

Table S3. Time required, in simulated data, for the genomic selection index (L_{GSI}) and phenotypic selection index (L_{PSI}) to complete one selection cycle; correlation or accuracy ($\rho_{H,GSI}$) between the net genetic merit (H) and the genomic selection index (GSI) and the square root of the heritability of phenotypic selection index (h_{PSI}). These parameters were used to obtain the right-hand side ($\frac{\rho_{H,GSI}}{h_{PSI}} L_{PSI}$) of the inequality formula of Technow *et al.* (2013). The left-hand side of this inequality formula (L_{GSI}) was equal to 1.5 in all selection cycles.

Cycle	L_{GSI}	L_{PSI}	$\rho_{H,GSI}$	h_{PSI}	$\frac{\rho_{H,GSI}}{h_{PSI}} L_{PSI}$
1	1.5	4.0	0.73	0.92	3.17
2	1.5	4.0	0.78	0.89	3.50
3	1.5	4.0	0.83	0.88	3.77
4	1.5	4.0	0.74	0.87	3.40
5	1.5	4.0	0.71	0.87	3.30
6	1.5	4.0	0.73	0.84	3.49
7	1.5	4.0	0.80	0.85	3.80