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Changes in USDA-DHIA genetic evaluations (May 1997)

H.D. Norman, R.L. Powell, G.R. Wiggans, and P.M. VanRaden

Animal Improvement Programs Laboratory, USDA-ARS, Beltsville, MD 20705-2350, USA
301-504-8334 (voice) 301-504-8092 (fax) rlaipl@ggpl.arsusda.gov http://aipl.arsusda.gov

Quarterly evaluations

The Animal Improvement Programs Laboratory (AIPL) began quarterly (February, May, August, November) release of USDA-DHIA genetic evaluations for yield traits (milk, fat, and protein), somatic cell score, productive life, and associated economic indexes in May 1997. The evaluations included all data received by AIPL through March 28, 1997. **Summer 1997 evaluations will be released on August 11, and fall 1997 evaluations will be released on November 3.**

Type evaluations were updated in May 1997 by Holstein Association USA but were not computed for other breeds. To allow production-type indexes to be updated for these other breeds, parent averages for type from February 1997 were made available.

More frequent evaluations had been proposed and discussed by U.S. industry groups since 1990. Shorter generation intervals and faster genetic progress can result from more frequent evaluations. Benefits from more frequent evaluations were summarized in the *Proceedings of the Symposium on Continuous Evaluation in Dairy Cattle, College Park, MD* [Misztal (ed.), 1993, Dept. Anim. Sci., Univ. of IL, Urbana]. In this proceedings, Lohuis *et al.* reported 7 to 9% faster genetic progress from continuous evaluation. Changing the frequency of evaluation from two to four times per year could result in a 4% increase in genetic progress.

Historically, USDA has calculated evaluations more frequently for new bulls or those with many additional daughters. Before computer technology became available or affordable, evaluations were calculated by hand throughout the year. From 1941 through 1966, between 4 and 12 evaluations were released each year. Three evaluations were released annually from 1967 through 1977.

Other countries including Austria, Denmark, France, Italy, and Switzerland calculate more than two evaluations per year. Canada began quarterly releases in the fall of 1996. Quarterly release dates for the United States and Canada are now synchronized.

Impact of quarterly release on bull use

Test evaluations of dairy cattle calculated by AIPL in October 1996 allowed assessment of how more frequent evaluations might impact use of artificial-insemination (AI) bulls. Of 170 Holstein bulls with a test predicted transmitting ability (PTA) for protein of at least 60 lb, 46 had not been evaluated in July 1996. The average PTA protein for these 46 bulls, which included the two bulls with the highest test PTA's for protein, was 67 lb; the average number of daughters was 20. In February 1997 when the first official evaluations became available for these bulls, their average PTA for protein declined to 63 lb, and their average number of daughters increased to 40. For all but 6 of the 46 bulls, PTA protein was 50 lb or more. For the 12 bulls not evaluated in July 1996 and with a test PTA for protein of at least 70 lb, average PTA's for protein were 74 lb for the test and 71 lb in February 1997; corresponding average numbers of daughters were 18 and 40. For the 124 bulls with evaluations in July 1996 and February 1997, average absolute changes in PTA protein were reduced with more frequent evaluations: 4.2 lb from July 1996 to February 1997, 3.5 lb from July to October 1996, and 2.9 lb from October 1996 to February 1997. For active AI Holstein bulls, corresponding changes were 3.3, 2.4, and 2.6 lb. Test PTA's were lower for 16 of 18 bulls designated as active AI in July 1996 that had decreases of 10 lb or more for PTA protein in February 1997.

More frequent evaluations should result in less change between consecutive evaluations, earlier release of genetic information for new bulls, and more timely indications of changes for marketed bulls. Earlier access to genetic information could increase the rate of genetic improvement in the United States by allowing earlier recognition of bulls with high merit for desired traits and earlier reassessment of previously high bulls.

Distribution of evaluations

To facilitate the additional effort required for computation of quarterly evaluations and exchange of information, AIPL established its web (**http://aipl.arsusda.gov**) and file transfer protocol (FTP) (**ftp://aipl.arsusda.gov**) sites as the primary methods of distributing evaluations. In addition, distribution of many memorandums, microfiche, and computer tapes has been discontinued; this information also was made available at AIPL's web site.

Evaluation files are available for downloading using FTP from AIPL or other host sites. For files that differ by recipient, each cooperator must request an account from AIPL to access those specific files. The April 28, 1997, memorandum "Electronic Distribution of USDA-DHIA Genetic Evaluations" provides further details on accessing the released information, including file names, sizes, and security information.

Foreign bulls

Many countries have adjusted their evaluation schedules to coordinate with the February release of evaluations by the International Bull Evaluation Service (INTERBULL) and had new national evaluations since February. Designation of official evaluations for bulls with both May USDA-DHIA and February INTERBULL evaluations (including daughters from outside the United States) were based on the reliabilities of the two evaluations. As in February, the USDA-DHIA evaluation was official if its reliability was at least 80% or less than 5% lower than the INTERBULL reliability. Conversion equations are appropriate for foreign bulls without INTERBULL or USDA-DHIA evaluations.

Files of INTERBULL evaluations (format 31) were updated to provide changes in net merit dollars, percentiles, and usability codes that indicate whether an evaluation is official or not. Files with all official evaluations (USDA-DHIA or INTERBULL) were created and made available as was a file with INTERBULL evaluations that have been designated official for bulls with evaluations included in the format-380 file.

Converted evaluations were prepared from Canadian evaluations and made available in INTERBULL format 31. Bulls were included if they had a new evaluation in Canada with 10 herds or more and did not have a USDA-DHIA or INTERBULL evaluation. Converted evaluations were necessary for these bulls because they did not have INTERBULL evaluations.

Electronic distribution of INTERBULL and converted evaluations is described in the April 28, 1997, memorandum “Electronic Distribution of USDA-DHIA Genetic Evaluations.”