Supplementary Data

Co-inoculations of bacteria and mycorrhizal fungi often drive additive plant growth responses

Louis Berrios^{⊠1}, Andressa M. Venturini¹, T. Bertie Ansell^{1,2}, Esther Tok¹, William Johnson³, Claire E. Willing⁴, Kabir G. Peay^{1,5,6}

¹ Department of Biology, Stanford University, Stanford CA, 94305, USA

² Division of CryoEM and Bioimaging, SSRL, SLAC National Accelerator Laboratory, Menlo Park CA, USA

³ Oceans Department, Hopkins Marine Station of Stanford University, 120 Ocean View Blvd., Pacific Grove, CA, 93950, USA

⁴ School of Environmental and Forest Sciences, University of Washington, Seattle WA, 98195, USA

⁵ Department of Earth System Science, Stanford University, Stanford CA, 94305, USA ⁶ Woods Institute for the Environment, Stanford University, Stanford CA, 94305, USA

□ Lead Contact: Louis Berrios; Email: <u>berriosl@stanford.edu</u>

The supplementary data here includes Table S2, Table S3, Figure S1, and Figure S2. Table S2 and Table S3 include additional linear regression model output data, which pairs with data presented in Table 1 of the main text. Likewise, Figure S1 and Figure S2 show the standardized residual by leverage plots to accompany regression model data presented in the main text.

Table S1. Raw data of studies analyzed. This table includes raw plant response data, inoculant conditions, and study titles and DOIs. These data can be found as a separate Excel file, due to its large size.

Table S2. Linear regression full model output statistics. Statistically significant predictors and/or interaction terms are denoted by * for p < 0.05 and *** for p < 0.01.

Fungal Guild	Plant Response	F-Statistic _{DF}	Residual	Adj. R	p-value	
			Standard	Squared		
			Error			
AM	Total Plant	54.643 _{3,301}	0.6468	0.3461	< 2.2e-16	
	Weight					
	Shoot Weight	47.1 _{3,246}	0.6426	0.3571	< 2.2e-16	
	Root Weight	22.94 _{3,224}	0.8265	0.2248	5.479e-13	
	Shoot Height	23.05 _{3,167}	0.5373	0.2802	1.543e-12	
	Root Length	8.437 _{3,81}	0.6767	0.2099	6.048e-05	
	Mycorrhizal	303.9 _{3,276}	0.9156	0.7651	< 2.2e-16	
	Colonization %					

EcM	Total Plant	15.263,141	0.5979	0.229	1.185e-08
	Weight				
	Shoot Weight	14.21 _{3,97}	0.7445	0.2839	9.469e-08
	Root Weight	16.4 _{3,98}	0.5855	0.3138	1.037e-08
	Shoot Height	107.5 _{3,51}	0.7009	0.8554	< 2.2e-16
	Root Length	16.35 _{3,17}	0.2419	0.6972	2.945e-05
	Mycorrhizal	115.5 _{3,85}	0.8678	0.7961	< 2.2e-16
	Colonization %				

Table S3. Linear regression model outputs. In each model, the response variable was the effect size, and the predictor variables were bacterial, fungal, or bacterial plus fungal inoculants. Model test statistics are not enclosed by parentheses, while CI 95% statistics are enclosed by parentheses. N = Number of observations. Significance codes are as follows: *** p < 0.001; ** p < 0.01; * p < 0.05. Plant growth parameters are also as follows: TPW = Total Plant Weight; SW = Shoot Weight; RW = Root Weight; SH = Shoot Height; RL = Root Length; Colon % = Mycorrhizal Colonization Percentage; AM = Arbuscular Mycorrhizae; EcM = Ectomycorrhizae.

	AM TPW	AM SW	AM RW	AM SH	AM RL	AM Colon %	EcM TPW	EcM SW	EcM RW	EcM SH	EcM RL	EcM Colon %
(Intercept)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.07)	(0.08)	(0.10)	(0.07)	(0.14)	(0.10)	(0.10)	(0.14)	(0.11)	(0.18)	(0.10)	(0.18)
Bacteria Only	0.71 ***	0.61 ***	0.65 ***	0.53	0.74 ***	0.44 **	0.46 **	0.64 **	0.41 *	0.56 *	0.56 **	0.41
	(0.10)	(0.11)	(0.15)	(0.11)	(0.19)	(0.15)	(0.14)	(0.20)	(0.16)	(0.26)	(0.15)	(0.26)
Fungi Only	0.77 ***	0.85 ***	0.88 ***	0.55 ***	0.56 *	3.34 ***	0.54 ***	0.84 ***	0.58 ***	0.34	0.22	3.15 ***
	(0.11)	(0.12)	(0.16)	(0.13)	(0.22)	(0.15)	(0.14)	(0.21)	(0.17)	(0.26)	(0.15)	(0.26)
Bacteria + Fungi	-0.19	-0.17	-0.35	-0.22	-0.41	-0.13	-0.07	-0.17	0.12	3.60 ***	0.19	0.41
	(0.15)	(0.16)	(0.22)	(0.17)	(0.30)	(0.22)	(0.20)	(0.30)	(0.23)	(0.38)	(0.21)	(0.37)
Ν	305	250	230	171	87	280	145	101	102	55	21	89
R2	0.35	0.36	0.23	0.29	0.22	0.77	0.25	0.31	0.33	0.86	0.74	0.80



Fig. S1. Standardized residual by leverage plots for linear regression models that predict plant response effect sizes based on the presence of bacteria, arbuscular mycorrhizal (AM) fungi, and the interaction between the two. Points that fall outside of Cook's distance suggest influential or biased data points.



Fig. S2. Standardized residual by leverage plots for linear regression models that predict plant response effect sizes based on the presence of bacteria, ectomycorrhizal (EcM) fungi, and the interaction between the two. Points that fall outside of Cook's distance suggest influential or biased data points.