

Supplementary Table S1. Prediction accuracy of GS for the SNPset selected from different GWAS models, evaluated by 5-fold CV gBLUP model.

Traits	GWAS models	SNPset2	SNPset3	SNPset4	SNPset5	SNPset6	SNPset7	SNPset8
2020_FW	FarmCPU	0.647994	0.735854	0.744559	0.757806	0.746796	0.778807	0.800477
	GLM	0.320683	0.732397	0.744559	0.757806	0.746796	0.778807	0.800477
	MLM	0.391878	0.718189	0.744292	0.746859	0.757484	0.787887	0.809032
2021_1 st _FW	FarmCPU	0.623382	0.799111	0.812245	0.831012	0.838332	0.886787	0.893909
	GLM	0.451657	0.760097	0.812245	0.831012	0.838332	0.886787	0.893909
	MLM	0.451587	0.766388	0.804294	0.829703	0.849405	0.889825	0.899806
2021_2 nd _FW	FarmCPU	0.568968	0.831146	0.823736	0.826033	0.82529	0.846245	0.851818
	GLM	0.499498	0.825012	0.823736	0.826033	0.82529	0.846245	0.851818
	MLM	0.513779	0.824149	0.832767	0.838629	0.844295	0.859918	0.853541
2021_Total_FW	FarmCPU	0.679064	0.787247	0.783999	0.82497	0.852427	0.871651	0.875042
	GLM	0.565843	0.758443	0.783999	0.82497	0.852427	0.871651	0.875042
	MLM	0.560295	0.765489	0.813806	0.84722	0.857913	0.887343	0.889191
2021_Total_FW	FarmCPU	0.657579	0.825259	0.845079	0.856813	0.860658	0.873822	0.881004
	GLM	0.421597	0.803794	0.845079	0.856813	0.860658	0.873822	0.881004
	MLM	0.453396	0.78865	0.841549	0.85878	0.872538	0.881791	0.881447
2022_2 nd _FW	FarmCPU	0.624605	0.787023	0.798141	0.813966	0.827652	0.832378	0.830766
	GLM	0.524132	0.775843	0.798141	0.813966	0.827652	0.832378	0.830766
	MLM	0.495579	0.766871	0.806104	0.823932	0.830745	0.84073	0.852976
2022_Total_FW	FarmCPU	0.573019	0.78596	0.790699	0.82495	0.827302	0.846824	0.860892
	GLM	0.54384	0.74146	0.790699	0.82495	0.827302	0.846824	0.860892
	MLM	0.543293	0.72667	0.798866	0.817532	0.825002	0.848828	0.857566
2021-2022_FW	FarmCPU	0.641214	0.774866	0.778322	0.786369	0.815851	0.83353	0.834332
	GLM	0.611628	0.749537	0.776225	0.786048	0.814911	0.833553	0.834209
	MLM	0.551912	0.754463	0.771286	0.798047	0.827723	0.843443	0.852994

Note: The definitions of abbreviations for each environmental trait (such as 2020_FW, 2021_1st_FW, 2022_Total_FW) are the same as those provided in Table 1.