**Supplementary Material**

**Table S1** *Summary of traits’ effects for breeding values estimations*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Fixed Effects** | **Interactions** | **Covariates** | **Random Effects** |
| **LSB/LSR** | **Dam age** | **CG\*** | **Breed of dam at:** | **Other effects** |
| **Birth Weight** | LSB | x | 1 | birth | ET |  |  |  | A D\*\* L |
| **Eight Week Weight** | LSR | x | 2 | weaning | foster code |  |  |  | A D\*\* L |
| **Scan Weight** | LSR | x | 3 | weaning |  | scan age x (CG3) |  |  | A |
| **Fat Depth** | LSR | x | 3 | weaning |  | scan age x (CG3) |  |  | A |
| **Muscle Depth** | LSR | x | 3 | weaning |  | scan age x (CG3) |  |  | A |
| **Fat Weight** | LSR | x | 3 | weaning |  |  |  | CT age | A |
| **Lean Weight** | LSR | x | 3 | weaning |  |  |  | CT age | A |
| **Muscularity** | LSR | x | 3 | weaning |  |  |  | CT age | A |
| **Faecal Egg Count** | LSR | x | 3 | weaning |  | scan age x (CG3) |  |  | A |
| **Lambing Ease** | LSB |  | 4 | birth | ET | birth weight x (LSB) | birth weight x (CG 2) |  | A D\*\* L |

**CG** = Contemporary Group (1: Flock Season Sex; 2: Eight week weight Flock Season Sex; 3: Flock Year Season Management Groups; 4: Flock Season Sex Dam Age), **LSB** = Litter Size Born, **LSR** = Litter Size Reared, **ET** = Embryo transfer, **CT** = Computed Tomography, **A** = animal, **D** = dam, **L** = litter. \* Model used for the UK national evaluation, all the CG include many animals \*\* Dam fitted as maternal additive effect.