

Supplemental Material S2- Prominent fungal genres (%) present in endophyte infected and endophyte free tall fescue soil

| Phylum | Family (EI, EF) | Genus | Endophyte Infected (EI) | Endophyte Free (EF) |
|------------|---------------------------------------|--|-------------------------|---------------------|
| Ascomycota | Aspergillaceae (8, 5) | <i>Aspergillus</i> (PSF) | 41 | 100 |
| | | <i>Penicillium</i> (PSF) | 59 | Abs |
| | Chaetomiaceae (5, 5) | <i>Humicola</i> (BioRm) | 40 | 100 |
| | | <i>Myceliophthora</i> (LigCDgrd) | 11 | Abs |
| | | <i>Corynascella</i> (Decomp) (Sidphr) | 5 | Abs |
| | | <i>Chaetomium</i> (Decomp) (Sidphr) | 5 | Abs |
| | | <i>Acrophialophora</i> | 22 | Abs |
| | Cladosporiaceae (5, 10) | <i>Cladosporium</i> (BioRm) | 100 | 100 |
| | Cucurbitariaceae (3, 5) | <i>Pyrenochaetopsis</i> (N-Ut) | 100 | 100 |
| | Didymellaceae (4, 10) | <i>Neosascochyta</i> (PP) | 40 | 100 |
| | | <i>Epicoccum</i> (Biocon) (PP) | 40 | Abs |
| | | <i>Didymella</i> (Decomp) | 13 | Abs |
| | | <i>Stagonosporopsis</i> (PP) (MnOx) | 7 | Abs |
| | Helotiaceae (1, 5) | <i>Scytalidium</i> (SecMtbl) | 50 | 100 |
| | | <i>Articulospora</i> | 50 | Abs |
| | Herpotrichiellaceae (4, 14) | <i>Exophiala</i> (BioRm) | 54 | 100 |
| | | <i>Phialophora</i> (BioRm) | 8 | Abs |
| | Hypocreaceae (3, 5) | <i>Monocillium</i> (Biodg) | 30 | 100 |
| | | <i>Trichoderma</i> (Decomp) (Biocon) (PSF) | 70 | Abs |
| | Hypocreales_fam_Incertae_sedis (3, 5) | <i>Acremonium</i> (BioRm) | 75 | 100 |
| | | <i>Sarocladium</i> (PP) | 25 | Abs |
| | Nectriaceae (10, 24) | <i>Fusarium</i> (BioFrt) (PP) | 66 | 60 |
| | | <i>Gibberella</i> (PGPF) | 20 | 40 |
| | Periconiaceae (1, 5) | <i>Periconia</i> | 100 | 100 |
| | Thyridariaceae (1, 5) | <i>Roussoella</i> (Decomp) | 100 | 100 |
| | Trichomeriaceae (1, 5) | <i>Knufia</i> (PGPF) | 100 | 100 |
| | Apiosporaceae (1, Abs) | <i>Arthrinium</i> (Decomp) | 100 | Abs |
| | Bionectriaceae (2, Abs) | <i>Bionectria</i> (PP) (PhHr) | 12 | Abs |
| | | <i>Clonostacyis</i> (Biocon) | 38 | Abs |
| | | <i>Nectriopsis</i> | 50 | Abs |

