

Supplementary information - Nature Scientific Reports

Genomic Selection in Commercial Perennial Crops: Applicability and Improvement in Oil Palm (*Elaeis guineensis* Jacq.)

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Supplementary Table 1. Selection gain estimated from all traits in study with selection threshold set as 25%.

	M/F	*S/F	K/F	F/B	O/M	O/B	O/P
Selection response (%)	4.95%	-17.91%	24.79%	4.49%	4.72%	6.68%	14.65%

* Oil palm breeding aims to reduce S/F, and increase other yield traits.

Supplementary Table 2. Marker reduction by association for 4 traits.

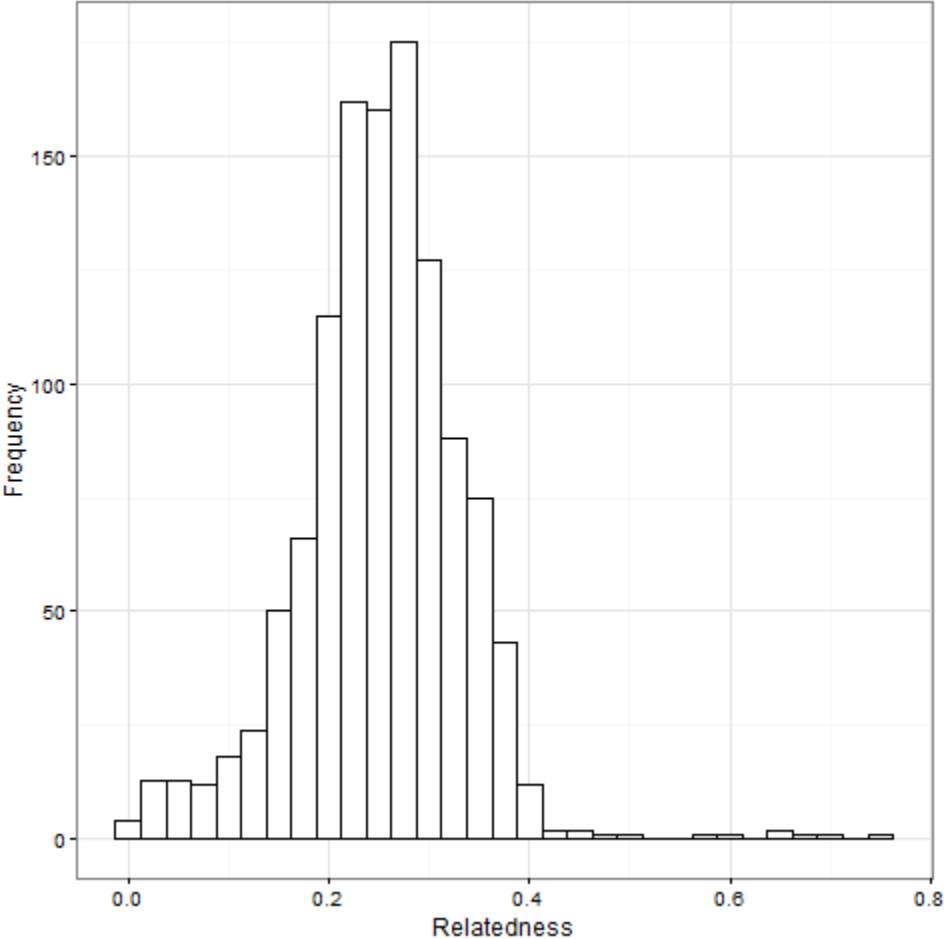
(Refer to separate spreadsheet – Supplementary Table 2.xlsx)

Supplementary Table 3. Markers filtered by LD and the corresponding prediction accuracy for ascending number of markers for the traits of M/F and O/P.

Number of markers	O/P without LD filter	O/P with LD filter	M/F without LD filter	M/F with LD Filter
10	0.1684	0.2278	0.2965	0.3033
20	0.2700	0.2988	0.2789	0.3801
30	0.3270	0.3218	0.2800	0.4205
40	0.3321	0.3573	0.2740	0.4336
50	0.3426	0.3804	0.3078	0.4743
60	0.3883	0.3862	0.3887	0.5006
70	0.3970	0.3950	0.4045	0.5291
80	0.4218	0.4033	0.4109	0.5425
90	0.4255	0.4053	0.4473	0.5562
100	0.4260	0.4156	0.4494	0.5785
110	0.4280	0.4283	0.4545	0.5908
120	0.4344	0.4434	0.4443	0.5987
130	0.4403	0.4432	0.5386	0.6087
140	0.4426	0.4457	0.5594	0.6065
150	0.4483	0.4427	0.5709	0.6109
160	0.4571	0.4451	0.5705	0.6175
170	0.4674	0.4432	0.5721	0.6247
180	0.4761	0.4433	0.5736	0.6277
190	0.4821	0.4418	0.5755	0.6338
200	0.4813	0.4496	0.6250	0.6321
210	0.4774	0.4522	0.6439	0.6353
220	0.4794	0.4582	0.6521	0.6355
230	0.4768	0.4583	0.6432	0.6384

240	0.4534	0.4567	0.6465	0.6419
250	0.4560	0.4596	0.6446	0.6419
260	0.4619	0.4625	0.6521	0.6435
270	0.4673	0.4656	0.6523	0.6423
280	0.4662	0.4688	0.6560	0.6461
290	0.4666	0.4689	0.6586	0.6449
300	0.4655	0.4699	0.6645	0.6480

Supplementary Figure 1. The distribution of kinship coefficients of 1,218 *tenera* palms.



Supplementary Figure 2. Correlation between genomic heritability calculated from full marker set against marker subset.

