

COUNTRY'S NAME	GREAT BRITAIN
Production traits	Milk, Fat and Protein
Breed	Holstein Friesian, Ayrshire, Dairy Shorthorn, Guernsey, Jersey, Jersey Island and Guernsey Island
Trait definition and unit of measurement	Direct: Milk, fat and protein (kg); Indirect: Fat and protein (%). Records received from official milk recording organisations in the UK.
Criteria for inclusion & extension of records	Records from non-identified sires excluded from system. Records in progress included for 1 st lactations, heifers must have at least 3 tests. Naturally terminated records are not extended.
Time period for data inclusion	Completed 305 day records since 1977 are analysed within the system.
Sire categories	All Sires Foreign sires (& cow) information merged with UK information.
Number of lactations included in the evaluation	5 (lactation 1 receives weight 1.0, later lactations receive weight 0.8)
Environmental effects: Pre-adjustment	Age within lactation, lactation number, month of calving, calving interval, heterogeneity of variance, % heterosis, % recombination Date last considered – 1995/96
Base for age pre-adjustment	Holsteins: 30 months, Jersey: 28 months, Shorthorn and Guernsey: 32 months and Ayrshire: 33 months
Method (model) of genetic evaluation	ST – R – BLUP – AM
Environmental effects in the genetic evaluation model	Fixed: Herd*year*season, Random: Herd*sire, Permanent Environment, Animal
Use of genetic groups	Groups by year of birth and sex of animal, sex of parent and country of origin, all relationships used
Genetic parameters in the evaluation	Heritability: yield = 0.35 (1st Lactation) Heritability: yield = 0.30 (Later Lactations) Permanent Environment = 0.16, Herd* sire = 0.04 Repeatability = 0.55
System validation	Full validation applied on entry to system, includes date of birth, calving dates, cow sire/dam identities. Trends monitored routinely
Expression of genetic evaluations	PTA (yield traits in kg, content traits in %)
Genetic (reference) base	Stepwise base, average PTA of cows born 1995 (PTA2000).
Next base change	Feb 2005, to average PTA of cows born in 2000 (PTA2005).
Criteria for official publication of evaluations	Bulls REL ≥ 50%, Cows ≥ 30%
Number of evaluations / publications per year	4: February, May, August, November
Use in production / total merit index	$\text{£PIN} = (-0.03*\text{PTA milk kg}) + (0.50*\text{PTA fat kg}) + (3.00*\text{PTA protein kg})$ $\begin{aligned} \text{£PLI} = & (\text{Milk PTA} \quad \quad \quad \times \quad \quad -0.03) \quad + \\ & (\text{Fat PTA} \quad \quad \quad \times \quad \quad 0.50) \quad + \\ & (\text{Protein PTA} \quad \times \quad \quad 3.00) \quad + \\ & (*\text{Lifespan PTA} \quad \times \quad \quad 28) \end{aligned}$ <p style="text-align: center;">*For bulls/cows with Lifespan PTA</p> <p>In the case of foreign Holstein Friesian bulls</p> $\begin{aligned} \text{Lifespan PTA} = & (\text{Foot Angle} \quad \quad \quad \times \quad 0.034) \quad + \\ & (\text{Fore Udder Attachment} \quad \times \quad 0.117) \quad + \\ & (\text{Udder Depth} \quad \quad \quad \times \quad 0.022) \quad + \\ & (\text{Teat Length} \quad \quad \quad \times \quad -0.089) \end{aligned}$ <p>Once the Lifespan PTA has been calculated it should be rounded to 1 decimal place, e.g. 0.04 = 0.0 and then used in the formula to calculate £PLI. £PLI is calculated for all breeds.</p>

Anticipated changes in the near future	Working towards Test Day Model
Key reference on methodology applied	Wiggans, G.R., Misztal, I. And Van Vleck, L.D.1988. Implementation of an Animal Model for Genetic Evaluation of Dairy Cattle in the United States. Proceedings of the Animal Model Workshop, J.D.Sci. vol 71, Suppl. 2, 54 - 69.
Key organisation: name, address, phone, fax, e-mail, web site	Animal Data Centre Limited Fox Talbot House Greenways Business Park Bellinger Close Chippenham Wilts SN15 1BN Tel: 01249 467272 Fax: 01249 467273 E-mail: enquiry@animaldata.co.uk Web Site: www.animaldata.co.uk

COUNTRY: Great Britain

Number of AI bulls (NB) tested, means (X), and standard deviations (SD) of PTA (kg, %) from most recent run, by bulls' year of birth (YB) and breed.

