# Supplementary material

**Table S1** Average Years’ worth of Genetic Gain (YGG) with the three-stage testing scenarios of the surrogate sire strategy with one elite donor above the conventional strategy that uses 50 males (BigScenario)

**Table S2** Average Years’ worth of Genetic Gain (YGG) with the three-stage testing scenarios of the surrogate sire strategy with five elite donors above the conventional strategy that uses 50 males (BigScenario)

Table S1 Average Years’ worth of Genetic Gain (YGG) with the three-stage testing scenarios of the surrogate sire strategy with one elite donor above the conventional strategy that uses 50 males (BigScenario)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Progeny test resources1 | Males progeny tested S1 | Progeny/Male S1 | Males progeny tested S2 | Progeny/Male S2 | YGG0.52 | YGG0.72 | YGG0.92 |
| 2000S1/12000S2 | 100 | 20 | 10 | 1200 | 2.2 | 1.5 | 0.9 |
|  |  |  | 20 | 600 | 2.3 | 1.7 | 0.9 |
|  | 200 | 10 | 10 | 1200 | 2.1 | 1.6 | 1.0 |
|  |  |  | 20 | 600 | 2.2 | 1.1 | 0.9 |
|  | 400 | 5 | 10 | 1200 | 2.2 | 1.3 | 0.9 |
|  |  |  | 20 | 600 | 2.3 | 1.5 | 0.8 |
| 4000S1/10000S2 | 100 | 40 | 10 | 1000 | 2.2 | 1.6 | 0.8 |
|  |  |  | 20 | 500 | 2.1 | 1.6 | 0.8 |
|  | 200 | 20 | 10 | 1000 | 2.1 | 2.1 | 0.9 |
|  |  |  | 20 | 500 | 2.2 | 2.1 | 1.0 |
|  | 400 | 10 | 10 | 1000 | 2.3 | 1.7 | 0.9 |
|  |  |  | 20 | 500 | 2.3 | 2.0 | 0.9 |
| 6000S1/8000S2 | 100 | 60 | 10 | 800 | 2.5 | 2.0 | 1.0 |
|  |  |  | 20 | 400 | 2.7 | 2.1 | 1.1 |
|  | 200 | 30 | 10 | 800 | 2.4 | 1.9 | 1.1 |
|  |  |  | 20 | 400 | 2.6 | 2.1 | 1.2 |
|  | 400 | 15 | 10 | 800 | 2.3 | 2.0 | 0.9 |
|  |  |  | 20 | 400 | 2.4 | 2.0 | 0.9 |

Table S2 Average Years’ worth of Genetic Gain (YGG) with the three-stage testing scenarios of the surrogate sire strategy with five elite donors above the conventional strategy that uses 50 males (BigScenario)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Progeny test resources1 | Males progeny tested S1 | Progeny/Male S1 | Males progeny tested S2 | Progeny/Male S2 | YGG0.52 | YGG0.72 | YGG0.92 |
| 2000S1/12000S2 | 100 | 20 | 10 | 1200 | 1.7 | 1.2 | 0.6 |
|  |  |  | 20 | 600 | 1.6 | 1.2 | 0.8 |
|  | 200 | 10 | 10 | 1200 | 1.6 | 1.2 | 0.6 |
|  |  |  | 20 | 600 | 1.5 | 1.0 | 0.3 |
|  | 400 | 5 | 10 | 1200 | 1.6 | 1.1 | 0.7 |
|  |  |  | 20 | 600 | 1.6 | 1.2 | 0.8 |
| 4000S1/10000S2 | 100 | 40 | 10 | 1000 | 1.7 | 1.3 | 0.7 |
|  |  |  | 20 | 500 | 1.7 | 1.2 | 0.6 |
|  | 200 | 20 | 10 | 1000 | 1.6 | 1.3 | 0.4 |
|  |  |  | 20 | 500 | 1.6 | 1.4 | 0.6 |
|  | 400 | 10 | 10 | 1000 | 1.3 | 1.3 | 0.3 |
|  |  |  | 20 | 500 | 1.4 | 1.4 | 0.4 |
| 6000S1/8000S2 | 100 | 60 | 10 | 800 | 1.8 | 1.1 | 0.4 |
|  |  |  | 20 | 400 | 1.8 | 1.4 | 0.7 |
|  | 200 | 30 | 10 | 800 | 1.6 | 1.2 | 0.5 |
|  |  |  | 20 | 400 | 1.6 | 1.2 | 0.5 |
|  | 400 | 15 | 10 | 800 | 1.7 | 1.2 | 0.7 |
|  |  |  | 20 | 400 | 1.6 | 1.2 | 0.9 |