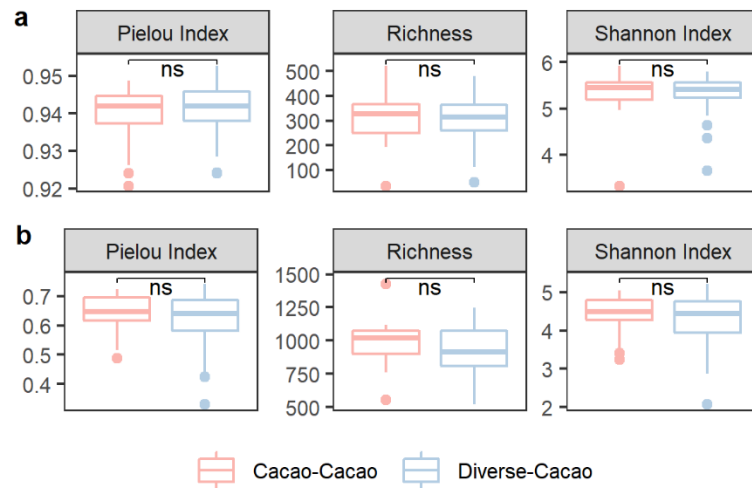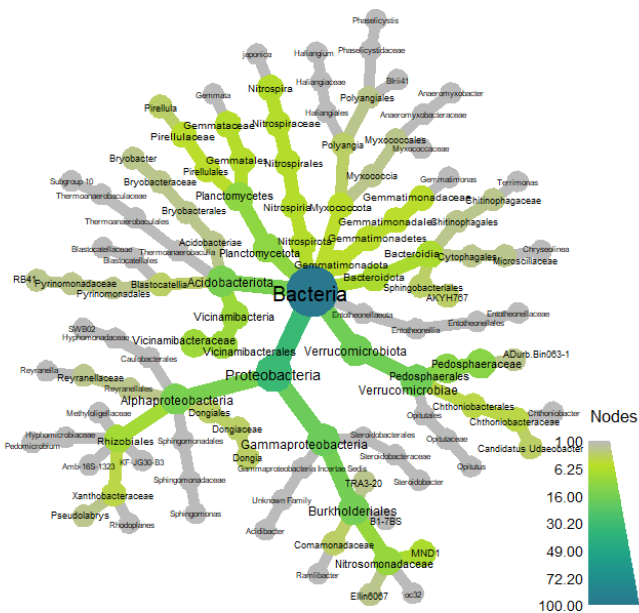**Figure S1.** Effects of adjacent shade trees on cacao rhizosphere soil physicochemical parameters. Diverse-Cacao indicates samples taken from cacao trees with adjacent shade trees, and Cacao-Cacao indicates samples from cacao trees only surrounded by other cacao trees. CEC: cation exchange capacity. *: p<0.05, **: p<0.01, ***: p<0.001, ****: p<0.0001.
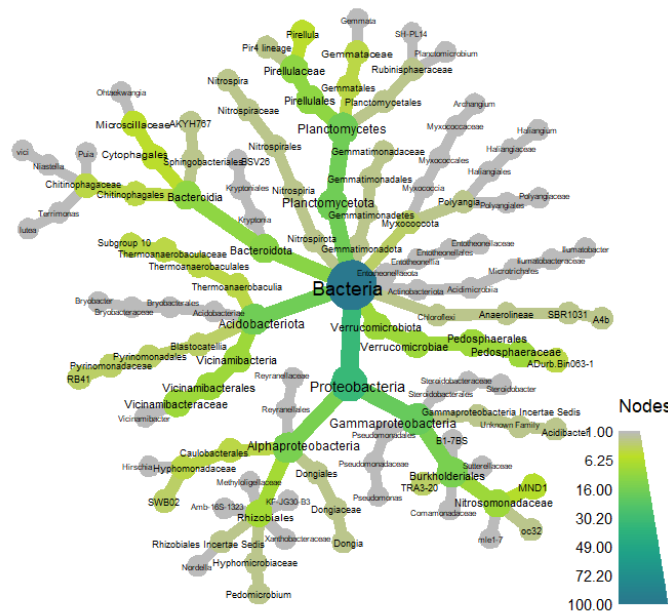
Figure S2. Effects of shade tree presence on microbial alpha diversity. Shade trees did not affect **(a)** bacterial or **(b)** fungal alpha diversity indices for cacao rhizosphere microbial communities. Diverse-Cacao indicates cacao trees with adjacent shade trees, while Cacao-Cacao indicates cacao trees with only adjacent cacao trees.
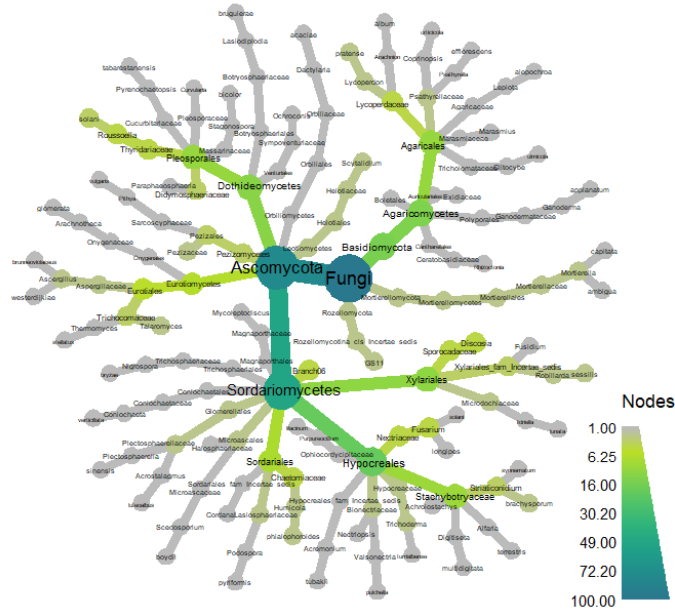
Figure S3. Phylogenetic heat trees of yield-relevant microbial taxa. Phylogenetic trees were generated for the 100 ASVs with the highest loadings on eigenvectors of microbial community composition shown to be relevant to cacao yields in stepwise regression. **(a)** PC1B and **(b)** PC2B, the first and second eigenvectors of bacterial community composition, were important predictors of infected pod counts. **(c)** PC2F, the second eigenvector of fungal community composition, was an important predictor for both healthy and infected pods. Larger nodes indicate higher numbers of ASVs per taxon.

