Publication

Mueke

## Social Demographics

| **Social Demographics** | Frequency |
| --- | --- |
| **Age** |  |
| 18-35 | 5 (1.8%) |
| 36-50 | 198 (72%) |
| 51-60 | 46 (17%) |
| Above 60 | 26 (9.5%) |
| **Education\_level** |  |
| no\_schooling | 7 (2.5%) |
| primary\_education | 116 (42%) |
| secondary\_education | 99 (36%) |
| college\_training\_\_certificate\_\_diploma | 41 (15%) |
| bachelor\_degree\_and\_above | 12 (4.4%) |
| **Marital\_status** |  |
| single | 42 (15%) |
| married | 216 (79%) |
| windowed | 11 (4.0%) |
| separated | 2 (0.7%) |
| divorced | 3 (1.1%) |
| **Household\_income** |  |
| 10000-20000 | 103 (38%) |
| 5000-10000 | 111 (41%) |
| Below 5000 | 58 (21%) |
| **Head\_of\_household** |  |
| female | 38 (14%) |
| male | 237 (86%) |
| **farming\_years** | 13 |

## Biologicals Knowledge

| Knowledge Statement | Knowledge Prevalence |
| --- | --- |
| pesticide\_purpose |  |
| Insufficient | 46 (17%) |
| Sufficient | 229 (83%) |
| fertilizer\_purpose |  |
| Insufficient | 46 (17%) |
| Sufficient | 229 (83%) |
| knows\_pesticeide\_type |  |
| Insufficient | 183 (67%) |
| Sufficient | 92 (33%) |
| knows\_pesticide\_content |  |
| Insufficient | 197 (72%) |
| Sufficient | 78 (28%) |
| human\_healthy\_effects |  |
| Insufficient | 275 (100%) |
| animal\_healthy\_effects |  |
| Insufficient | 59 (21%) |
| Sufficient | 216 (79%) |
| environment\_effects |  |
| Insufficient | 60 (22%) |
| Sufficient | 214 (78%) |
| crop\_production\_effects |  |
| Insufficient | 174 (64%) |
| Sufficient | 99 (36%) |
| mitigation |  |
| Insufficient | 50 (20%) |
| Sufficient | 203 (80%) |
| input\_choice |  |
| Insufficient | 67 (24%) |
| Sufficient | 208 (76%) |

### Knowledge scores

## Biologicals Attitude

| Attitude Statement | Attitude Prevalence |
| --- | --- |
| Biologicals\_increase\_yield\_of\_crops |  |
| Preferrable | 148 (54%) |
| Unpreferrable | 126 (46%) |
| Biologicals\_increase\_incomes |  |
| Preferrable | 141 (52%) |
| Unpreferrable | 128 (48%) |
| biologicals\_advantageous |  |
| Preferrable | 179 (65%) |
| Unpreferrable | 95 (35%) |
| Biologicals\_can\_produce\_healthy\_food |  |
| Preferrable | 178 (65%) |
| Unpreferrable | 94 (35%) |
| recommend\_biologicals |  |
| Preferrable | 191 (72%) |
| Unpreferrable | 74 (28%) |
| government\_support\_biologicals |  |
| Preferrable | 132 (50%) |
| Unpreferrable | 132 (50%) |
| Biologicals\_risk\_free |  |
| Preferrable | 14 (5.2%) |
| Unpreferrable | 255 (95%) |
| biologicals\_environmentally\_safe |  |
| Preferrable | 14 (5.3%) |
| Unpreferrable | 249 (95%) |
| biologicals\_use\_unconditional |  |
| Preferrable | 32 (12%) |
| Unpreferrable | 236 (88%) |

## Attitude scores

## Biologivals Practices

| Practices Statement | Practices Prevalence |
| --- | --- |
| usse\_agricultural\_inputs |  |
| Invalid | 21 (7.7%) |
| Valid | 253 (92%) |
| agricultural\_input |  |
| Valid | 253 (100%) |
| bought\_safer\_pesticide |  |
| Invalid | 230 (84%) |
| Valid | 44 (16%) |
| Biological\_use\_times |  |
| Invalid | 146 (64%) |
| Valid | 83 (36%) |
| use\_biologicals |  |
| Invalid | 194 (71%) |
| Valid | 79 (29%) |
| used\_biologicals\_last\_farming\_season |  |
| Invalid | 39 (38%) |
| Valid | 63 (62%) |
| biologicals\_use\_frequency |  |
| Invalid | 22 (25%) |
| Valid | 65 (75%) |

