

ITC working group
Post –processing of MACE genetic
correlations

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Discussion in ITC Berlin 2014

The Interbull Centre presented a comparison between estimated and post-processed correlations from the January 2014 test run for all traits and breeds.

ITC:

If post-processing changes correlations estimated using valid data and model:

**Are the post-processed correlations
any better than the original?**

Working group:

- ITC recommended to review the correlation post-processing procedures with special attention to :
 - Pairs of countries with poor links (too few common bulls, e.g <50)
 - * Eliminate pairs of countries without or with too few common bulls from the averages and also re-estimate the correlations
 - * Summarize the results for each different window applied in the post-processing.
 - Pairs of countries with strong links but estimated correlations outside the pre-established windows
 - Run the correlations for HOL protein without sub setting

Reactivate the working group that acted during the adoption of post-processing for conformation traits

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Genetic correlation estimation

1. Sub-setting:
Holstein correlations are estimated by 7 country sub-sets. Each subset includes US as a tie provider
2. Other than HOL:
HOL correlations are used as priors in estimation
3. Grouping and Windows:
Countries are divided into groups:
Within each group and across groups :
 - a window of minimum-maximum are defined
 - Estimated correlation is regressed towards group mean

Sub-setting HOL protein

- For testing we can run all correlations simultaneously
 - not feasible in routine
- Intermediate:
 - Include more tie-provider countries

TEST:

1. Run all countries simultaneously
2. Run countries in 10 traits (2*3 +US,FRA,NZL,CHE)
3. Run countries as in routine (2*3 +US)

	Min r_g	Average r_g	Max r_g
No sub-setting	0.30	0.70	0.98
Sub-sets by 10	0.25	0.70	0.97
Sub-sets by 7	0.21	0.70	0.97

Conclusion:

Larger subsets increased the lowest correlation estimate

Recommendation:

Move from 7 country sub-sets to 10 country sub-sets

Windows

- Grouping of countries varies by trait groups
 - E.g. production groups:
 - 1) Grazing,
 - 2) Israel-climate,
 - 3) Others

$$r_{post} = \frac{CB_{ij} * \max(r_{est}, r_{low}) + 10 * r_{\mu}}{CB_{ij} + 10}$$

- Where r_{low} is 0.85 or 0.75 (within, across groups)
and r_{μ} is 0.92 or 0.82 (within, across groups)

Considerations

Windows are still needed to constrict the very low CB_{ij} country pair estimates from artificial low values

- RECOMMENDATION: Country window parameters should be checked

Additional concern: In some trait groups, substitute traits are submitted to evaluations. These might suggest lower than r_{\min} correlations

- RECOMMENDATION: Country window parameters should include trait definitions

Poorly linked countries

- Action:
Correlation estimation was performed for countries having $CB_{ij} < 50$ and $CB_{ij} > 50$
- Results:
 - Post-processing had very little effect on well linked countries
 - For poorly linked countries it gave stability over consecutive estimation rounds
- Conclusion:
 - Post-processing worked expected way