Analysis Results - Random Forest

importance_mean
regression
0.5387563575217502
0.21418886468624213
14.986814467871634
12.519635191821445
; consider excluding it.', 'Identifier-like column(s) used as features: PLOT. These are bookkeeping fields; high importance for them usually r
SS_JUL', 'PASTURE_TOTALAREA', 'LAT', 'LONG', 'ENV_SOILNO3', 'SOIL_EC_uS_cm', 'SOIL_CO2_mg_per_g'], 'task_type': 'regression'
6099997, 9.428343678416667, 7.6346010624166665, 9.486308909433331, 6.426466946000002, 7.944663824000003, 4.6638674717166
0.8195048298730367
0.021424016987904956
0.016935465148617584
0.011854018926987236
0.01137704023323378
0.01121592353380276
0.01113156347074049
0.011111452254093568
0.010757313135993499
0.010703489621519098
0.010156016681639242
0.008505159043046167
0.008151748685276542
0.008008775975294214
0.007795727433792526
0.007403692429484407
0.006226824179376763
0.005079320403091914
0.0018525439854049947
0.0008050779976635693

Pre-Modeling Statistics

Feature	Pearson r	Pearson FDR	Spearman rho	Spearman FDR	ANOVA F	ANOVA FDR	Sig?
PLOT	-0.0656	0.3219	-0.1974	0.0003	1.5057	0.3219	Yes
ENV_SOILOC	0.1181	0.1291	0.3507	0.0000	4.9246	0.1291	Yes
ENV_SOILTC	0.1175	0.1291	0.3547	0.0000	4.8708	0.1291	Yes
ENV_SOILTN	0.1145	0.1291	0.3459	0.0000	4.6215	0.1291	Yes
ENV_PH	0.0045	0.9333	0.0707	0.2078	0.0070	0.9333	No
ENV_SOILCLAY	0.0382	0.5951	0.1408	0.0104	0.5089	0.5951	Yes
ENV_SOILSILT	0.0994	0.2105	0.2985	0.0000	3.4745	0.2105	Yes
ENV_SOILSAND	-0.0742	0.3194	-0.2294	0.0000	1.9253	0.3194	Yes
ENV_SOILMOIS	0.1285	0.1291	0.2213	0.0001	5.8410	0.1291	Yes
ENV_SOILP	0.0725	0.3194	0.0586	0.2888	1.8412	0.3194	No
PC_SHOOTMASS	0.0867	0.2639	0.2249	0.0000	2.6331	0.2639	Yes
PC_LITTERMASS	0.0166	0.7970	0.1343	0.0140	0.0958	0.7970	Yes
COVER_TOTAL_JUL	0.0223	0.7528	0.1862	0.0007	0.1732	0.7528	Yes
COVER_RICHNESS_JUL	-0.0890	0.2639	-0.0519	0.3331	2.7767	0.2639	No
PASTURE_TOTALAREA	-0.0803	0.2975	-0.2690	0.0000	2.2575	0.2975	Yes
LAT	0.0654	0.3219	0.2422	0.0000	1.4951	0.3219	Yes
LONG	0.0650	0.3219	0.2312	0.0000	1.4754	0.3219	Yes
ENV_SOILNO3	0.9494	0.0000	0.4730	0.0000	3179.4291	0.0000	Yes
SOIL_EC_uS_cm	-0.0392	0.5951	-0.1437	0.0094	0.5345	0.5951	Yes
SOIL_CO2_mg_per_g	0.0296	0.6838	0.1618	0.0034	0.3049	0.6838	Yes

Permutation Importance

Feature	Mean	SD
ENV_SOILNO3	0.9240	0.2616
ENV_SOILTN	0.1027	0.0707
PASTURE_TOTALAREA	0.0319	0.0502
ENV_SOILMOIS	0.0213	0.0189
ENV_SOILCLAY	0.0145	0.0097
PLOT	0.0113	0.0086
ENV_SOILSAND	0.0104	0.0075
ENV_SOILSILT	0.0064	0.0234
LAT	0.0053	0.0058

LONG	0.0051	0.0079
ENV_SOILTC	0.0026	0.0113
SOIL_CO2_mg_per_g	0.0017	0.0014
ENV_SOILOC	0.0012	0.0078
SOIL_EC_uS_cm	0.0009	0.0007
ENV_SOILP	0.0001	0.0010
PC_LITTERMASS	-0.0019	0.0069
COVER_RICHNESS_JUL	-0.0023	0.0028
PC_SHOOTMASS	-0.0025	0.0048
ENV_PH	-0.0028	0.0029
COVER_TOTAL_JUL	-0.0064	0.0057

SHAP Values

Feature	Mean |Abs|
ENV_SOILNO3	2.6035
ENV_SOILTN	0.3270
PASTURE_TOTALAREA	0.2388
PC_LITTERMASS	0.2162
ENV_SOILMOIS	0.2057
LAT	0.1839
ENV_SOILOC	0.1837
ENV_SOILSILT	0.1672
ENV_SOILTC	0.1262
PLOT	0.1131
ENV_PH	0.1098
LONG	0.1073
COVER_TOTAL_JUL	0.0966
ENV_SOILSAND	0.0656
ENV_SOILCLAY	0.0613
PC_SHOOTMASS	0.0545
COVER_RICHNESS_JUL	0.0327
ENV_SOILP	0.0312
SOIL_EC_uS_cm	0.0276

SOIL_CO2_mg_per_g	0.0195

Per-Split Model Metrics

Split	R^2	MSE
	0.3084	5.9581
	0.4836	6.3112
	0.8243	32.6911
Mean ± SD	**0.5388 ± 0.2142**	**14.9868 ± 12.5196**