

Supplementary Material

Genetic parameters for milk production and body-conformation traits in Dairy Gir cattle

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Table S1. Description of the body conformation traits evaluated in dairy Gir cattle.

| Trait | Description |
|---------------------|---|
| Hip height | Length of the animal from the top of the rump to the ground |
| Heart girth | The thoracic perimeter |
| Rump angle | It is the difference between the height of the pin and the hip bones (1-high pins and 9-low pins) |
| Foot angle | The angle formed between two imaginary lines, the first parallel to the ground surface and the second to the wall of the hoof (1-low and 9-steep) |
| Rear legs-side view | Angulation formed between the tibia and metatarsus bones (1-straight and 9-curved) |
| Rear udder width | The distance between the junction of the leg and the udder from the left side to the same junction on the right side (1-narrow and 9-wide) |
| Udder depth | The distance from the hock to the floor of the udder (1-shallow and 9-deep) |
| Teat diameter | The teat thickness (1-thin and 9-thick) |
| Teat length | Teat size (1-short and 9-long) |

Table S2. The number of animals genotyped, number of SNPs by chip, and SNPs in common with reference GGP_Indicus_50k_A1 chip to HD and low-density SNPs chips

| SNP Chip | N_SNPs | N_SNPs_29 | SNPs_S | N_Animals |
|--|---------|-----------|--------|-----------|
| GSGT Version 2.0.4 GGP_Indicus_50K_A1 | 54,791 | 51,975 | - | 100 |
| Illumina® BovineHD | 777,962 | 735,965 | 51,038 | 36 |
| GSGT Version 2.0.2 GGP_Indicus_35K | 35,339 | 33,516 | 33,206 | 166 |
| GSGT Version 1.9.4 GGP_SuperLDv4_Public_D | 30,108 | 28,260 | 15,047 | 290 |
| GSGT Version 1.9.4 GGP_SuperLDv4_C | 30,105 | 28,260 | 15,008 | 155 |
| Zoetis_BR_LD_ZL5 | 29,842 | 27,843 | 9,047 | 846 |

N_SNPs, number of SNPs; N_SNPs_29, number of SNPs location until chromosome 29; SNPs_S, number of SNPs in common with reference GGP_Indicus_50k_A1 chip; N_Animals; the number of animals.

Table S3. Average of the heritability estimate (h^2) and standard error (SE) using bivariate analyses for milk yield and body conformation traits in dairy Gir cattle.

| Trait | h^2 | SE |
|--------------|-------------------------|-----------|
| MY | 0,33 | 0,01 |
| HH | 0,36 | 0,08 |
| HG | 0,27 | 0,07 |
| RA | 0,25 | 0,07 |
| RLS | 0,11 | 0,04 |
| FA | 0,14 | 0,05 |
| RU | 0,36 | 0,07 |
| UD | 0,29 | 0,07 |
| TL | 0,25 | 0,07 |
| TD | 0,28 | 0,07 |

MY: 305-day cumulative milk yield; HH: hip height; HG: heart girth; RA: rump angle; RLS: rear legs-side view; FA: foot angle; RU: rear udder width; UD: udder depth; TL: teat length; TD: teat diameter.