

# FACTS ON APPLIED SIRE-EVALUATION PROCEDURES FOR DAIRY PRODUCTION TRAITS

COUNTRY	CANADA
Breed(s)	Ayrshire, Guernsey, Holstein, Jersey
Traits evaluated and units of measurement	Milk, fat, protein (BCA = Breed Class Average), fat %, protein %
Number of lactations	1
Genetic parameters applied	$h^2$ (milk, fat, protein BCA) = 0.25 $h^2$ (fat %, protein %) = 0.50
Inclusion and extension of records	Records terminated after 120 days are included Records in progress 90 days or more are extended For records in progress using Schaeffer's non-linear method
Sire categories evaluated	All AI and NS bulls
Effects considered	
by preadjustments	Age and month of calving
by model of evaluation	Herd-year-season, sire, gen. group of sires
Base of age adjustment	BCA
Use of genetic groups/relationships/pedigree	AI separately from NS/add. gen. rel.ship matrix/sires and maternal grandsires
Method of evaluation used	Single trait BLUP
Expression of genetic merit	PD (BCA-points)
Genetic base, kind/definition	Rolling, <b>bulls</b> with min. 20 daughters (rec.) in 5 herds whose first daughters calved during previous 4 years (5 years for Ayrshire, Guernsey, Jersey)
Minimum requirements for official publication of sire proofs	Daughters in $\geq 5$ herds, rpt $\geq 0.55$
Use of selection index or total merit index	Total merit index not used
Name and address of organization responsible for sire evaluations and publishing of results	Animal Production Division Agriculture Canada Sir. John Carling Building Ottawa, Ontario K1A 0C5, Canada
Key references on methodology applied	Batra & Lee. 1984. Comparison of three methods of predicting 305-day lact. production in dairy cattle. Can. J. Anim. Sci. Schaeffer, Freeman & Burnside. 1975. Evaluation of Ontario Holstein dairy sires for milk and fat production. J. Dairy Sci. 58:109-115.

## Number of bulls tested, means and standard deviations of proofs by year

Year of first proof	No. of bulls	Milk (BCA)		Fat (BCA)		Fat %		Prot.(BCA)		Protein (%)	
		$\bar{x}$	S.D.	$\bar{x}$	S.D.	$\bar{x}$	S.D.	$\bar{x}$	S.D.	$\bar{x}$	S.D.
<b>Breed: Ayrshire</b>											
1976	7	0.7	5.9	0.9	4.8	0.00	0.06	1.8	6.7	0.02	0.04
77	10	4.7	4.7	3.5	4.3	-0.03	0.05	4.3	4.9	-0.01	0.03
78	12	2.5	4.4	2.5	5.4	0.00	0.11	2.6	4.3	0.00	0.06
79	11	-0.1	4.7	0.6	3.7	0.01	0.05	0.0	4.0	0.00	0.05
80	9	-2.8	4.7	-0.7	4.4	0.06	0.09	-1.8	4.7	0.02	0.03
81	15	3.1	6.3	2.3	5.4	-0.01	0.07	1.7	5.8	-0.03	0.05
82	8	-2.2	5.7	-2.5	2.7	0.00	0.16	-2.6	5.4	0.00	0.03
83	6	-0.5	5.8	0.7	4.4	0.04	0.09	-0.2	4.6	0.01	0.03
84	14	3.6	4.9	3.6	5.6	0.00	0.11	4.1	4.9	0.01	0.06
85	12	4.3	4.6	3.7	4.4	-0.02	0.10	3.7	4.4	-0.02	0.04
<b>Breed: Guernsey</b>											
1976	1	-3.0		-8.0		-0.20					
77	2	0.5		3.5		0.11					
78	3	-7.0		-6.0		0.02					
79	2	-8.5		-7.0		0.03					
80	2	-4.0		1.0		0.18					
81	1	-2.0		-2.0		0.02					
82	2	-0.5		-1.5		-0.03					
83	1	7.0		-1.0		-0.26					
84	3	-5.7		-0.7		0.17					
85	3	2.7		2.3		0.00					
<b>Breed: Holstein</b>											
1976	67	-3.3	5.4	-5.0	5.4	-0.04	0.12	-3.7	4.9	-0.01	0.05
77	83	-4.1	5.2	-4.9	5.4	-0.02	0.13	-4.7	4.9	-0.02	0.05
78	93	-4.4	4.2	-4.9	5.1	-0.01	0.12	-4.8	3.8	-0.01	0.04
79	109	-4.7	5.2	-5.0	5.4	0.00	0.11	-4.6	4.6	0.00	0.05
80	91	-4.2	5.5	-5.0	5.2	-0.02	0.12	-4.5	4.6	-0.01	0.05
81	96	-1.1	6.0	-1.1	5.8	0.00	0.12	-1.1	5.1	0.00	0.05
82	119	-1.2	5.1	-0.3	5.4	0.02	0.12	-1.0	4.6	0.01	0.05
83	127	-0.6	5.4	-0.3	5.9	0.01	0.14	-0.5	4.6	0.00	0.06
84	151	1.1	5.5	1.0	6.3	-0.01	0.13	1.1	5.0	0.00	0.06
85	172	1.3	5.1	1.8	5.7	0.01	0.12	1.0	4.7	-0.01	0.05
<b>Breed: Jersey</b>											
1976	5	-3.2		-5.2		-0.09					
77	5	-0.6		-4.2		-0.15					
78	7	3.1		-0.9		-0.16					
79	2	2.0		-1.0		-0.12					
80	4	1.0		0.0		-0.03					
81	2	-2.5		-2.0		0.02					
82	3	7.0		4.7		-0.08					
83	5	-1.0		-2.2		-0.07					
84	5	-2.2		0.2		0.10					
85	2	9.0		7.0		-0.10					

## Average phenotypic levels of (adjusted) production records included in the sire evaluation procedures

Year of calving	Milk (BCA)	Fat (BCA)	Protein (BCA)	Fat %	Protein %
<b>Breed: Ayrshire</b>					
1976	143.7	140.3	147.1		
77	149.0	144.6	151.2		
78	152.6	149.4	156.6		
79	154.1	152.5	167.4		
80	155.5	154.3	166.3		
81	155.9	153.3	168.4		
82	160.5	157.5	171.8		
83	160.4	157.1	169.1		
84	164.4	160.5	168.0		
<b>Breed: Guernsey</b>					
1976	134.2	127.6	170.0		
77	136.5	130.0	174.5		
78	137.5	133.0	183.6		
79	141.5	135.6	181.0		
80	140.6	135.7	172.1		
81	144.5	138.0	174.3		
82	147.9	140.0	182.0		
83	148.9	142.6	172.0		
84	151.7	144.7	153.6		
<b>Breed: Holstein</b>					
1976	126.6	126.7	124.4	3.76	3.17
77	128.6	128.0	124.9	3.73	3.15
78	131.1	131.1	128.6	3.69	3.14
79	132.0	132.8	133.5	3.75	3.16
80	132.1	133.1	130.3	3.76	3.17
81	134.0	134.5	131.3	3.76	3.19
82	136.4	137.0	135.3	3.72	3.15
83	139.5	140.4	139.8	3.75	3.10
84	142.4	143.4	141.9		
<b>Breed: Jersey</b>					
1976	126.7	120.9	140.1		
77	130.7	124.4	131.9		
78	133.7	127.3	131.5		
79	133.4	128.1	140.0		
80	135.7	129.9	145.8		
81	138.3	131.5	152.9		
82	143.0	133.9	158.1		
83	145.1	136.5	154.8		
84	147.1	138.9	149.7		