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| | Chaetosphaeriaceae (2, Abs) | <i>Chloridium</i> | 20 | Abs |
| | | <i>Dictyochaeta</i> (Decomp) | 80 | Abs |
| | Coniochaetaceae (3, Abs) | <i>Coniochaeta</i> (Decomp) | 50 | Abs |
| | | <i>Lecythophora</i> (HgDeTox) | 50 | Abs |
| | Cordycipitaceae (1, Abs) | <i>Cordyceps</i> (BioFert) | 100 | Abs |
| | Cyphellophoraceae (2, Abs) | <i>Cyphellophora</i> (N-Ut) | 100 | Abs |
| | Dictyosporiaceae (1, Abs) | <i>Neodendryphiella</i> (PP) | 33 | Abs |
| | | <i>Pseudocoleophoma</i> | 33 | Abs |
| | Didymosphaeriaceae (4, Abs) | <i>Pseudopithomyces</i> (DrtTol) | 57 | Abs |
| | | <i>Paraconiothyrium</i> (MnOx) | 36 | Abs |
| | | <i>Bimuria</i> (LigCDgrd) | 7 | Abs |
| | Lasiosphaeriaceae (2, Abs) | <i>Arnium</i> | 25 | Abs |
| | | <i>Echria</i> | 25 | Abs |
| | Lentitheciaceae (1, Abs) | <i>Keissleriella</i> (Biocon) | 33 | Abs |
| | | <i>Poaceascoma</i> (LigCDgrd) | 33 | Abs |
| | Lindgomycetaceae (2, Abs) | <i>Chlohesyomyces</i> | 80 | Abs |
| | | <i>Hongkongmyces</i> | 20 | Abs |
| | Myrmecridiaceae (1, Abs) | <i>Mymecridium</i> (PP) | 100 | Abs |
| | Onygenaceae (1, Abs) | <i>Polytolypa</i> (Biodg) | 100 | Abs |
| | Ophiocordycipitaceae (2, Abs) | <i>Purpureocillium</i> (PGPF) (PSF) | 80 | Abs |
| | Phaeomoniellaceae (2, Abs) | <i>Pseudophaeomonie lla</i> | 100 | Abs |
| | Phaeosphaeriaceae (4, Abs) | <i>Didymocyrtis</i> | 15 | Abs |
| | | <i>Parastagosphora</i> (PP) | 8 | Abs |
| | | <i>Phaeosphaeria</i> (Biodg) | 16 | Abs |
| | | <i>Phaeosphaeriopsis</i> (PhHr) | 8 | Abs |
| | | <i>Setophoma</i> (PP) | 16 | Abs |
| | | <i>Wojnowiciella</i> | 8 | Abs |
| | Plectosphaerellaceae (1, Abs) | <i>Lectera</i> | 100 | Abs |
| | Pleosporaceae (1, Abs) | <i>Alternaria</i> (PP) | 30 | Abs |
| | | <i>Bipolaris</i> (PP) | 13 | Abs |
| | | <i>Curvularia</i> (BioFert) (DrtTol) | 100 | Abs |

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| | | <i>Exserohilum</i> (Biocon) | 4 | Abs |
| | Pleosporales_fam_Incertae_sedis (1, Abs) | <i>Pseudorobillarda</i> (Biodg) | 100 | Abs |
| | Rhytismatales_fam_Incertae_sedis (1, Abs) | <i>Karstenia</i> | 100 | Abs |
| | Sclerotiniaceae (1, Abs) | <i>Clarireedia</i> (PP) | 100 | Abs |
| | Sporocadaceae (6, Abs) | <i>Discosia</i> (PSF) | 100 | Abs |
| | Sporormiaceae (1, Abs) | <i>Westerdykella</i> (Biodg) | 100 | Abs |
| | Stachybotryaceae (1, Abs) | <i>Stachybotrys</i> (Biodg) | 100 | Abs |
| | Stictidaceae (1, Abs) | <i>Neofitzroyomyces</i> | 100 | Abs |
| | Sympoventuriaceae (1, Abs) | <i>Scolecobasidium</i> (BioRm) | 100 | Abs |
| | Tetraplosphaeriaceae (1, Abs) | <i>Tetraplosphaeria</i> | 100 | Abs |
| | Torulaceae (1, Abs) | <i>Torula</i> (Biodg) (PSF) (PGPF) | 100 | Abs |
| | Trichocomaceae (1, Abs) | <i>Talaromyces</i> (PSF) | 75 | Abs |
| | | <i>Thermomyces</i> (ChitinDg) (PSF) | 25 | Abs |
| | Trichosphaeriaceae (1, Abs) | <i>Niagospora</i> | 100 | Abs |
| | Xylariaceae (1, Abs) | <i>Annulohpoxylon</i> (Biocon) | 100 | Abs |
| Basidiomycota | Agaricaceae (3, 2) | <i>Chlorophyllum</i> (BioFert) | Abs | 100 |
| | | <i>Lepiota</i> (Biodg-sap) | 50 | Abs |
| | Cortinariaceae (8, 85) | <i>Cortinarius</i> (N-Ut) | 100 | 100 |
| | Hydnodontaceae (12, 6) | <i>Disciseda</i> (Slst) | Abs | 100 |
| | | <i>Trechispora</i> | 100 | Abs |
| | Lycoperdaceae (11, 6) | <i>Arachnion</i> | 38 | Abs |
| | | <i>Holocotylon</i> | 25 | Abs |
| | | <i>Lycoperdon</i> (Biodg-sap) | 25 | Abs |
| | Bolbitiaceae (1, Abs) | <i>Conocybe</i> (PP) | 100 | Abs |
| | Bondarzewiaceae (1, Abs) | <i>Heterobasidion</i> (Biodg) (PP) | 100 | Abs |
| | Bulleribasidiaceae (1, Abs) | <i>Hannaella</i> | 100 | Abs |
| | Corticiaceae (4, Abs) | <i>Limonomyces</i> (PP) | 100 | Abs |
| | Cyphellaceae (3, Abs) | <i>Henningsomyces</i> (LigDgrd) | 100 | Abs |
| | Entolomataceae (3, Abs) | <i>Clitopilus</i> (ZnSF) (FeSF) | 100 | Abs |
| | | <i>Entoloma</i> | 100 | Abs |