## Practices scores

## KAP

# A tibble: 275 × 12  
 Age Education\_level Marital\_status Household\_income Head\_of\_household  
 <chr> <fct> <fct> <chr> <chr>   
 1 51-60 primary\_education married 10000-20000 male   
 2 36-50 primary\_education married 5000-10000 male   
 3 36-50 college\_training\_\_ce… married 10000-20000 male   
 4 36-50 secondary\_education married Below 5000 male   
 5 36-50 secondary\_education married 10000-20000 male   
 6 36-50 primary\_education married Below 5000 male   
 7 36-50 secondary\_education married 5000-10000 male   
 8 18-35 primary\_education single 5000-10000 male   
 9 51-60 college\_training\_\_ce… married 5000-10000 male   
10 18-35 primary\_education single 5000-10000 male   
# ℹ 265 more rows  
# ℹ 7 more variables: farming\_years <dbl>, Knowledge\_score <dbl>,  
# Knowledge\_level <chr>, Attitude\_score <dbl>, Attitude\_level <chr>,  
# Practices\_score <dbl>, Practices\_level <chr>

## Know

| **Characteristic** | **N = 275** |
| --- | --- |
| Knowledge\_level |  |
| Insufficient | 73 (27%) |
| Sufficient | 202 (73%) |

## Attitude

| **Characteristic** | **N = 275** |
| --- | --- |
| Attitude\_level |  |
| Preferrable | 139 (51%) |
| Unpreferrable | 136 (49%) |

## Practices

| **Characteristic** | **N = 275** |
| --- | --- |
| Practices\_level |  |
| Invalid | 78 (28%) |
| Valid | 197 (72%) |

## Association between Knowledge and social demographics

| **Characteristic** | **Insufficient**, N = 73 | **Sufficient**, N = 202 | **p-value** |
| --- | --- | --- | --- |
| Age |  |  | 0.052 |
| 18-35 | 2 (2.7%) | 3 (1.5%) |  |
| 36-50 | 44 (60%) | 154 (76%) |  |
| 51-60 | 19 (26%) | 27 (13%) |  |
| Above 60 | 8 (11%) | 18 (8.9%) |  |
| Education\_level |  |  | 0.7 |
| no\_schooling | 2 (2.7%) | 5 (2.5%) |  |
| primary\_education | 36 (49%) | 80 (40%) |  |
| secondary\_education | 23 (32%) | 76 (38%) |  |
| college\_training\_\_certificate\_\_diploma | 9 (12%) | 32 (16%) |  |
| bachelor\_degree\_and\_above | 3 (4.1%) | 9 (4.5%) |  |
| Marital\_status |  |  | 0.2 |
| single | 8 (11%) | 34 (17%) |  |
| married | 57 (79%) | 159 (79%) |  |
| windowed | 5 (6.9%) | 6 (3.0%) |  |
| separated | 0 (0%) | 2 (1.0%) |  |
| divorced | 2 (2.8%) | 1 (0.5%) |  |
| Household\_income |  |  | <0.001 |
| 10000-20000 | 17 (23%) | 86 (43%) |  |
| 5000-10000 | 24 (33%) | 87 (44%) |  |
| Below 5000 | 32 (44%) | 26 (13%) |  |
| Head\_of\_household |  |  | 0.011 |
| female | 17 (23%) | 21 (10%) |  |
| male | 56 (77%) | 181 (90%) |  |
| farming\_years | 12 (12) | 13 (10) | 0.2 |

