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| **Supplementary Table S1** *Descriptive statistics of potential continuous risk factors for on-farm mortality of beef calves and youngstock in Estonia in 1 January 2013 to 31 December 2015*  |  |
|   | **Calves <1 month** | **Calves 1-5 months** | **Youngstock 6-19 months** | **Youngstock ≥20 months** |
| Variable | median | quartiles | missing observations (n) | P valuea | median | quartiles | missing observations (n) | P valuea | median | quartiles | missing observations (n) | P valuea | median | quartiles | missing observations (n) | P valuea |
| *Animal data* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Birth weight | 40 | 38; 44 | 179 | 0.003 | 40 | 37; 44 | 228 | 0.157 | 40 | 37; 44 | 477 | 0.220 | 40 | 36; 43 | 595 | 0.760 |
| *Farm data* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Average age at first calving in a farm (days) | 951 | 863.3; 1 090.7 | 0 | 0.212 | 951 | 863.3; 1 090.7 | 0 | 0.475 | 964 | 868; 1 090.7 | 0 | 0.289 | 1037.3 | 879; 1 130 | 0 | 0.187 |
| Average proportion of abortions in a farm (%) | 0 | 0; 0.6 | 0 | 0.254 |  0 | 0; 0 | 0 | 0.132 | 0 | 0; 0.6 | 0 | 0.008 | 0 | 0; 0 | 0 | 0.942 |
| Average proportion of first calving cows in a farm (%) | 11.7 | 8.8; 14.6 | 0 | 0.126 | 11.6 | 8.7; 14.4 | 0 | 0.072 | 11.6 | 8.7; 14.4 | 0 | 0.221 | 11.6 | 8.9; 14.4 | 0 | 0.776 |
| Average proportion of not-calving cows in a farm (%) | 9.6 | 6.3; 18.0 | 0 | 0.524 | 9.6 | 6.3; 18.3 | 0 | 0.744 | 9.6 | 6.0; 17.8 | 0 | 0.212 | 12.0 | 6.9; 19.7 | 0 | 0.079 |
| Average proportion of purebreed cows in a farm (%) | 10.1 | 0; 60.1 | 0 | 0.568 | 10.8 | 0; 63.8 | 0 | 0.587 | 10.1 | 0; 57.4 | 0 | 0.569 | 9.7 | 0; 49.6 | 0 | 0.090 |
| Average proportion of purebreed heifers in a farm (%) | 11.9 | 0; 67.0 | 0 | 0.479 | 11.8 | 0; 60.4 | 0 | 0.766 | 11.9 | 0; 60.0 | 0 | 0.543 | 8.9 | 0; 51.6 | 0 | 0.148 |
| Average proportion of stillbirths in a farm (%) | 2.5 | 0.1; 5.9 | 0 | 0.001 | 2.2 | 0.1; 5.4 | 0 | <0.001 | 2.2 | 0; 5.1 | 0 | 0.803 | 2.2 | 0; 4.6 | 0 | 0.230 |
| Farm average calving interval (days) | 400.7 | 380.7; 433.0 | 0 | 0.735 | 401 | 380.3; 434 | 0 | 0.952 | 400.7 | 380.3; 433.0 | 0 | 0.313 | 404.3 | 384.7; 443 | 0 | 0.273 |
| Farm average number of cow-years | 59 | 32.7; 97.3 | 0 | 0.084 | 55.3 | 32.3; 96.3 | 0 | 0.040 | 54.3 | 32.3; 96.3 | 0 | 0.090 | 50.3 | 31; 89.7 | 0 | 0.230 |
| ap-value estimated in univariable Cox proportional hazard model with herd random effect |  |  |  |  |  |  |  |  |  |  |  |