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| | Erythrobasidiaceae (14, Abs) | <i>Bannoa</i> (Biodg) (FermAg) | 100 | Abs |
| | Malasseziaceae (3, Abs) | <i>Malassezia</i> (Path) | 100 | Abs |
| | Nidulariaceae (11, Abs) | <i>Cyathus</i> (Biodg-sap) | 100 | Abs |
| | Piskurozymaceae (1, Abs) | <i>Solicoccozyma</i> (PsychT) | 100 | Abs |
| | Psathyrellaceae (3, Abs) | <i>Coprinellus</i> (HMAccm) | 100 | Abs |
| | Russulaceae (3, Abs) | <i>Russula</i> (MHB-F) | 100 | Abs |
| | Schizoporaceae (5, Abs) | <i>Oxyporus</i> (antVOCs) | 100 | Abs |
| | Sporidiobolaceae (3, Abs) | <i>Rhodotorula</i> (Biodg) (PSF) (PGPF) | 100 | Abs |
| | Strophariaceae (3, Abs) | <i>Stropharia</i> | 100 | Abs |
| | Ustilaginaceae (5, Abs) | <i>Anthracozytis</i> | 25 | Abs |
| | | <i>Ustilago</i> (PP) (FeRd) (Antbio) | 50 | Abs |
| Chytridiomycota | Rhizophlyctidaceae (27, Abs) | <i>Rhizophlyctis</i> (CmCbDm) | 100 | Abs |
| | Spizellomycetaceae (37, Abs) | <i>Spizellomyces</i> (PP) | 75 | Abs |
| Mortierellomycota | Mortierellaceae (87, 100) | <i>Mortierella</i> (BioFert) | 100 | 100 |
| | Rhizopodaceae (13, Abs) | <i>Rhizopus</i> (HydDeg)(PSF) | 100 | Abs |
| Kickxellomycota | Kickxellaceae (100, Abs) | <i>Ramicandelaber</i> | 100 | Abs |
| Glomeromycota | Glomeraceae (100, Abs) | <i>Oehlia</i> (AMF)(DrtTol) | 67 | Abs |
| | Paraglomeraceae (100, Abs) | <i>Paraglomus</i> (AMF) (DrtTol) | 100 | Abs |

Abbreviations for bacterial functions within EI and EF rhizosphere soil: AMF; Arbuscular Mycorrhiza Fungi, Biocon; Bio-controller, BioFert; Bio-fertilizers, PSF; Phosphorus Solubilizing Fungi, BioRm; Bio-remediation, BioDg; Biodegrader, LigCDgrd; Ligno-cellulose Degradation, Decomp; Decomposer, Sidphr; Siderophore producers, N-Ut; Nitrogen Utilizer, PP; Plant Pathogen, MnOx; Manganese Oxidizers, Metblt; Secondary Metabolizers, PGPF; Plant Growth Promoting Fungi, PhtHr; Phytohormone Producer, HgDeTox; Mercury De-toxifying, DrtTol; Draught Tolerance, ChitiDg; Chitin Degradation, Sltst; Salt Stress, Biodg-sap; Bio degrader – saprophyte, ZnSF; Zinc Solubilizing Fungi, FeSF; Iron Solubilizing Fungi, FermAg; Fermenting Agent, Path; Pathogen, PsychT; Cold Tolerance, FeRd; Iron Reducing Fungi, Antibio; Anti-biosis, CmCbDg; Complex-Carbohydrate degrader, HydDeg; Hydrocarbon Degradation; and, Abs = Absent.