

**Supplementary Table 1. Multilevel linear regression for *yield rate* by  $r_{\text{yield}}$  to  $r_{\text{area}}$  in global regions.**

	Factor	$\beta$	error	$t$	$p$
	(Intercept)	-0.19496	0.09992	-1.951	0.0611.
Rice	$r_{\text{area}}$	0.43985	0.08483	5.185	0.0000167***
	$r_{\text{yield}}$	0.16054	0.07334	2.189	0.0371*
	(Intercept)	-0.2877	0.1215	-2.368	0.02505*
Maize	$r_{\text{area}}$	0.8285	0.2587	3.203	0.00338**
	$r_{\text{yield}}$	0.2119	0.0851	2.49	0.019*
	(Intercept)	-0.2459	0.2506	-0.981	0.3348
Wheat	$r_{\text{area}}$	0.711	0.2953	2.408	0.0229*
	$r_{\text{yield}}$	0.2339	0.191	1.225	0.231
	(Intercept)	0.61336	0.07581	8.091	0.00000000827***
Soybean	$r_{\text{area}}$	0.07938	0.30429	0.261	0.796
	$r_{\text{yield}}$	-0.38753	0.0517	-7.495	0.0000000365***