YB	NB	Milk		Fat		Protein		Fat %		Protein %	
		X	SD	X	SD	X	SD	X	SD	X	SD
Breed											
Holstein Friesian Bulls											
1983	1244	-103	210	-4.8	8.3	-3.8	5.9	-0.01	0.10	-0.01	0.05
1984	1248	-85	206	-4.3	7.9	-3.2	5.9	-0.01	0.10	-0.01	0.05
1985	1201	-52	231	-3.2	8.5	-2.1	6.6	-0.02	0.11	-0.01	0.05
1986	1238	37	277	0.0	9.6	0.6	7.9	-0.02	0.12	-0.01	0.05
1987	1170	53	260	1.0	9.2	1.3	7.3	-0.02	0.12	-0.01	0.05
1988	1333	99	285	3.0	10.1	2.9	8.2	-0.02	0.11	0.00	0.05
1989	1328	152	291	4.2	9.9	4.3	8.4	-0.03	0.11	-0.01	0.05
1990	1254	218	278	6.4	9.5	6.4	7.9	-0.04	0.12	-0.01	0.05
1991	1321	297	272	8.5	9.2	8.5	7.9	-0.06	0.11	-0.02	0.04
1992	1395	349	266	10.0	8.9	10.4	7.7	-0.07	0.11	-0.02	0.04
1993	1192	438	255	13.3	8.7	12.7	7.4	-0.08	0.11	-0.02	0.04
Breed											
Ayrshire Bulls											
1982	131	-58	177	-3.2	7.3	-2.4	5.3	-0.02	0.08	-0.01	0.04
1983	117	-24	255	-1.7	9.8	-0.8	7.8	-0.02	0.06	0.00	0.04
1984	125	-44	181	-1.4	7.9	-1.4	5.9	0.00	0.08	0.00	0.04
1985	95	33	242	1.3	10.3	1.3	7.7	0.00	0.07	0.00	0.04
1986	86	-15	191	-0.1	8.3	0.0	6.0	0.01	0.08	0.01	0.04
1987	98	23	244	2.0	9.7	1.1	7.0	0.02	0.09	0.01	0.05
1988	88	12	238	1.9	11.3	1.0	7.6	0.02	0.07	0.01	0.04
1989	77	55	205	3.5	9.0	2.1	6.0	0.02	0.09	0.00	0.05
1990	85	69	249	3.9	9.5	2.8	7.1	0.01	0.08	0.01	0.04
1991	76	87	220	5.4	8.7	3.2	6.2	0.03	0.07	0.00	0.04
1992	73	160	223	8.2	9.5	5.7	6.5	0.02	0.08	0.00	0.04
Breed											
Jersey Bulls											
1984	70	-23	143	-2.8	9.3	-0.9	5.3	-0.04	0.12	0.00	0.05
1985	71	36	264	0.7	12.6	0.9	8.4	-0.02	0.17	-0.01	0.05
1986	63	28	230	-0.5	12.6	0.4	7.6	-0.04	0.15	-0.01	0.05
1987	81	10	222	-0.1	12.1	0.0	7.3	-0.02	0.16	0.00	0.06
1988	67	58	215	4.1	12.8	2.6	7.8	0.03	0.18	0.01	0.06
1989	74	65	227	3.3	13.0	2.2	7.7	-0.02	0.20	-0.01	0.06
1990	70	33	226	1.4	14.3	1.0	7.9	-0.02	0.16	0.00	0.05
1991	61	143	253	5.5	12.1	4.5	8.0	-0.05	0.18	-0.02	0.06
1992	59	138	223	6.0	11.9	4.8	7.5	-0.04	0.14	-0.01	0.05
1993	45	293	247	12.0	12.3	9.6	7.9	-0.09	0.15	-0.03	0.06
1994	20	365	194	16.3	7.4	11.4	5.0	-0.10	0.18	-0.06	0.07
Breed											
Guernsey Bulls											
1982	26	-24	163	-0.9	7.3	-0.5	4.9	0.02	0.09	0.01	0.04
1983	22	-52	154	-3.2	6.2	-1.2	4.5	0.01	0.07	0.02	0.03
1984	29	-66	135	-3.0	6.9	-2.0	4.3	0.00	0.10	0.00	0.04
1985	16	26	230	1.0	10.4	0.9	6.6	0.00	0.08	0.00	0.04
1986	22	-28	205	-2.7	7.2	-0.8	6.5	-0.01	0.08	0.01	0.04
1987	19	39	239	0.3	10.3	0.7	6.9	-0.02	0.05	0.00	0.04
1988	25	-1	163	-0.2	6.9	0.4	5.4	0.00	0.08	0.01	0.03
1989	28	62	228	1.5	9.7	2.2	7.5	-0.02	0.11	0.00	0.04
1990	26	87	220	3.0	9.5	2.5	7.0	-0.01	0.09	-0.01	0.05
1991	20	93	166	2.0	7.8	2.5	5.2	-0.05	0.10	-0.01	0.05
1992	22	97	216	2.2	8.3	2.7	6.0	-0.05	0.09	-0.01	0.03