Table S1: Plant species included in trial

Name	Scientific Name	Category	Number of Trees / Plants
Cocoa (MCC02)	*Theobroma cacao*	Cocoa	244
Cocoa (BB01)	*Theobroma cacao*	Cocoa	9
Sengon	*Falcataria moluccana*	Shade	9
Red Teak	*Tectona grandis*	Timber	8
Mahogany	*Swietenia mahagoni*	Timber	17
Mango	*Mangifera indica*	Fruits	5
Durian	*Durio sp.*	Fruits	4
Banana	*Musa sp.*	Fruits	30
Papaya	*Carica papaya*	Fruits	40
Pineapple	*Ananas comosus*	Fruits	75
Damiana	*Turnera subulata*	Flowers, pollinator support	30
Hibiscus	*Hibiscus sp.*	Flowers, pollinator support	17
Chili	*Capsicum frutescens*	Spices	120
Nutmeg	*Myristica fragrans*	Spices	5
Lemongrass	*Cymbopogon sp.*	Spices	90

Table S2: Soil amendments at planting

Planting Holes Fertilizer		
Fertilizer Type	Kg/Tree	Plant Type
NPK	0.15	Cocoa, Fruit trees, Timber
Dolomite	0.4	
TSP (36%)	0.15	
Compost	3	
NPK	0.15	Pineapple, Banana
Dolomite	0.4	
Compost	3	

Table S3: Soil amendments over time

Fertilizer Type	Year 1, 2018 (Kg Per Tree), Cocoa			
	March	June	September	December
NPK	0.02		0.04	0.08
Dolomite			0.25	
Compost				3
Nitrogen	0.01		0.02	0.04
	Year 2, 2019 (Kg Per Tree), Cocoa			
NPK	0.1	0.1	0.15	0.12
Dolomite		0.4		0.5
Compost				
Nitrogen	0.05	0.05	0.06	0.06
	Year 3, 2020 (Kg Per Tree), Cocoa			
NPK		0.2		0.3
Dolomite				
Compost				
Nitrogen		0.1		0.1
	Year 4, 2021 (Kg Per Tree), Cocoa			
NPK		0.25		
Dolomite		0.5		
Compost		3		
Nitrogen		0.1		