**AMF ISOLATE ABUNDANCE ANALYSIS (RQ1)**

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**RQ 1: Does the abundance of an AMF isolate introduced into a community change with isolate identity or host identity?**

This research question investigates the effect of AMF isolate identity and host species identity on AMF isolate abundance. The response variable (copies/uL) was measured using ddPCR.

1. **Repositories**

/AMFAbundance/ – All files required to reproduce the analysis

/Analysis/ – All scripts to reproduce statistical analysis and generate visuals

/RAW/ – Raw QuantaSoft outputs

/Screenshots\_QuantaSoft/ – Screenshots of droplet separation in QuantaSoft

1. **Data Descriptions (located in /AMFAbundance/)**

| **File Name** | **Description** |
| --- | --- |
| 197198\_syntheticDNA | QuantaSoft output of DAOM 197198 abundance using serial dilutions of synthetic DNA |
| 240448\_syntheticDNA | QuantaSoft output of DAOM 240448 abundance using serial dilutions of synthetic DNA |
| 240720\_syntheticDNA | QuantaSoft output of DAOM 240720 abundance using serial dilutions of synthetic DNA |
| Inoculum\_potential\_2024\_05\_cleaned | Cleaned data used to estimate inoculum potential |
| RQ1\_results\_cleaned\_ddPCR | Data used for AMF abundance statistical analysis |
| SingleSpore\_AllIsolates | QuantaSoft output of single spore extractions |
| Cairance\_DilutionFactors\_All | Dilution factors used to convert copies/µL to copies/g root |
| Variance\_Longform\_M24\_M25 | Cleaned results from variance extraction of individual hosts |

1. **How to Use**

Open the appropriate R Markdown file and use the corresponding dataset(s) to reproduce the analysis. Run the code from top to bottom.

| **R Markdown File** | **Corresponding Data Files** |
| --- | --- |
| RQ1\_ddPCR\_July\_2025\_Markdown.Rmd | RQ1\_results\_cleaned\_ddPCR, Variance\_DilutionFactors\_All |
| ProbeEfficiency\_SporeNuclearAbundance\_Markdown.Rmd | 197198\_syntheticDNA, 240448\_syntheticDNA, 240720\_syntheticDNA, SingleSpore\_AllIsolates |
| Variance\_ddPCR\_Visualisations\_July\_2025.Rmd | Variance\_Longform\_M24\_M25, Variance\_DilutionFactors\_All |

1. **Dependencies**

R version 4.3.2

1. **Data Reference**

| **Variable** | **Description** |
| --- | --- |
| copies\_g | AMF abundance (copies per gram of root) |
| treatment | AMF isolate identity (Control, DAOM 197198, DAOM 240448, DAOM 240720) |
| species | Host plant species (Gaillardia aristata, Festuca idahoensis, Bromus tecotrum, Taraxacum officinale) |
| mesocosm\_id | Unique identifier for each mesocosm (experimental unit) |
| sample\_id | Unique identifier for each individual host within a mesocosm |