"farm 1"= "Bangwe",

"farm 2"="Chigumula",

"farm 3" = "Mpemba",

"farm 4" = "Chileka1",

"farm 5" = "Chileka2"

Comparison of the samples mean inhibition across all the samples (regardless of the farm) shows no sig

| Source of Variation | Degrees of Freedom | sumsq | meansq | F-Statistic | P-Value*1* |
| --- | --- | --- | --- | --- | --- |
| Sample | 6 | 221.7843 | 36.96405 | 0.3954353 | 0.882 |
| Residuals | 363 | 33932.1076 | 93.47688 |  |  |
| *1*Significance codes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05 | | | | | |

Comparison of the mean count of the actual microbes across all the samples (regardless of the farm) shows no sig

| Source of Variation | Degrees of Freedom | sumsq | meansq | F-Statistic | P-Value*1* |
| --- | --- | --- | --- | --- | --- |
| Samples | 6 | 21.37518 | 3.562531 | 0.4386229 | 0.849 |
| Residuals | 49 | 397.98196 | 8.122081 |  |  |
| *1*Significance codes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05 | | | | | |
| Comparison of the mean count of the actual microbes across all farms shows no sig (regardless of the sample type)   | Source of Variation | Degrees of Freedom | sumsq | meansq | F-Statistic | P-Value*1* | | --- | --- | --- | --- | --- | --- | | Farm | 4 | 11.12431 | 2.781079 | 0.3474366 | 0.845 | | Residuals | 51 | 408.23283 | 8.004565 |  |  | | *1*Significance codes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05 | | | | | | | There is however an interaction if we consider farm and sample type at once. There is some sig on the interaction, we then present the results and do a turkey test to see where the actul significnces are:   | Source of Variation | Degrees of Freedom | sumsq | meansq | F-Statistic | P-Value*1* | | --- | --- | --- | --- | --- | --- | | Farm | 4 | 11.12431 | 2.781079 | 0.5287608 | 0.716 | | Sample | 6 | 19.88940 | 3.314900 | 0.6302552 | 0.705 | | Farm:Sample | 19 | 251.59343 | 13.241759 | 2.5176288 | 0.015 \* | | Residuals | 26 | 136.75000 | 5.259615 | NA | NA | | *1*Significance codes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05 | | | | | | | | | | | | | | | | | |

Turkey (Farm:Sample)

| Comparison | Difference | Lower\_CI | Upper\_CI | Adjusted\_p\_value*1* |
| --- | --- | --- | --- | --- |
| Bangwe:Home soil-Bangwe:Chicken manure | 12.66667 | 1.332630 | 24.000703 | 0.016 \* |
| Bangwe:Home soil-Mpemba:Chicken manure | 12.33333 | 0.999297 | 23.667370 | 0.022 \* |
| Bangwe:Home soil-Bangwe:Farm soil | 12.50000 | 0.478439 | 24.521561 | 0.034 \* |
| Bangwe:Home soil-Chigumula:Farm soil | 12.50000 | 0.478439 | 24.521561 | 0.034 \* |
| Bangwe:Home soil-Mpemba:Farm soil | 12.66667 | 1.332630 | 24.000703 | 0.016 \* |
| Bangwe:Rape-Bangwe:Home soil | -13.00000 | -25.021561 | -0.978439 | 0.023 \* |
| Chigumula:Rape-Bangwe:Home soil | -12.50000 | -24.521561 | -0.478439 | 0.034 \* |
| Chileka1:Rape-Bangwe:Home soil | -12.50000 | -24.521561 | -0.478439 | 0.034 \* |
| Chileka2:Rape-Bangwe:Home soil | -12.50000 | -24.521561 | -0.478439 | 0.034 \* |
| Mpemba:Pig manure-Bangwe:Home soil | -12.50000 | -23.474134 | -1.525866 | 0.013 \* |
| *1*Significance codes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05 | | | | |

Taking sample 1 by 1,

Mean microbial cont of Amarathus only across all **farms** shows no sig. The parts in bold will be the same because we have held sample name (amaranthus) constant.

