | 1.25 | 0.599 |
| How many types of pesticides have you apply on your farmland within the last two years? | 2.01 | 0.71 |
| Do you read and understand instruction written on labels? | 1.65 | 0.65 |
| Do you think spraying of pesticides has an adverse effect on soil and water | 1.67 | 0.702 |
| Do you think trainings on the danger of pesticides is important? | 1.17 | 0.493 |
| Do you prefer to make use of labelled pesticides instead of those without the label? | 1.05 | 0.221 |
| Have the instructions written on the label been helpful? | 2.01 | 0.902 |
| Are you aware that some pesticides are banned for use? | 1.64 | 0.51 |
| How important is price for your decision to select pesticides? | 2.67 | 0.991 |

**Appendix 5: Study Questionnaire**

**INTRODUCTION**

Dear Sir/Madam,

I would like to ask you to fill in the following questionnaire. I am a student at the Czech University of Life Science in Prague, and I am conducting this study to learn more about the ***pesticides handling knowledge and practices of smallholder farmers in Ogun state, Nigeria***.

All the data are collected anonymously. The filling would only take a few minutes. I would appreciate very much if you would fill in and help me to conduct this research.

Thank You!

**Name of LGA …………………………………………………………………………**

**Name of Community …………………………………………………………………..**

**SECTION A: HOUSEHOLD HEADS SOCIO-DEMOGRAPHIC AND FARM CHARACTERISTICS**

1. Gender
2. Male (b) Female
3. Age
4. < 29 (b) 30-39 (c) 40-49(d) 50-59(e) ≥60
5. Educational level
6. None formally (b) Primary (c) Secondary (d) Diploma ND/HND (e) NCE (f) Bsc (g) Post-graduate
7. How many years of farming experience do you have? \_\_\_\_\_\_\_\_
8. What is your household size?

|  |  |  |  |
| --- | --- | --- | --- |
| Children >15 years | Adults (16-59) years | Retired (60+) years | Total |

1. How many hectares is your farmland? \_\_\_\_\_\_\_\_\_\_\_
2. Did you receive governmental support in the last five years? (a) Yes (b) No
3. How often do you get credit? (a) Never (b) Seldom (c) Sometimes (d) Very often
4. Do you make use of pesticides? \_\_\_\_\_\_\_\_\_ (a) Never (b) Rarely (c) often (d) very often
5. If you make use of pesticides, what is the quantity you apply? (a) small quantity (b) medium quantity (c) large quantity
6. In what quantity do you purchase pesticides? (a) In large quantity for future use (b) I only purchase what I need
7. Has the government provided you with free pesticides in the last five years? (a) Yes (b) No
8. Please answer the following questions if you make use of pesticides.

|  |  |  |  |
| --- | --- | --- | --- |
| Crops cultivated | Number of times applied in farming season | Brand of Pesticide used | Most dangerous pest |
|  | Seldom (1-3 times in a month) | Sometimes (1-2 days in a week) | Often(3-6 days in a week |  |  |  |
| Fruits |  |  |  |  |  |  |  |
| Vegetables |  |  |  |  |  |  |  |
| Cocoa |  |  |  |  |  |  |  |
| Kolanut |  |  |  |  |  |  |  |
| Maize |  |  |  |  |  |  |  |
| Others |  |  |  |  |  |  |  |

1. Do you prefer to make use of labelled pesticides instead of those without the label? (a) Yes (b) No

**SECTION B: USE OF PESTICIDES**

*Please tick the correct answer according to your opinion*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Agree | Disagree | I don’t know |
| Eating while spraying pesticide is not a problem |  |  |  |
| Empty bottles of pesticides can be used for storage of drinking water |  |  |  |
| There is no problem with children spraying pesticides |  |  |  |
| Washing hands after spraying is important |  |  |  |
| The direction of the wind whilst spraying is not important |  |  |  |
| Following the instructions written on labels is important |  |  |  |
| Some pesticides are extremely dangerous to health |  |  |  |
| The dosage of pesticides must be precisely calculated before application |  |  |  |
| Inhaling pesticides could lead to sickness |  |  |  |
| Pesticides may be stored in the rooftop of the bedroom |  |  |  |
| Excessive use of pesticides can cause damage to the soil |  |  |  |
| Stirring of pesticides with bare hands could lead to skin irritation |  |  |  |
| Blowing sprayer nozzle with the mouth is not a problem |  |  |  |
| Showering immediately after spraying pesticide is necessary |  |  |  |
| Buckets used for bathing can also be used in mixing pesticides |  |  |  |

**SECTION C:** **INFORMATION OF FARMERS REGARDING USAGE OF PESTICIDE**

1. Are you aware that some pesticides are banned for use? (a) Yes (b) No
2. Do you think pesticide is indispensable for high crop yield? (a) Yes (b) No (c) I don’t know
3. How many types of pesticides have you apply on your farmland within the last two years? \_\_\_\_\_\_\_\_\_\_\_\_\_
4. Do you read and understand instruction written on labels (a) Yes (b) No (c) Sometimes
5. Have the instructions written on the label been helpful? (a) Yes (b) No
6. Do extension workers train you on pesticides usage? (a) Often (b) Rarely (c) Never
7. Do you think trainings on the danger of pesticides is important? (a) Yes (b) No
8. Which of sources of information about pesticides are important to you?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
| Not important | Less important | Neutral | Very important | Very important |
| Extension officers/workers |  |  |  |  |  |
| Distributor of pesticides |  |  |  |  |  |
| Government agencies |  |  |  |  |  |
| Other farmers |  |  |  |  |  |
| The label of pesticides |  |  |  |  |  |
| The media (radio, television, internet) |  |  |  |  |  |
| Previous knowledge |  |  |  |  |  |
| Others please specify |  |  |  |  |  |

1. Do you think spraying of pesticides has an adverse effect on soil and water (a) agree (b) disagree (c) I don’t know

**SECTION D: HANDLING PRACTICES OF FARMERS**

Where did you store pesticides?

|  |  |
| --- | --- |
| Living area within reach of children |  |
| Living area without reach of children |  |
| Open shed just with pesticides |  |
| Refrigerator with other food items |  |
| Refrigerator without other food items |  |
| Animal house |  |

Others please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What do you do with empty pesticides containers?

|  |  |
| --- | --- |
| Discard on-farm |  |
| Dispose in trash containers |  |
| Re-use for other purposes |  |
| Incinerate on farm |  |
| Bring to hazardous waste collection sites |  |
| Selling of empty containers |  |

Others please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What do you do with unused leftover (mixed, diluted) pesticides if you have some?

|  |  |
| --- | --- |
| Dispose in the field |  |
| Apply on other crops |  |
| Dispose in sewer |  |
| Bring to hazardous waste collection sites |  |

*Please tick the correct boxes*

How often do you use personal protective equipment?

|  |  |  |  |
| --- | --- | --- | --- |
| **Protective Equipment** | **Always** | **Sometimes** | **Never** |
| Coverall |  |  |  |
| Respirators |  |  |  |
| Nose mask |  |  |  |
| Gloves |  |  |  |
| Hats |  |  |  |
| Boots |  |  |  |

Others please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

If you do not use, what is the reason?

|  |  |  |  |
| --- | --- | --- | --- |
| Reasons | Very important reason | Most important reason | Less important reason |
| It makes me uncomfortable |  |  |  |
| It is too heavy |  |  |  |
| It is too expensive |  |  |  |
| It is not important |  |  |  |

**Appendix 6: Photo documentation of interview conducted**

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