biological point of view. The logical conclusion is that we need to search within national GES and their structural and operational parameters for reasons of low genetic correlations.

The purpose of this set of guidelines is to facilitate a higher degree of harmonization in the things that can be harmonized and to encourage documentation of the things that cannot be harmonized at this juncture of time. It is also hoped that these guidelines act as an Interbull service to increase the quality and accuracy of evaluations at the national and international level. In other words, the aim is to increase clarity in showing the biological and statistical reasons for what is done in national GES.

2 GUIDING PRINCIPLES

Interbull, a sub-committee of ICAR, as an international non-governmental, non-profit organization based on voluntary cooperation of many countries / organizations and considering its history and its international patrons is devoted to and advocates:

- Active utilization of domestic animal genetic resources; as well as
- Effective use of genetic resources globally to obtain the largest sustainable genetic progress.

To achieve this Interbull encourages:

- Development of national GES according to the world’s best practices for a broad range of economically important traits to fit variable objectives in member countries; and also
- Bi- and multi-lateral cooperation between national genetic evaluation centers.

In an across-country evaluation of animals, the ideal situation is characterized by the existence of a balance between variation and resemblance among various countries’ national GES. In a global perspective certain levels of variation in national GES is essential for the evolution of any country’s GES. We need to have the experience of doing things in different ways in order to decide on the modifications and improvements in each and every stage of national and international evaluations. However, too much variation causes the task of international comparisons to become very difficult, if not impossible. Hence, there should be enough resemblance among different countries’ GES so that the information obtained for an animal from one country becomes directly utilizable and valuable in a different country.

What we have observed and concluded from Interbull surveys (especially IBB 24) is that diversification of national GES, leading to higher levels of variation in national GES, seems to be a process that needs no effort and input from outside. The diverse needs and problems within each country are strong enough forces to drive a country’s GES towards adaptation to specific circumstances and adoption of measures that increase variation.

Resemblance among different countries’ GES, however, needs much effort, input and coordination from outside. Naturally, an international cooperative venture, such as Interbull, is the appropriate organization to coordinate efforts that, based on biological and statistical properties of traits and data, will hopefully bring about a desirable level of resemblance among national GES.

The present document is the result of a continuing process initiated and maintained by a large number of breeding organizations in the Interbull member countries and coordinated by the Interbull Centre. The recommendations herewith are the result of a pragmatic compromise between dictates of several perspectives, among others, state of art in theoretical cattle breeding, and needs and capacity of individual farmers to incorporate the recommended changes into their operations. In few cases there is so much difference between practices in different countries that no compromise is in sight. In such cases, clear decisive leadership and simple to adopt and easy to follow recommendations are needed.

The present set of recommendations should ideally serve as a reflection of the best practices in today’s world dairy cattle breeding and also should be able to give valuable insight about what is a sound practice,
should any country start a national genetic evaluation system or change its current system to a different (and hopefully better) one.

Although we believe that the recommendations presented here are the best possible solutions for the current situation prevailing in the Interbull’s member countries and for some foreseeable future (5-10 years), however, they are not to be considered as eternally sufficient. Therefore, there is a need for continuous monitoring and revision of these recommendations at least every five years.

3 GENERAL RECOMMENDATIONS

Interbull recommendations presented here are based on the latest Interbull survey, published as IBB 24, with information on GES in 36 organizations from 31 countries, and titled “National Genetic Evaluation Programmes for Dairy Production Traits Practiced in Interbull Member Countries 1999-2000” (also available through www.interbull.org). As such, these recommendations are concerned only with production traits. However, we have attempted to write it in such a way that it can be of use for other traits as well. At least, the same principles can in most cases be equally well applied to other traits.

Interbull and its parent organization ICAR are continually contributing to the development of guidelines for various stages of genetic evaluation systems. All Interbull member countries are recommended to follow Interbull and ICAR documents (also available through www.icar.org and www.interbull.org). It is recommended that countries that do not yet fulfill these standards move towards these as they change national GES. However, if ICAR and Interbull documents are silent about any matter, it is recommended that other international bodies be consulted before any decisions are made. In cases where no internationally recognized recommendation exists, adoption of procedures similar to those used in other countries is recommended. Of course, in any case detailed documentation of the adopted procedures cannot be overemphasized.

Interbull Recommendation

National genetic evaluation centers should update their GES in a cost-effective manner as the theoretical developments and computer capacity permit. They should also keep official, up-to-date and detailed documentation of all aspects of their GES on the Internet and also update their information on the Interbull web site as soon as any change has taken place.

Further, bilateral and multilateral cooperation between genetic evaluation centers is highly recommended. Cooperation may happen at a low level such as the sharing of computer codes or at a high level such as shared ownership of the genetic material and genetic evaluation systems.

Recommendations presented here should also be viewed holistically as a coherent system. Every specific recommendation pre-supposes acceptance and adherence to many other such specific recommendations. Therefore, and as an example, when “unique identification of all animals” is recommended in one section, then all further reference to “animals” is to be interpreted as “uniquely identified animals”.

4 NATIONAL EVALUATIONS

In this document, different stages of national GES are divided into three parts: Pre-evaluation steps, genetic evaluation, and post-evaluation steps.