| Source of Variation | Degrees of Freedom | sumsq | meansq | F-Statistic | P-Value*1* |
| --- | --- | --- | --- | --- | --- |
| **Farm** | 4 | 13.33333 | 3.333333 | 0.4166667 | 0.804 |
| Residuals | 1 | 8.00000 | 8.000000 | NA | NA |
| *1*Significance codes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05 | | | | | |
| Mean microbial cont of chicken manure only across all **farms** shows no sig. The parts in bold will be the same because we have held sample name (chicken manure) constant.   | Source of Variation | Degrees of Freedom | sumsq | meansq | F-Statistic | P-Value*1* | | --- | --- | --- | --- | --- | --- | | **Farm** | 2 | 0.5416667 | 0.2708333 | 0.40625 | 0.686 | | Residuals | 5 | 3.3333333 | 0.6666667 | NA | NA | | *1*Significance codes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05 | | | | | | | | | | | |

Mean microbial counts shows significance when compared cross farms for home soil

| Source of Variation | Degrees of Freedom | sumsq | meansq | F-Statistic | P-Value*1* |
| --- | --- | --- | --- | --- | --- |
| Farm | 3 | 1.234286e+02 | 4.114286e+01 | 8.234963e+30 | < 0.001 \*\*\* |
| Residuals | 3 | 1.498836e-29 | 4.996119e-30 | NA | NA |
| *1*Significance codes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05 | | | | | |

Mean count turkey

| Comparison | Difference | Lower\_CI | Upper\_CI | Adjusted\_p\_value*1* |
| --- | --- | --- | --- | --- |
| farm 3-farm 1 | -12 | -12 | -12 | < 0.001 \*\*\* |
| farm 4-farm 1 | -12 | -12 | -12 | < 0.001 \*\*\* |
| farm 5-farm 1 | -12 | -12 | -12 | < 0.001 \*\*\* |
| *1*Significance codes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05 | | | | |

Farm soil no significance

| Source of Variation | Degrees of Freedom | sumsq | meansq | F-Statistic | P-Value*1* |
| --- | --- | --- | --- | --- | --- |
| farm | 4 | 28.8141 | 7.203526 | 0.4866562 | 0.746 |
| Residuals | 8 | 118.4167 | 14.802083 | NA | NA |
| *1*Significance codes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05 | | | | | |

Rape shows significance

| Source of Variation | Degrees of Freedom | sumsq | meansq | F-Statistic | P-Value*1* |
| --- | --- | --- | --- | --- | --- |
| farm | 4 | 60.4 | 15.1 | 18.875 | 0.003 \*\* |
| Residuals | 5 | 4.0 | 0.8 | NA | NA |
| *1*Significance codes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05 | | | | | |

Now we see where the significance lies

| Comparison | Difference | Lower\_CI | Upper\_CI | Adjusted\_p\_value*1* |
| --- | --- | --- | --- | --- |
| farm 3-farm 1 | 6.5 | 2.912001 | 10.087999 | 0.004 \*\* |
| farm 3-farm 2 | 6.0 | 2.412001 | 9.587999 | 0.006 \*\* |
| farm 4-farm 3 | -6.0 | -9.587999 | -2.412001 | 0.006 \*\* |
| farm 5-farm 3 | -6.0 | -9.587999 | -2.412001 | 0.006 \*\* |
| *1*Significance codes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05 | | | | |

Pigmanure

| Source of Variation | Degrees of Freedom | sumsq | meansq | F-Statistic | P-Value*1* |
| --- | --- | --- | --- | --- | --- |
| farm | 2 | 34.71429 | 17.35714 | 23.14286 | 0.006 \*\* |
| Residuals | 4 | 3.00000 | 0.75000 | NA | NA |
| *1*Significance codes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05 | | | | | |

Now we determine where the difference lies

| Comparison | Difference | Lower\_CI | Upper\_CI | Adjusted\_p\_value*1* |
| --- | --- | --- | --- | --- |
| farm 4-farm 3 | 6.5 | 3.049183 | 9.950817 | 0.006 \*\* |
| farm 5-farm 4 | -6.0 | -9.780181 | -2.219819 | 0.011 \* |
| *1*Significance codes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05 | | | | |