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Changes in USDA-DHIA genetic evaluations (February 1997)

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Owner-sampler records

For the first time, records from plans coded 40 to 77, which include owner-sampler test plans, were used in USDA-DHIA genetic evaluations. However, data from herd-years were excluded if 1) <40% of cows had complete identification information (cow, sire, and birth date), 2) <81% or >117% of recorded milk was shipped, or 3) the number of outliers was greater than a ceiling based on herd size. Data also were excluded for cows that calved before July 1, 1996, because quality certification of laboratories and meters could not be ensured for records collected previously. Records were included from 10,849 cows in plans coded 40 to 77. The predicted transmitting abilities (PTA's) for cows with a first lactation recorded in one of these plans are **not** official and were not included in released files.

Milk pricing

Dollar values of yield traits are now aimed at anticipated future prices and are constant instead of changing each year to the previous year's prices. This pricing strategy will help prevent temporary market conditions from affecting long-term breeding goals. Price adjustments are scheduled to occur at genetic base changes so that dollar values can be compared more easily from year to year. The new formula for the milk-fat-protein dollars (MFP$) index is **.031(PTA milk) + .80(PTA fat) + 2.00(PTA protein)**.

Breed associations also are aiming at future prices and are holding values of yield traits constant in their indexes. However, their goals differ greatly. Relative index weights for protein:fat are 5 for Guernseys, 4 for Jerseys, 3 for Holsteins, 2.5 for Brown Swiss, and 2 for Ayrshires and Milking Shorthorns. In the new MFP$ index, the standardized relative weight for protein:fat is 2 (ratio of actual weights is 2.5). None of the breed associations assigns a value to the water (carrier) in milk, but most researchers believe a positive value will continue in the United States.

Evaluation formats

Two new variables for bull evaluations (format 380) are the percentage of daughters with first lactations from plans coded 40 to 77 and the mean inbreeding coefficient of daughters. When a record had both type-of-test <40 and ≥40 present, the record was designated as type-of-test ≥40 if the days in milk were greater for that type of test.

For cows, a new format (105N) was adopted. This format includes country code in the identification fields, sum of lactation weights, and percentile based on net merit dollars (NM$). Users may receive all fields or subsets of the format to reduce computer processing.

INTERBULL evaluations

Release dates for USDA-DHIA genetic evaluations were changed to February and August to coincide with releases of evaluations by the International Bull Evaluation Service (INTERBULL). The USDA-DHIA evaluations available on February 10 are based on U.S. data only. The INTERBULL results available electronically on February 11 are in format 031. A code in the format-031 record indicates whether or not the INTERBULL evaluation is considered official by USDA. The Council on Dairy Cattle Breeding decided that USDA-DHIA evaluations will be official for all bulls with a USDA-DHIA reliability of 1) ≥80% or 2) ≤4% below their INTERBULL reliability. Unofficial evaluations are for information only and should not be used in marketing or published in any form.

The NM$ index is available for all USDA and INTERBULL evaluations. If a bull had no U.S. daughters, NM$ was estimated by regression on the milk-fat-protein dollars index. Expected correlated differences in productive life and somatic cell score were included in the regression.

Canadian and U.S. evaluations no longer are combined in a separate process because INTERBULL evaluations available at the same time combine daughters from many nations. The process for updating parent averages was retained but used information from the previous Canadian evaluation for Canadian bull dams. Previous INTERBULL evaluations also were used if they would have been official based on current USDA-DHIA evaluations (previous INTERBULL reliability ≥5% above current USDA-DHIA reliability and current USDA-DHIA reliability <80%). The updating process was applied for both progeny-test bulls and bulls with evaluations based on ≤150 daughters.

Active AI update

Evaluations for bulls designated by artificial insemination (AI) organizations as being actively marketed are included in the listing for active AI bulls if the bulls are progeny tested in the United States or if their USDA-DHIA evaluation reliability is ≥80% regardless of country of initial sampling. A bull's INTERBULL evaluation is reported on the active AI list if it qualifies as official (INTERBULL reliability ≥5% above USDA-DHIA reliability and USDA-DHIA reliability <80%). For foreign bulls with semen available in the United States, a separate listing with their INTERBULL evaluations is provided.

More frequent evaluations

Additional releases of USDA-DHIA genetic evaluations are planned for May and November. The next release date is May 5, 1997, for AI progeny-test bulls, non-AI bulls without previous evaluations, and all cows.

Internet access

Many cooperators already are familiar with evaluation files, formats, and reference notes available through file transfer protocol. Correspondence, research reports related to genetic evaluations, and evaluations for individual cows and bulls are available through the Animal Improvement Program Laboratory home page (**http://aipl.arsusda.gov**). For data suppliers such as dairy records processing centers and breed associations, password-controlled access to additional applications is available. Animal identification can be processed as a file instead of individually for some of those applications.

Genetic trend

Estimates of genetic trend obtained by comparing cows born in 1992 and 1993, the most recent years with complete data available, are in Table 1. Estimated average PTA's for calves that will be born in 1998 are in Table 2. These are the calves expected to result from matings using 1997 semen purchases. Average sire merit was projected for these calves and also is shown in Table 2. The estimates were obtained by extending the increasing rates of progress observed for PTA's of cows born since 1983.

Tables 1 and 2 may help remind producers to update their selection standards to keep current with the genetic merit of the general population and to use the best bulls that become available each year.

TABLE 1. Annual increase in PTA's for cow birth years 1992 and 1993.

Breed	Milk	Fat	Protein	PL	SCS
	lb	*lb*	*lb*	*mo*	
Ayrshire	80	3	2	.08	.00
Brown Swiss	100	4	4	.10	.00
Guernsey	110	5	4	.09	–.01
Holstein	147	5	5	.13	.00
Jersey	151	5	5	.21	.02
Milking Shorthorn	95	3	3	.18	.00

TABLE 2. Expected average PTA's of calves born in 1998 and of their sires based on current estimates of trend for each breed.

	PTA milk		PTA fat		PTA protein		PTA PL		PTA SCS	
Breed	Calves	Sires	Calves	Sires	Calves	Sires	Calves	Sires	Calves	Sires
	lb	*lb*	*lb*	*lb*	*lb*	*lb*	*mo*	*mo*		
Ayrshire	694	945	21	26	22	32	.70	.81	3.14	3.05
Brown Swiss	881	1,327	38	58	33	51	.78	.78	3.21	3.19
Guernsey	897	1,328	37	53	32	48	.67	.82	3.22	3.04
Holstein	1,232	1,781	37	47	40	56	1.06	1.29	3.14	3.08
Jersey	1,272	1,822	37	44	41	57	1.66	2.54	3.44	3.54
Milking Shorthorn	796	1,004	27	35	27	31	1.41	1.72	2.85	2.87