

FACTS ON SIRE EVALUATION PROCEDURES APPLIED FOR NON-PRODUCTION TRAITS

COUNTRY: UNITED STATES OF AMERICA

Trait(s):	<u>REPRODUCTION</u> a) Calving performance <u>MILKABILITY</u> b) Udder conformation <u>LOCOMOTION</u> c) Legs <u>OTHER</u> d) Other body conformation traits
Breed(s):	[I] Holstein (a-d) [III] Ayrshire, Brown Swiss, Guernsey, Jersey, Milking Shorthorn, Red and White (b-d)
Trait definition and unit(s) of measurement	a) Dystocia - expressed as percentage of difficult births in heifers b) In total seven udder and teat conformation traits scored on a 50 point scale c) Rear foot side view, angle (50 point scale) d) Seven other conformation traits scored (50 point scale)
Method of measuring and collecting data	a) Dairymen records scores, on scale 1 (No problem) to 5 (Extreme difficulty), as calving occur and the data is collected by some of the milk recording programs by AI organizations. b-d) Visual, breed association classifiers appraisers
Time period for data inclusion	a) Oldest sires are born in 1964 b,c) [I] Since 1982; [III] Since 1980 d) [I] Final score since 1955, others traits since 1982; [III] Final score since 1972, others since 1980.
Age groups considered	All
Genetic parameters assumed	a) σ_s^2 : 0.0381; σ_{hys}^2 : 0.1601; σ_e^2 : 1.0000; h^2 : 0.147 b) Different for each trait and breed
Sire categories evaluated	a) AI bulls; b-d) All
Environmental effects considered by pre-adjustment	a) None b-d) Age at calving, state of lactation
by evaluation model	a) Herd*year*season, sex of calf, parity b-d) [I] Herd*classification date, animal, PE, herd-by-sire interaction; [III] Herd*classification date*parity, genetic groups, herd-by-sire interaction
Base for age adjustment	-

FACTS ON SIRE EVALUATION PROCEDURES APPLIED FOR NON-PRODUCTION TRAITS

COUNTRY: UNITED STATES OF AMERICA

Use of genetic groups and/or relationship	<p>a) Bulls are grouped by birth year of sire. Relationships considered are sires and MGS of bulls with progeny.</p> <p>b-d) <u>[I]</u> All relationship used with unknown parents groups; <u>[III]</u> Grouping on pedigree index for final score.</p>
Method of evaluation	<p>a) Ordered categorical analysis using a threshold model.</p> <p>b-d) <u>[I]</u> MT BLUP AM; <u>[III]</u> BLUP SM</p>
Expression of proof	<p>a) Evaluations are expressed as the expected percentage of difficult births when heifers give birth to a bull calf in the winter. A difficult birth is one that is scored 4 or 5.</p> <p>b-d) PTA , STA</p>
Genetic (reference) base	<p>a) Fixed base of bulls born prior to 1977</p> <p>b-d) Stepwise, cows born in 1985</p>
Criteria for official publication of sire proofs	<p>a) Generally it is 20 calving</p> <p>b-d) <u>Guernsey and Holstein</u>: 10 daughters; <u>Other breeds</u>: 5 daughters and 20% reliability</p>
Number of evaluations/publications per year	2/2
Use in total merit index	<p>a) No</p> <p>b-d) <u>Holstein</u>: [3*protein (kg) + 1*fat (kg) + 1*final score + 1*udder composite]; <u>Jersey</u>: [4*protein (kg) + 1*fat (kg) + 1*functional trait index]; <u>Others</u>: [4*protein (kg) + 2*fat (kg)+1*final score]</p>
Name, address and faxnumber of organization responsible for sire evaluation and publication	<p>a) National Association of Animal Breeders P.O. Box 1033 Columbia, MO 65205 Tel: 314/445-4406 Fax: 314/446-2279</p> <p>b-d) Animal Improvement Programs Laboratory Bldg. 263 BARC-East 10300 Baltimore Avenue Beltsville, Maryland 20705-2350 U.S.A. Tel: 301-504-8334 Fax: 301-504-8092</p> <p>- Holstein Association 1 Holstein Place Brattleboro, VT 05301 Tel: 802-254-4551 Fax: 802-254-8251</p>

FACTS ON SIRE EVALUATION PROCEDURES APPLIED FOR NON-PRODUCTION TRAITS

COUNTRY: UNITED STATES OF AMERICA

Key references on methodology
applied

- a) Djemali, M., Berger, P.J. and Freeman, A.E. 1987. Ordered categorical sire evaluation for dystocia in Holsteins. J. Dairy Sci. 70. 2374
- Clutter, A.C., Berger, P.J. and Mattison, J.M. 1989. Threshold model analysis of dystocia in dairy cattle when progeny information is limited. J. Dairy Sci. 72. 3264
- b-d) Norman, H.D., Cassell, B.G., King, G.J., Powell, R.L. and Wright, E.E. 1979. Sire evaluation for conformation of Jersey cows. J. Dairy Sci. 62. 1914
- Misztal, I., Lawlor, T.J. and Short, T.H. 1993. Implementation of single and multiple trait animal models for genetic evaluations of Holstein type traits. (Submitted to J. Dairy Sci.)