Shorthorn Bulls											
Breed											
1983	17	41	229	2.5	8.7	1.4	5.7	0.02	0.08	0.00	0.1
1984	12	71	323	3.9	13.8	2.2	9.0	0.02	0.14	0.00	0.1
1985	13	119	270	4.9	15.6	3.4	10.3	0.00	0.12	-0.01	0.1
1986	11	8	146	2.9	8.3	1.3	5.6	0.06	0.13	0.02	0
1987	13	33	362	0.5	15.6	0.7	10.3	-0.02	0.08	0.00	0.1
1988	37	23	183	2.0	8.8	0.9	5.9	0.02	0.07	0.00	0
1989	21	-7	163	-0.1	6.3	-0.1	4.4	0.00	0.07	0.00	0
1990	30	57	213	2.7	9.6	1.3	6.2	0.01	0.10	-0.01	0
1991	22	39	177	1.2	6.6	1.5	5.3	-0.01	0.07	0.01	0.1
1992	20	57	226	2.1	8.6	1.8	6.8	0.00	0.07	0.00	0
1993	11	50	183	2.7	8.2	1.4	5.1	0.02	0.10	0.00	0.1
Jersey Island Bulls											
Breed											
1983	20	-25	130	-0.5	7.7	-0.7	4.7	0.03	0.11	0.01	0.1
1984	20	-22	134	-2.9	5.8	-1.2	4.1	-0	0.13	-0.01	0.1
1985	15	-21	90	-2.5	5.6	-1.3	3.0	-0	0.15	-0.01	0.1
1986	28	-13	117	-1.4	6.2	-0.8	3.9	-0	0.11	-0.01	0.1
1987	31	-52	119	-2.8	7.1	-1.7	4.3	0.00	0.13	0.01	0.1
1988	23	-33	124	-1.2	7.0	-1.2	4.7	0.02	0.13	0.00	0
1989	22	16	144	0.2	6.3	0.0	4.7	-0.01	0.16	-0.01	0.1
1990	33	-6	123	-0.5	6.2	-0.8	4.1	0.00	0.11	-0.02	0.1
1991	23	33	131	-0.2	7.0	0.4	4.6	-0.1	0.13	-0.02	0
1992	23	79	135	2.6	5.6	2.1	4.6	-0.1	0.10	-0.02	0.1
1993	15	75	138	3.7	5.7	2.2	4.6	-0	0.12	-0.02	0
Guernsey Island Bulls											
Breed											
1981	8	-64	142	-3.7	4.5	-1.7	3.9	-0	0.10	0.01	0
1982	16	-129	155	-4.3	8.8	-3.9	5.0	0.04	0.10	0.02	0
1983	7	-109	157	-2.7	7.3	-2.4	5.3	0.06	0.11	0.03	0
1984	10	-39	107	-3.7	6.3	-1.6	3.4	-0	0.12	-0.01	0
1985	7	-17	226	-0.5	9.4	-0.5	7.1	0.01	0.10	0.00	0
1986	8	-48	208	-3.4	8.4	-1.0	7.2	-0	0.11	0.01	0
1987	10	18	166	-0.3	7.4	0.7	5.0	-0	0.09	0.00	0
1988	7	80	204	-0.1	9.9	2.3	6.3	-0.1	0.10	-0.01	0
1989	11	35	200	2.0	10.6	2.7	7.7	0.01	0.10	0.03	0
1990	17	128	157	2.9	7.6	4.1	4.6	-0.1	0.10	-0.01	0
1991	6	127	221	3.6	12.5	5.4	5.6	-0.1	0.18	0.02	0.1

COUNTRY: Great Britain

Average (X) and standard deviation (SD) of PTA (kg) from the most recent evaluation run, by daughters' year of calving (YC), number of cows (NC) and breed.

