

Table S1. Summary of the predictive analysis.

Input variables	Response variable*	Model/method	CP	MSE	MAE
LEO	Cd	ANN	0.73	2.51	0.72
LEO	Cd	MLR-OLS	0.71	2.79	0.88
LEO	Cd	MLR-LASSO	0.71	2.79	0.87
LEO	Cd	MLR-RR	0.71	2.78	0.86
LEO	Cd	RF	0.72	2.62	0.73
LQE	Cd	MLR-OLS	0.68	3.71	0.89
LQE	Cd	MLR-LASSO	0.68	3.48	0.85
LQE	Cd	MLR-RR	0.68	3.53	0.84
LQE	Cd	RF	0.72	2.62	0.73
LEE	Cd	MLR-OLS	0.71	2.76	0.84
LEE	Cd	MLR-LASSO	0.71	2.74	0.83
LEE	Cd	MLR-RR	0.71	2.77	0.83
LEE	Cd	RF	0.72	2.61	0.73
LEO+LL	Cd	ANN	-0.02	24.63	3.64
LEO+LL	Cd	MLR-OLS	0.70	2.76	0.87
LEO+LL	Cd	MLR-LASSO	0.70	2.76	0.87
LEO+LL	Cd	MLR-RR	0.70	2.75	0.86
LEO+LL	Cd	RF	0.73	2.50	0.68
LQE+LL	Cd	MLR-OLS	0.66	3.05	0.88
LQE+LL	Cd	MLR-LASSO	0.67	3.05	0.85
LQE+LL	Cd	MLR-RR	0.68	2.99	0.81
LQE+LL	Cd	RF	0.72	2.58	0.70
LEE+LL	Cd	MLR-OLS	0.70	2.74	0.84
LEE+LL	Cd	MLR-LASSO	0.70	2.74	0.83
LEE+LL	Cd	MLR-RR	0.70	2.73	0.83
LEE+LL	Cd	RF	0.72	2.55	0.70
LEO	Cd.PCorr.Lab	MLR-OLS	0.70	2.77	0.89
LEO	Cd.PCorr.Lab	MLR-LASSO	0.70	2.78	0.88
LEO	Cd.PCorr.Lab	MLR-RR	0.70	2.77	0.87
LEO	Cd.PCorr.Lab	RF	0.73	2.59	0.73
LQE	Cd.PCorr.Lab	MLR-OLS	0.69	2.94	0.88
LQE	Cd.PCorr.Lab	MLR-LASSO	0.68	2.96	0.84
LQE	Cd.PCorr.Lab	MLR-RR	0.68	3.12	0.84
LQE	Cd.PCorr.Lab	RF	0.72	2.62	0.73
LEE	Cd.PCorr.Lab	MLR-OLS	0.70	2.73	0.84
LEE	Cd.PCorr.Lab	MLR-LASSO	0.70	2.72	0.82
LEE	Cd.PCorr.Lab	MLR-RR	0.70	2.73	0.83
LEE	Cd.PCorr.Lab	RF	0.72	2.60	0.73
LEO+LL	Cd.PCorr.Lab	MLR-OLS	0.70	2.77	0.88
LEO+LL	Cd.PCorr.Lab	MLR-LASSO	0.70	2.77	0.88
LEO+LL	Cd.PCorr.Lab	MLR-RR	0.70	2.76	0.87
LEO+LL	Cd.PCorr.Lab	RF	0.74	2.49	0.68
LQE+LL	Cd.PCorr.Lab	MLR-OLS	0.66	3.04	0.88
LQE+LL	Cd.PCorr.Lab	MLR-LASSO	0.67	2.99	0.86
LQE+LL	Cd.PCorr.Lab	MLR-RR	0.68	3.05	0.82
LQE+LL	Cd.PCorr.Lab	RF	0.72	2.65	0.70
LEE+LL	Cd.PCorr.Lab	MLR-OLS	0.70	2.75	0.84
LEE+LL	Cd.PCorr.Lab	MLR-LASSO	0.70	2.75	0.84
LEE+LL	Cd.PCorr.Lab	MLR-RR	0.70	2.73	0.83
LEE+LL	Cd.PCorr.Lab	RF	0.72	2.65	0.70
LEO	Cd.Pcorr.AEZ	MLR-OLS	0.69	2.78	0.94
LEO	Cd.Pcorr.AEZ	MLR-LASSO	0.69	2.78	0.94
LEO	Cd.Pcorr.AEZ	MLR-RR	0.69	2.78	0.92
LEO	Cd.Pcorr.AEZ	RF	0.72	2.66	0.83

LEO	Cd.Pcorr.AEZ	ANN	0.72	4.75	1.60
LEO	Cd.Pcorr.SD	MLR-OLS	0.70	2.72	0.87
LEO	Cd.Pcorr.SD	MLR-LASSO	0.70	2.72	0.86
LEO	Cd.Pcorr.SD	MLR-RR	0.70	2.74	0.86
LEO	Cd.Pcorr.SD	RF	0.72	2.59	0.73
LEO	Cd.Pcorr.SD	ANN	0.72	4.56	1.58

*Cd.PCorr.Lab: Cd pre-corrected for laboratory, Cd.Pcorr.AEZ: Cd pre-corrected for agroecological zone,