

Profitable Lifetime Index and Spring Calving Index for promoting the genetic potential of a herd

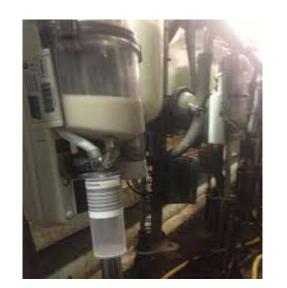
Andy Dodd – AHDB Dairy Technical Extension Officer – Breeding & Fertility

Today

- Introduction
- What have UK genetics achieved?
- Profitable Lifetime Index £PLI
- Spring Calving Index £SCI
- TB Advantage
- Herd Genetic Reports
- Summary



How do we get bull proofs?



3 x per year





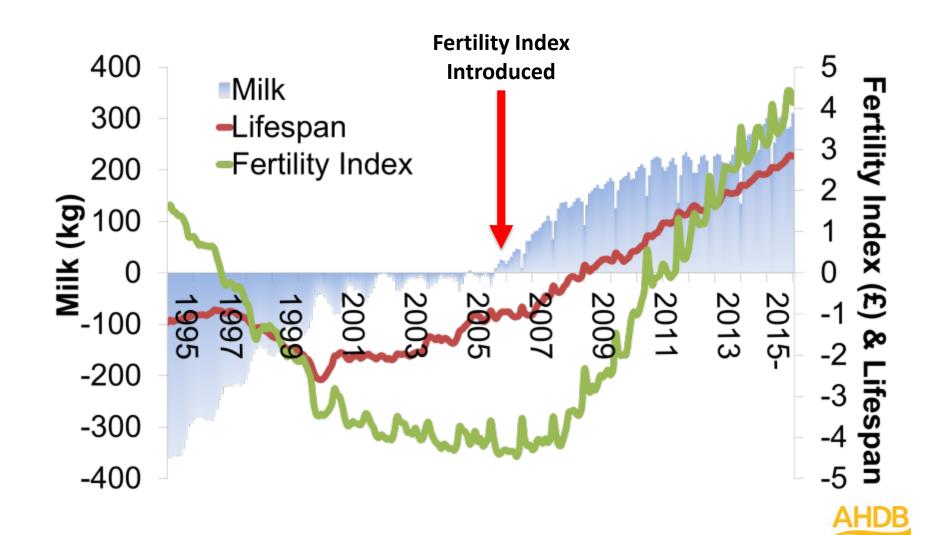




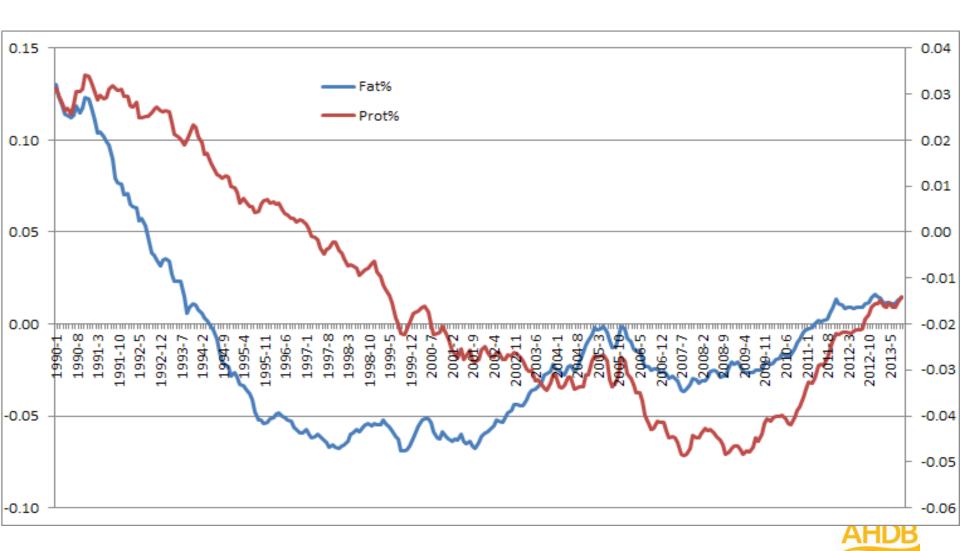




Genetic Progress!



