Report on analyses of RDC maternal single traits

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Single trait evaluation of RDC (maternal) calving traits were made for

- Current parameters and data
- New parameters and snell score data

The results were compared to current and new "full" model by using Trines correlation program

- NAV AI sires born 2010-15
- At least 300 progenies and 100 daughters per sire was required - based on data in the current evaluation. The average reliabilities for the direct traits are 90-96 and for the maternal traits 85-90.

The initial results are shown table 1. As reliability of the sires included in the model is high it is expected a high correlation between single trait evaluation and evaluation by the full model.

- An important result is the very high correlations between current and new single trait evaluation. That indicate that the current and the new model give the same results for the very reliable sires included in this test. The differences we observe with the "full" model are probably due to the parameters used (variances and covariances/correlations)
- For mSB2, the correlation to the current full model was around 0.7, and the correlation to the new full model was somewhat higher, 0.94.
- The correlations to the current model were also lower than expected for dSB1 and dSB2 – and for mSB1 and mCE2

Table 1. Correlations for single traits models

	Current with		Curr single	New with	
	Curr single	New single	New single	Curr single	New single
dSB1	**0.94**	**0.93**	**0.99**	**0.97**	**0.97**
dCE1	**0.99**	**0.99**	**1.00**	**0.99**	**1.00**
dSB2	**0.93**	**0.92**	**0.99**	**0.97**	**0.98**
dCE2	**0.95**	**0.95**	**0.99**	**0.98**	**0.99**
mSB1	**0.93**	**0.93**	**0.99**	**0.98**	**0.99**
mCE1	**0.99**	**0.98**	**0.99**	**0.99**	**0.99**
mSB2	**0.69**	**0.70**	**0.99**	**0.94**	**0.94**
mCE2	**0.90**	**0.89**	**0.98**	**0.94**	**0.96**

All those results indicate that the problem with the RDC results is mainly due to problems with parameters used in the current evaluation.

Therefor, it was decided to analyse the effect of adjusted parameters (correlations) in the current model.

- Adjustment 1(Adj1): Adjustment of mSB-mCE correlations (mSB1-mCE1, mSB2-mCE2, mSB2-mCE1) towards correlations in the new parameters
- Adjustment 2(Adj2): All CS correlations are set to 0 as in the new parameter data
- Adjustment 3(Adj2): Adj1 and Adj2 combined

The results are shown in table 2. Of cause the results for the direct traits remain unchanged because the parameters for the direct traits are left unchanged. Both the adjustment 1, 2 and 3 “improve” the correlations for mSB2.

Table 2. Efftect of adjustments of current maternal RDC parameters

	Curr. single	Current with		Adj1: Current with		Adj2: Current with		Adj3: Current with	
	New single	Curr. single	New single	Curr. single	New single	Curr. single	New single	Curr. single	New single
dSB1	*0.99*	*0.94*	*0.93*	*0.94*	*0.94*	*0.94*	*0.93*	*0.94*	*0.94*
dCE1	*1.00*	*0.99*	*0.99*	*0.99*	*0.99*	*0.99*	*0.99*	*0.99*	*0.99*
dSB2	*0.99*	*0.93*	*0.92*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
dCE2	*0.99*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
mSB1	**0.99**	**0.93**	**0.93**	**0.96**	**0.96**	**0.94**	**0.94**	**0.97**	**0.97**
mCE1	**0.99**	**0.99**	**0.98**	**0.99**	**0.99**	**0.99**	**0.98**	**0.99**	**0.99**
mSB2	**0.99**	**0.69**	**0.70**	**0.72**	**0.73**	**0.78**	**0.78**	**0.87**	**0.87**
mCE2	**0.98**	**0.90**	**0.89**	**0.90**	**0.89**	**0.91**	**0.89**	**0.94**	**0.93**

For the new parameter only one set of adjustment was tested. The main purpose was to test lower correlation between mSB1 and mSB2 because both HOL and JER parameters showed lower correlations for mSB1-mSB2 than for mCE1-mCE2. In order to obtain more harmonic parameters also the correlation for mSB1-mCE2 and mSB2-mCE2 were reduced slightly.

The results are shown in table 3. That also improved the results a slightly for mSB2.

Table 3. Efftect of adjustments of new maternal RDC parameters

	Curr. single	New with		Adj1: New with	
	New single	Curr. single	New single	Curr. single	New single
dSB1	*0.99*	*0.97*	*0.97*	*0.97*	*0.97*
dCE1	*1.00*	*0.99*	*1.00*	*0.99*	*1.00*
dSB2	*0.99*	*0.97*	*0.98*	*0.97*	*0.98*
dCE2	*0.99*	*0.98*	*0.99*	*0.98*	*0.99*
mSB1	**0.99**	**0.98**	**0.99**	**0.98**	**0.99**
mCE1	**0.99**	**0.99**	**0.99**	**0.99**	**0.99**
mSB2	**0.99**	**0.94**	**0.94**	**0.97**	**0.97**
mCE2	**0.98**	**0.94**	**0.96**	**0.95**	**0.96**

Conclusions up to now

The main reason for the low correlation between the current model and the new model for mSB2 in RDC is the very high (too high) correlations used in the current evaluation. The correlations observed for the single traits models indicate that the parameters of the new model are most correct.