

## **Effect of quality control, density and allele frequency of markers on the accuracy of genomic prediction for complex traits in Nellore cattle**

*Tiago Bresolin<sup>A</sup>, Guilherme Jordão de Magalhães Rosa<sup>B</sup>, Bruno Dourado Valente<sup>B</sup>, Rafael Espigolan<sup>A</sup>, Daniel Gustavo Mansan Gordo<sup>A</sup>, Camila Urbano Braz<sup>A</sup>, Gerardo Alves Fernandes Júnior<sup>A</sup>, Ana Fabrícia Braga Magalhães<sup>A</sup>, Diogo Anastacio Garcia<sup>A</sup>, Gabriela Bonfá Frezarim<sup>A</sup>, Guilherme Fonseca Carneiro Leão<sup>A</sup>, Roberto Carneiro<sup>A,C</sup>, Fernando Baldi<sup>A,C</sup>, Henrique Nunes de Oliveira<sup>A,C</sup> and Lucia Galvão de Albuquerque<sup>A,C,D</sup>*

<sup>A</sup>Departamento de Zootecnia, Universidade Estadual Paulista (Unesp), Faculdade de Ciências Agrárias e Veterinárias, Jaboticabal, Via de acesso Prof. Paulo Donato Castellane, s/n, Jaboticabal, SP 14884-900, Brazil.

<sup>B</sup>Department of Animal Sciences, University of Wisconsin, 436 Animal Science Building, 1675 Observatory Drive, Madison, WI 53706, USA.

<sup>C</sup>National Counsel of Technological and Scientific Development, CNPq, SHIS QI 1 Conjunto B – Blocos A, B, C e D, CEP 71605-001, Lago Sul, Brasília, DF, Brazil.

<sup>D</sup>Corresponding author. Email: lgalb@fcav.unesp.br

**Table S1.** Marker densities and average distance (D/kb) between SNP markers for each chromosome in Nellore cattle.

Chr	Markers density					
	10K (D)	50K (D)	100K (D)	300K (D)	500K (D)	700K (D)
1	651 (242.9)	3,278 (48.6)	6,778 (23.6)	18,666 (8.4)	31,724 (4.9)	46,438 (3.4)
2	550 (248.7)	2,771 (47.4)	5,604 (24.1)	15,780 (8.5)	27,244 (5.0)	40,008 (3.4)
3	460 (263.1)	2,558 (47.7)	5,092 (23.8)	14,124 (8.3)	24,368 (4.9)	35,538 (3.4)
4	496 (242.1)	2,481 (48.0)	4,946 (24.1)	14,062 (8.6)	23,938 (5.0)	34,924 (3.4)
5	476 (253.7)	2,505 (49.0)	5,030 (24.6)	13,850 (8.7)	23,757 (5.0)	34,775 (3.4)
6	503 (237.5)	2,479 (45.6)	5,091 (23.1)	14,149 (8.3)	24,418 (4.9)	35,477 (3.3)
7	453 (247.0)	2,350 (48.2)	4,592 (23.9)	13,307 (8.4)	22,539 (4.9)	33,108 (3.4)
8	484 (229.5)	2,365 (46.2)	4,820 (23.6)	13,403 (8.4)	22,793 (4.9)	33,483 (3.3)
9	402 (261.7)	2,180 (45.6)	4,494 (23.6)	12,447 (8.5)	21,135 (4.9)	31,021 (3.4)
10	420 (247.3)	2,156 (47.0)	4,166 (23.6)	12,271 (8.5)	20,757 (4.9)	30,416 (3.4)
11	425 (252.4)	2,349 (47.4)	4,616 (22.9)	12,741 (8.3)	22,006 (4.8)	31,983 (3.3)
12	326 (278.8)	1,870 (47.4)	3,820 (24.1)	10,403 (8.7)	17,858 (5.0)	26,089 (3.4)
13	327 (258.0)	1,601 (49.7)	3,359 (25.4)	9,468 (9.0)	16,088 (5.2)	23,565 (3.5)
14	319 (260.7)	1,775 (46.6)	3,443 (24.0)	9,859 (8.6)	16,846 (5.0)	24,756 (3.4)
15	351 (239.5)	1,786 (46.8)	3,494 (23.5)	9,750 (8.6)	16,917 (5.0)	24,709 (3.4)
16	328 (247.8)	1,656 (47.6)	3,368 (23.3)	9,691 (8.5)	16,501 (4.9)	24,141 (3.3)
17	290 (258.7)	1,582 (45.7)	3,137 (22.7)	9,033 (8.4)	15,322 (4.9)	22,224 (3.3)
18	240 (274.1)	1,407 (48.0)	2,806 (24.3)	7,670 (8.5)	13,187 (4.9)	19,351 (3.4)
19	253 (249.7)	1,328 (44.2)	2,670 (23.2)	7,458 (8.4)	12,883 (4.9)	18,879 (3.3)
20	300 (237.9)	1,488 (46.2)	3,075 (23.2)	8,678 (8.4)	14,701 (4.8)	21,467 (3.3)
21	274 (259.7)	1,498 (47.1)	3,128 (23.3)	8,586 (8.5)	14,605 (4.8)	21,134 (3.3)
22	253 (242.0)	1,272 (49.7)	2,559 (23.8)	7,253 (8.5)	12,278 (4.9)	18,018 (3.4)
23	203 (259.2)	1,063 (48.7)	2,192 (24.4)	6,051 (8.5)	10,399 (5.0)	15,197 (3.4)
24	248 (252.7)	1,359 (47.1)	2,695 (24.6)	7,291 (8.3)	12,791 (4.9)	18,600 (3.3)
25	179 (236.5)	9,39 (46.8)	1,821 (23.1)	5,180 (8.2)	8,744 (4.9)	12,914 (3.3)
26	231 (218.9)	1,075 (48.5)	2,077 (24.2)	6,075 (8.6)	10,454 (4.9)	15,216 (3.3)
27	165 (270.6)	947 (48.6)	1,884 (24.8)	5,289 (8.6)	8,914 (5.0)	13,136 (3.4)
28	161 (282.7)	963 (50.3)	1,900 (24.6)	5,284 (8.6)	8,890 (5.1)	13,012 (3.5)
29	204 (250.8)	1,029 (47.9)	2,117 (25.1)	5,927 (8.7)	10,056 (5.0)	14,693 (3.5)
Total	9,972 (251.9)	52,110 (47.5)	104,774 (23.9)	293,746 (8.5)	502,113 (4.9)	734,272 (3.4)