

Improved genetic evaluation for calving and birth traits

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Nordisk Avlsværdis Vurdering •

Nordic Cattle Genetic Evaluation

Three changes

- Sire model → Animal model
- Changed scoring scale for calving ease in Sweden
- Jersey data from Sweden and Finland included

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Sire model → Animal model

Purpose:

- Cows can be used in the reference population
- More precise breeding values for cows

Effect:

- Minor for bulls
- Considerably larger for cows

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Changes for cows born after year 2000

- Most re-ranking for cows
 - Corr (ped, AM): 0.80-0.85

Change in EBV index units	Holstein		RDC		Jersey	
	Birth	Calving	Birth	Calving	Birth	Calving
Less than 6 (%)	77	90	79	86	91	91
6-10 (%)	19	9	18	11	7	7
More than 10 (%)	4	1	3	3	2	2

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Scoring scale for calving ease

- Denmark and Finland: 1-4 scale
- Sweden
 - Old scale → 1-2
 - New scale (introduced in 2012) → 1-4

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Use of Swedish data for calving

Previously:

- Old 1-2 scale → variation stand. to Nordic 1-4 scale variation
- New 1-4 scale → pooled in 2 classes → variation stand. to Nordic 1-4 scale variation

Now:

- Old 1-2 scale → variation stand. to Nordic scale 1-4 variation
- New 1-4 scale → variation stand. to Nordic scale 1-4 variation
- Fixed effects for old and new data are different

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Changes for bulls born after year 2009

Birth country of the bull	Across countries		DNK		FIN		SWE	
	Birth	Calving	Birth	Calving	Birth	Calving	Birth	Calving
Holstein	0.95	0.96	0.97	0.97	0.96	0.96	0.89	0.92
RDC	0.96	0.94	0.98	0.94	0.98	0.96	0.92	0.87
Jersey	0.97	0.97						

Effect of change of model

Changes for bulls born after year 2009

Birth country of the bull	Across countries		DNK		FIN		SWE	
	Birth	Calving	Birth	Calving	Birth	Calving	Birth	Calving
Holstein	0.95	0.96	0.97	0.97	0.96	0.96	0.89	0.92
RDC	0.96	0.94	0.98	0.94	0.98	0.96	0.92	0.87
Jersey	0.97	0.97						

Effect of change of model + Swedish data

- Majority of their offspring in Sweden
 - Caused by new scoring for calving ease

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Changes for bulls born after year 2000

Change in EBV index units	Holstein (%)		RDC (%)		Jersey (%)	
	Birth	Calving	Birth	Calving	Birth	Calving
Less than 3	79	70	81	59	64	60
3-5	20	27	17	32	29	32
More than 5	1	3	2	9	7	8

Changes for cows born after year 2000

- Most re-ranking for cows
 - Corr (ped, AM): 0.80-0.85

Change in EBV index units (PED -> AM)	Holstein (%)		RDC (%)		Jersey (%)	
	Birth	Calving	Birth	Calving	Birth	Calving
Less than 6	77	90	79	86	91	91
6-10	19	9	18	11	7	7
More than 10	4	1	3	3	2	2

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Jersey data from Sweden and Finland included

- Most benefit for Swedish and Finnish cows breeding values

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