Fat and Protein Percentage

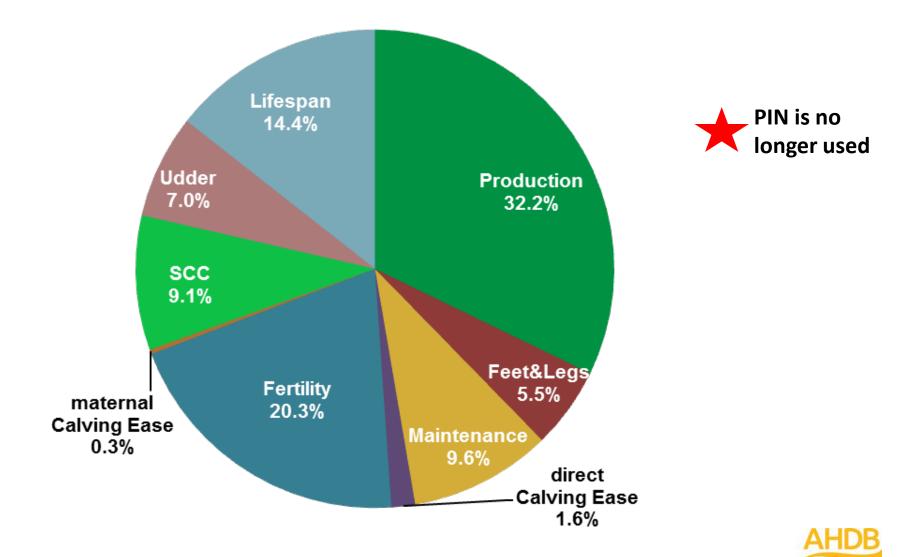


Profitable Lifetime Index

- For AYR and autumn calving herds
- Within breed index
- Evolved since mid 2000's
- Replaced £PIN
- Last updated in August 2014
- Increased emphasis on health traits
- Introduction of Maintenance



Profitable Lifetime Index - £PLI



Top Holstein Bulls

BUT HUGE VARIATION!

- Top milk +927
- Bottom milk -200
- Top fat% +0.29
- Bottom fat% 0.22
- Top FI + 20.4
- Bottom FI − 2.6
- Top SCC 32
- Bottom SCC + 10

Trait	Apr-14	Dec - 15
Milk (kg)	403	413
Fat (kg)	20.9	18.9
Prot (kg)	16.9	15.96
Fat (%)	0.06	0.03
Prot (%)	0.05	0.03
Maint.	12	2.43
SCC	-10	-13
Lifespan	0.2	0.4
Fertility	4.5	8.6
dCE (%)	1	0.8
mCE (%)	0.7	1
Udder	1.38	1.1
Legs	1.46	1.1
TM	1.64	1.3

www.dairy.ahdb.org.uk/breeding



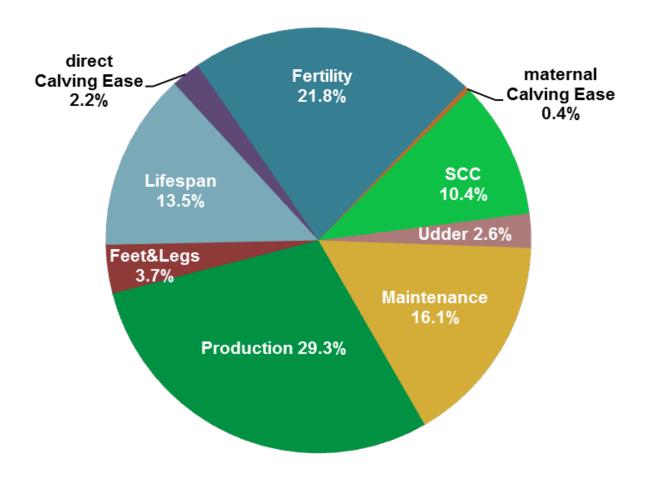
Introduce new index in Aug-2014

- Spring Calving Index £SCI targeted towards
 - Spring block calving herds
 - Making extensive use of grass
 - Approx 4,500kg milk target
 - Across breed index
 - Geared towards constituents
 - Strong emphasis on health

Select for desired traits for own Herd not just top 10 bulls!



