**Table S2 Genetic gain by scenario, relative cost of phenotyping to genotyping, and availability of an initial training population**

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| --- | --- | --- | --- | --- |
|  |  | Relative cost of phenotyping (P) to genotyping (G) | | |
|  | Scenario | $P:$G = 1:2 | $P:$G = 1:1 | $P:$G = 2:1 |
|  | C11 | 3.010.22a,A | 3.010.22a,A | 3.010.22a,A |
| With initial  training population | G10 | 5.430.20b, A | 5.410.29b, A | 6.500.20b, B |
| G9 | 5.580.26b, A | 6.300.17c, B | 7.020.24c, C |
| G8 | 6.350.25c, A | 6.620.25d, B | 7.020.17c, C |
| G5 | 6.780.21d, A | 7.070.20e, B | **7.260.19c, B** |
| G2 | 7.130.29e, A | **7.330.26e, A** | **7.280.17c, A** |
| G1 | **7.110.16e,A** | **7.270.28e, A** | **7.240.22c,A** |
| Without initial training population | G10 | 3.930.22b, A | 4.540.14b, B | 5.610.25b, C |
| G9 | 4.640.18c, A | 5.750.28c, B | 6.520.17c, C |
| G8 | 5.610.28d, A | 6.240.19d B | 6.700.25cd, C |
| G5 | 6.430.21e, A | 6.900.22e, B | **7.050.27de, B** |
| G2 | 6.810.28f, A | **6.960.17e, A** | **7.000.30de, A** |
| G1 | **6.780.29f,A** | **6.920.26e, A** | **7.010.23e,A** |

\*The table presents the means and standard deviations (subscript) across 10 replicates for the conventional (C) and genomic (G) scenarios, with numbers indicating the number of phenotype records per lactation. The scenarios in bold did not spend all the available resources. Lower-case letters denote statistically significant differences between scenarios within the same $P:$G and upper-case letters between different $P:$G within the same scenario.