## Association between practices and social demographics

| **Characteristic** | **Invalid**, N = 78 | **Valid**, N = 197 | **p-value** |
| --- | --- | --- | --- |
| Age |  |  | 0.3 |
| 18-35 | 3 (3.8%) | 2 (1.0%) |  |
| 36-50 | 53 (68%) | 145 (74%) |  |
| 51-60 | 16 (21%) | 30 (15%) |  |
| Above 60 | 6 (7.7%) | 20 (10%) |  |
| Education\_level |  |  | 0.012 |
| no\_schooling | 2 (2.6%) | 5 (2.5%) |  |
| primary\_education | 27 (35%) | 89 (45%) |  |
| secondary\_education | 25 (32%) | 74 (38%) |  |
| college\_training\_\_certificate\_\_diploma | 16 (21%) | 25 (13%) |  |
| bachelor\_degree\_and\_above | 8 (10%) | 4 (2.0%) |  |
| Marital\_status |  |  | 0.3 |
| single | 13 (17%) | 29 (15%) |  |
| married | 57 (73%) | 159 (81%) |  |
| windowed | 6 (7.7%) | 5 (2.6%) |  |
| separated | 1 (1.3%) | 1 (0.5%) |  |
| divorced | 1 (1.3%) | 2 (1.0%) |  |
| Household\_income |  |  | 0.050 |
| 10000-20000 | 37 (49%) | 66 (34%) |  |
| 5000-10000 | 28 (37%) | 83 (42%) |  |
| Below 5000 | 11 (14%) | 47 (24%) |  |
| Head\_of\_household |  |  | 0.5 |
| female | 13 (17%) | 25 (13%) |  |
| male | 65 (83%) | 172 (87%) |  |
| farming\_years | 14 (11) | 12 (11) | 0.10 |

## Association between attitude and social demographics

| **Characteristic** | **Preferrable**, N = 139 | **Unpreferrable**, N = 136 | **p-value** |
| --- | --- | --- | --- |
| Age |  |  | >0.9 |
| 18-35 | 3 (2.2%) | 2 (1.5%) |  |
| 36-50 | 101 (73%) | 97 (71%) |  |
| 51-60 | 23 (17%) | 23 (17%) |  |
| Above 60 | 12 (8.6%) | 14 (10%) |  |
| Education\_level |  |  | 0.2 |
| no\_schooling | 4 (2.9%) | 3 (2.2%) |  |
| primary\_education | 50 (36%) | 66 (49%) |  |
| secondary\_education | 58 (42%) | 41 (30%) |  |
| college\_training\_\_certificate\_\_diploma | 20 (14%) | 21 (15%) |  |
| bachelor\_degree\_and\_above | 7 (5.0%) | 5 (3.7%) |  |
| Marital\_status |  |  | 0.2 |
| single | 26 (19%) | 16 (12%) |  |
| married | 103 (74%) | 113 (84%) |  |
| windowed | 7 (5.0%) | 4 (3.0%) |  |
| separated | 2 (1.4%) | 0 (0%) |  |
| divorced | 1 (0.7%) | 2 (1.5%) |  |
| Household\_income |  |  | 0.004 |
| 10000-20000 | 55 (40%) | 48 (35%) |  |
| 5000-10000 | 63 (46%) | 48 (35%) |  |
| Below 5000 | 18 (13%) | 40 (29%) |  |
| Head\_of\_household |  |  | >0.9 |
| female | 20 (14%) | 18 (13%) |  |
| male | 119 (86%) | 118 (87%) |  |
| farming\_years | 12 (10) | 13 (12) | 0.8 |

## Knowledge Regression

| **Characteristic** | **log(OR)** | **95% CI** | **p-value** |
| --- | --- | --- | --- |
| Age |  |  |  |
| 18-35 | — | — |  |
| 36-50 | 0.95 | -1.3, 3.0 | 0.4 |
| 51-60 | -0.28 | -2.6, 1.9 | 0.8 |
| Above 60 | 0.20 | -2.3, 2.5 | 0.9 |
| Education\_level |  |  |  |
| no\_schooling | — | — |  |
| primary\_education | 0.08 | -2.0, 1.8 | >0.9 |
| secondary\_education | 0.18 | -1.9, 2.0 | 0.9 |
| college\_training\_\_certificate\_\_diploma | 0.46 | -1.8, 2.4 | 0.7 |
| bachelor\_degree\_and\_above | -0.15 | -2.6, 2.3 | >0.9 |
| Marital\_status |  |  |  |
| single | — | — |  |
| married | -0.28 | -1.3, 0.62 | 0.6 |
| windowed | -1.2 | -2.8, 0.39 | 0.14 |
| separated | 14 | -147, NA | >0.9 |
| divorced | -2.0 | -5.3, 0.61 | 0.14 |
| Household\_income |  |  |  |
| 10000-20000 | — | — |  |
| 5000-10000 | -0.38 | -1.2, 0.38 | 0.3 |
| Below 5000 | -1.9 | -2.8, -1.1 | <0.001 |
| farming\_years | 0.03 | -0.01, 0.06 | 0.14 |

