Irish Dairy Genetic Evaluations – Update 22nd November, 2002

Brian Wickham, Chief Executive

Irish Cattle Breeding Federation Society Limited.

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1 Animal Evaluations – Dairy Traits

Over the last six month the focus of ICBF's efforts have continued to be on using the database as the source of all data for dairy genetic evaluations and developments include:

1.1 Production Traits

- The system for extracting ancestry and production data from the database and transferring it to Holland has been streamlined so that it now requires less than 48 hours. This replaces a system that previously involved 220 job steps and typically took six weeks.
- Unfortunately, the changes that have been made (by merging data from several sources) to the ancestry, date of birth, calving dates and production for milk recorded cows during the migration to the database have resulted in the current genetic evaluations not meeting INTERBULL's requirements for inclusion in international evaluations. For this reason the Nov '02 domestic evaluations will be the official results for bulls progeny tested in Ireland.
- The Irish evaluations failed on INTERBULL's test 2 – environmental trend is too large. Where other countries have experienced such problems in the past it has usually been due to inappropriate adjustment factors for age and or calving intervals.
- Our plan for restoring the inclusion of Irish evaluations into INTERBULL's international evaluations has been reviewed in association with CR Delta and INTERBULL and includes the following:

    1. Close involvement of CR Delta's technical experts working with Victor Olori and Andrew Cromie. I will be involved in weekly conference calls to review progress.
    2. Completion of data cleaning on dates of birth, parity numbers, missing lactation data, calving dates and duplicate animal records. This work is being carried out by the PL SQL programmers recently appointed as part of our strategy for increasing the resource available for this purpose.
    3. A detailed comparison of the data used for the February 2002 genetic evaluations (this was the last time that the INTERBULL test statistics were completely "normal") and that used for the November 2002 evaluations. The purpose of this comparison is to identify all of the differences between the two sets of data and to identify those that could explain the reason the Irish evaluations failed on Test 2. As a result of this comparison it is expected that one or more possible explanations will be found and that further data cleaning may be sufficient to solve the problem.
    4. Preparation for running of INTERBULL test 3. This test was last conducted for Ireland in 1999 and is a prerequisite for any countries where there are significant changes to correction factors or the genetic evaluation model.

5. On the completion of steps 2, 3 and 4 the domestic evaluations will be rerun and subjected to all three of INTERBULL's tests. If the results of these tests are within tolerance then INTERBULL will accept Irish evaluations for inclusion in the **February 2003 international evaluations**.
6. In preparation for the possibility that the outcome of step 5 is unfavourable, the pre-correction factors and genetic parameters used in Ireland will be re-estimated. The pre-correction factors were last estimated in 1999 by Victor Olori when the change was made from the USA based DAFRD system to using the CR Delta system. Dan Murphy estimated the other parameters some 15 years ago. As part of this work the genetic evaluation model will be reviewed with a view to eliminating the need for pre-correction factors and improving the accuracy of the evaluation system. If new correction factors are used or a new genetic evaluation model is implemented then INTERBULL require participation in test run before entering into an official international evaluation run. The next INTERBULL test run commences in March 2003 which means that Irish proofs would be accepted for the **May 2003 international evaluations**.
7. **Summary.** Irish evaluations will re-enter international evaluations in either February 2003 or May 2003 depending on the outcome of current investigations. In the meantime results for newly proven foreign tested bulls will continue to be available via INTERBULL and conversion equations will be available to convert Irish domestic evaluation to the base and units of any country that participates in INTERBULL for the Holstein Breed.

1.2 Linear Traits

- Data extracts from the database were supplied to Edinburgh University for linear scores collected in Ireland for pedigree and progeny test animals in 2002.
- Joint domestic (for UK & Ireland as one) evaluations have been completed, sent to INTERBULL and international evaluations are now with ICBF.
- For the first time evaluations for condition score have been computed. This development was the subject of a feature in the winter AI supplement of the Farmers Journal. Condition score is an early predictor for calving interval – lower condition score indicates greater calving intervals.

1.3 Calving Interval and Survival

- Ancestry and relevant calving interval and survival data has been extracted from the database and supplied to Roel Veerkamp's group.
- Sire model evaluations have been computed and correlations between these initial results and the May '02 evaluations are under investigation. Until the results of this research are available and reviewed the May '02 results are being used as the official results.
- Research by Roel Veerkamp's group is continuing and results obtained in the last few days are looking promising.

- Current plans are to extend evaluation model to an animal model that will provide evaluations for bulls and cows and to have these results available for February '03.

1.4 Calving Ease & Gestation Length

- With the large amount of calving ease data gathered in the spring of 2002 through Animal Events there is a need to incorporate this data into the calving survey system.
- The calving survey data collected in 2002 provides, for the first time, information on the cow giving birth including sire, parity, breed etc. This information can be used not only to make the estimation of the direct effect on calving difficulty more accurate but it can also be used to estimate the maternal effect. That is, the ease with which daughters give birth.
- Gestation length evaluations require access to insemination records. AI companies are being requested to provide insemination data for loading to the data for this purpose and also for validation of sires codes from animal events.
- Our plan is:
    - To complete the loading of available insemination records (from 2001 for calves born in 2002).
    - Place the historical calving ease data into a permanent file associated with the database.
    - Develop a calving survey extract system for: ancestry data, animal events calving ease, calf mortality and gestation length from the database and combine this data with historical calving ease data. This combined file will be provided to Roel Veerkamp's team for research and development of an enhanced calving ease, calf mortality and gestation length evaluation system.
    - Roel's team will conduct the research, produce a prototype system and produce test evaluations for review by the AI industry.
    - Subject to acceptance by the industry these evaluations will be rerun in April 2003 to include calving ease data accumulating in the spring of 2003.

1.5 Publication of Evaluations

A decision was taken to redevelop the publication system in order to greatly simplify it while at the same time reducing the time taken.

The systems used for preparing genetic evaluations for publication are in the final stages of redevelopment and will be used to publish November '02 evaluations. The new system includes the following steps:

a. **Genetic evaluation results for sets of traits are loaded into IRIS**. There is a separate loading process for each of Production Traits, Calving Interval & Survival, Stand Linear Traits and Extra Linear Traits. These evaluations are stored in IRIS and are visible to users with appropriate security clearance. At this stage they are not used for Pedigree Certificates or Herd Reports.

b. **Extract(s) for Publication**. A extract from the database combines the latest evaluations with relevant details (ID, ancestors, owner, genetic evaluations etc) for the animals whose results are to be published. Several extracts will be produced – for printing, for loading to ICBF website, for downloading to farmers PCs' etc.

c. **Publication**. The above extracts are distributed to the cattle breeding industry, added to the ICBF website and Pedigree Certs and Herd Reports are given access to the new results already stored on the database.

At the time of writing step b. is under final testing and step c. is to be completed by Friday 29th November, 2002.

Reference: \\Icbf-server1\data\Shared\Company\Web News\Dairy Genetic Evaluations Update 22 11 2002 by Brian Wickham.doc