YC	NC	Milk		Fat		Protein		Fat %		Protein %	
		X	SD	X	SD	X	SD	X	SD	X	SD
Breed Holstein Friesian Cows											
1986	224118	-85	157	-4.0	6.3	-3.1	4.5				
1987	209397	-71	161	-3.3	6.5	-2.5	4.7				
1988	219717	-51	165	-2.4	6.9	-1.8	4.8				
1989	226517	-29	176	-1.6	7.2	-1.1	5.1				
1990	245164	2	185	0.0	7.8	0.0	5.5				
1991	250715	45	198	1.9	8.3	1.5	5.9				
1992	239510	101	208	3.6	8.4	3.4	6.2				
1993	259692	162	215	5.5	8.3	5.4	6.4				
1994	275881	238	221	7.6	8.1	7.6	6.4				
1995	251649	321	223	9.7	7.9	9.8	6.4				
1996	178963	378	217	10.7	7.5	11.4	6.2				
Breed Ayrshire Cows											
1986	7175	-54	154	-3.5	6.3	-2.2	4.7				
1987	6292	-37	158	-2.3	6.7	-1.6	4.8				
1988	5585	-7	165	-1.3	6.7	-0.5	5.0				
1989	5825	-1	161	-0.5	6.9	-0.1	5.0				
1990	5885	-2	166	-0.1	7.0	-0.1	5.1				
1991	5746	23	175	1.2	7.6	0.8	5.4				
1992	5394	32	180	1.8	7.6	1.2	5.4				
1993	5585	70	190	3.7	8.3	2.6	5.9				
1994	5586	93	193	4.6	8.2	3.2	5.9				
1995	5100	117	195	5.6	8.2	4.0	5.8				
1996	2240	158	206	7.3	8.6	5.2	6.0				
Breed Jersey Cows											
1986	4830	-22	121	-2.7	7.3	-0.9	4.2				
1987	4386	-21	119	-2.3	7.3	-0.9	4.2				
1988	4362	-19	124	-1.9	7.8	-0.8	4.4				
1989	4379	-4	131	-0.5	8.4	-0.2	4.7				
1990	4639	-4	132	-0.3	8.5	-0.2	4.7				
1991	4769	13	145	1.4	9.3	0.6	5.2				
1992	4647	44	153	2.8	9.3	1.6	5.3				
1993	4592	80	180	4.2	10.1	2.7	6.2				
1994	4729	148	213	6.5	10.9	4.8	6.9				
1995	4146	188	218	7.6	10.5	5.8	7.0				
1996	3248	219	211	9.6	10.4	7.3	6.9				
Breed Guernsey Cows											
1986	2502	-42	117	-1.8	5.6	-1.2	3.7				
1987	2344	-36	117	-1.6	5.7	-1.1	3.7				
1988	2259	-19	133	-0.6	6.2	-0.6	4.2				
1989	2207	0	132	-0.1	6.2	-0.1	4.1				
1990	2266	1	130	0.0	6.1	0.0	4.1				
1991	2289	6	139	-0.1	6.3	0.2	4.4				
1992	2020	28	145	0.6	6.5	0.9	4.6				
1993	1953	69	150	1.9	6.7	2.2	4.8				
1994	2051	69	151	1.9	6.6	2.1	4.6				
1995	1813	96	163	3.4	6.9	3.0	4.9				
1996	1027	111	151	3.8	6.3	3.5	4.5				

Breed		Shorthorn Cows							
1985	1051	-51	153	-2.2	6.3	-1.4	4.6		
1986	1047	-53	154	-2.1	6.3	-1.3	4.5		
1987	976	-38	155	-1.4	6.7	-1.0	4.6		
1988	989	-24	157	-0.8	6.9	-0.6	4.7		
1989	1054	-18	166	-0.8	7.0	-0.4	4.9		
1990	1087	1	170	0.1	7.0	0.1	5.0		
1991	1195	6	164	0.5	6.9	0.2	4.9		
1992	1095	16	159	0.5	6.8	0.4	4.8		
1993	1205	34	183	2.0	8.7	1.2	6.0		
1994	1347	49	182	2.4	8.2	1.6	5.8		
1995	1247	80	171	3.1	7.3	2.4	5.2		
Breed		Jersey Island Cows							
1986	726	-20	108	-1.3	5.9	-0.7	3.8		
1987	628	-18	105	-1.2	5.8	-0.6	3.7		
1988	719	-16	114	-1.8	6.0	-0.8	3.9		
1989	865	-8	114	-1.1	6.3	-0.4	4.0		
1990	939	-1	114	-0.1	6.4	-0.1	4.0		
1991	811	-9	117	-0.8	6.5	-0.6	4.1		
1992	833	15	122	-0.2	6.3	0.1	4.2		
1993	877	23	118	0.6	6.4	0.4	4.2		
1994	900	43	124	1.3	6.5	0.9	4.2		
1995	800	57	119	2.1	6.2	1.7	4.0		
1996	704	61	109	2.6	5.7	1.9	3.7		
Breed		Guernsey Island Cows							
1985	447	-98	126	-3.0	5.8	-3.0	3.9		
1986	448	-93	132	-2.6	6.5	-2.8	4.2		
1987	485	-95	134	-3.1	6.5	-2.8	4.3		
1988	446	-52	149	-1.3	7.4	-1.6	4.8		
1989	455	-13	163	0.1	7.8	-0.2	5.2		
1990	423	-2	161	-0.2	7.7	-0.1	5.1		
1991	434	10	164	-0.2	8.0	0.3	5.1		
1992	492	30	161	0.3	7.6	0.9	5.2		
1993	561	58	164	2.1	8.3	2.2	5.4		
1994	483	78	160	2.0	7.9	2.5	5.0		
1995	450	107	165	3.5	8.1	3.4	5.1		