Interbull Scientific Advisory Committee (SAC)

Annual report (2009-2010) to the Interbull Steering Committee

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Points raised during e-mail exchange among members of the group that relate to future Interbull activities are summarised below:

1. Incorporation of information of the new (800K SNP) array and possibly other arrays that may become available: The 800K SNP array will be available by Illumina in 2010. Affymetrix is working on a different high-density array. New custom-made arrays may also appear. Pertinent questions expected to be raised are: (i) which specific arrays do different countries that participate with data in GMACE use? (ii) what type of imputation method (if any) is used to derive high-density genotypes from lower-density arrays in the various countries? (iii) what is the impact of different imputation methods on GEBV accuracy? (iv) which is the best imputation method? (v) how should Interbull combine national genomic EBV based on different arrays and imputation methods?
2. Complete cattle genome sequencing: Once applied commercially, it will raise similar concerns to those of a very larger array, except that the size of the application will be more challenging. This will probably be also accompanied by the detection of more actual genes that affect various traits, a piece of information that should become available to Interbull for more accurate genetic evaluations.
3. Cow and on-farm genomic evaluations: New information derived from these practices will provide the opportunity to enhance the accuracy of official national and international genomic evaluations. At the same time, however, pre-selection intensity may increase leading to evaluation bias problems.
4. Genetic diversity in the global population: Genetic variation has been decreasing over time in various counties. The advent of national and international genomic evaluations offers an opportunity to monitor and enhance genetic diversity, e.g. by decreasing inbreeding. What strategies need to be developed within and across country in this regard?
5. GMACE: The issue of bias in GMACE as well as conventional genetic evaluations due to genomic pre-selection needs to be fully understood and addressed. It is recognised that the Technical Committee and relevant Task Force are involved in these issues.

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