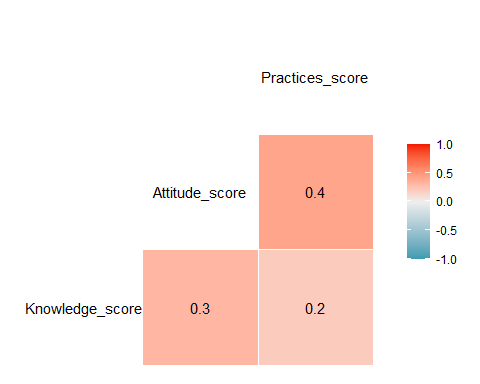
## Attitude Regression

| **Characteristic** | **log(OR)** | **95% CI** | **p-value** |
| --- | --- | --- | --- |
| Age |  |  |  |
| 18-35 | — | — |  |
| 36-50 | -0.30 | -2.5, 1.7 | 0.8 |
| 51-60 | -0.17 | -2.4, 1.9 | 0.9 |
| Above 60 | -0.29 | -2.6, 1.9 | 0.8 |
| Education\_level |  |  |  |
| no\_schooling | — | — |  |
| primary\_education | -0.43 | -2.2, 1.2 | 0.6 |
| secondary\_education | 0.09 | -1.7, 1.8 | >0.9 |
| college\_training\_\_certificate\_\_diploma | -0.28 | -2.2, 1.5 | 0.8 |
| bachelor\_degree\_and\_above | -0.10 | -2.3, 2.0 | >0.9 |
| Marital\_status |  |  |  |
| single | — | — |  |
| married | -0.44 | -1.2, 0.30 | 0.2 |
| windowed | 0.06 | -1.4, 1.6 | >0.9 |
| separated | 14 | -84, NA | >0.9 |
| divorced | -1.2 | -4.4, 1.3 | 0.4 |
| Household\_income |  |  |  |
| 10000-20000 | — | — |  |
| 5000-10000 | 0.21 | -0.38, 0.80 | 0.5 |
| Below 5000 | -0.77 | -1.5, -0.06 | 0.036 |
| farming\_years | -0.01 | -0.04, 0.02 | 0.4 |

## Practices Regression

| **Characteristic** | **log(OR)** | **95% CI** | **p-value** |
| --- | --- | --- | --- |
| Age |  |  |  |
| 18-35 | — | — |  |
| 36-50 | 1.3 | -0.89, 3.6 | 0.2 |
| 51-60 | 1.2 | -1.0, 3.6 | 0.3 |
| Above 60 | 2.3 | -0.19, 4.9 | 0.071 |
| Education\_level |  |  |  |
| no\_schooling | — | — |  |
| primary\_education | 0.38 | -1.8, 2.2 | 0.7 |
| secondary\_education | 0.21 | -2.0, 2.0 | 0.8 |
| college\_training\_\_certificate\_\_diploma | -0.39 | -2.6, 1.5 | 0.7 |
| bachelor\_degree\_and\_above | -1.6 | -4.1, 0.55 | 0.2 |
| Marital\_status |  |  |  |
| single | — | — |  |
| married | -0.13 | -1.0, 0.70 | 0.8 |
| windowed | -1.5 | -3.1, -0.04 | 0.046 |
| separated | -1.6 | -4.9, 1.8 | 0.3 |
| divorced | 0.50 | -2.1, 3.7 | 0.7 |
| Household\_income |  |  |  |
| 10000-20000 | — | — |  |
| 5000-10000 | 0.31 | -0.35, 0.97 | 0.4 |
| Below 5000 | 0.51 | -0.30, 1.4 | 0.2 |
| farming\_years | -0.03 | -0.06, 0.00 | 0.065 |

## Correlation



| term | Knowledge\_score | Attitude\_score | Practices\_score |
| --- | --- | --- | --- |
| Knowledge\_score | NA | 0.3183048 | 0.2000496 |
| Attitude\_score | 0.3183048 | NA | 0.4174757 |
| Practices\_score | 0.2000496 | 0.4174757 | NA |