Spring Calving Index - £SCI





Top £SCI Bulls

Massive range

- Milk +862 to -415
- Fat kg +30.6 to -8.7
- Protein +26.1 to -9.5
- Fat % +0.59 to -0.3
- Pro % +0.24 to -0.09
- Fertility +17.8 to -5.4
- SCC -30 to +10

Trait	Apr - 15
Milk (kg)	272
Fat (kg)	14.62
Prot (kg)	11.24
Fat (%)	0.08
Prot (%)	0.05
Maint.	-11.01
SCC	-9
Lifespan	0.3
Fertility	6.5
Udder	0.58
Legs	0.71
TM	0.73
	VHD



TB Genetic Evaluations – "TB Advantage"

- Previous research has shown 9% heritability of resistance
 - Funded by Defra and Welsh Government
 - Carried out by Edinburgh University, Roslin and SRUC

- Produce genetic evaluations for bTB resistance
 - Advised by Genetics Advisory Forum
 - Approved and Funded by AHDB Dairy Board



Correlation to other traits

Trait	No. sires	Correlation
Milk kg	9,835	0.03
Fat kg	9,835	0.04
Protein kg	9,835	0.05
Fat %	9,835	0.01
Protein %	9,835	0.03
scc	9,813	-0.05
Lifespan	9,727	0.08
Fertility index	7,274	0.06
Calving ease (direct)	4,494	0.07
Calving ease (maternal)	4,754	0.07
Maintenance	5,904	-0.05
Profitable Lifetime Index (£PLI)	9,835	0.11



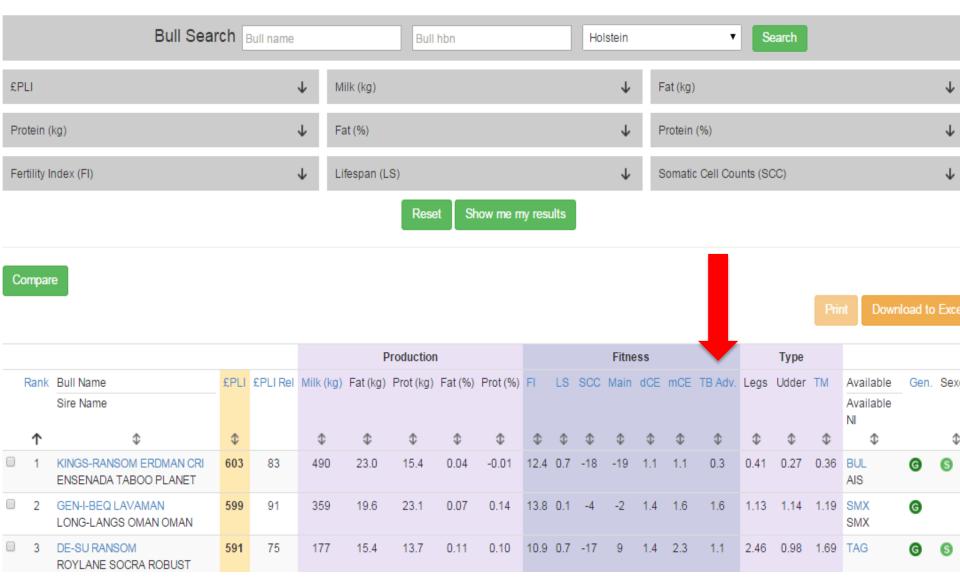
Bull examples

TB Advantage	Sire	% Dtrs infected		% Grand-dtrs infected
-2.7	LANCELOT	9.3%	17	6.3%
-2.4	ALZI JUROR FORD	11.6%	16	5.8%
2.4	O-BEE MANFRED JUSTICE	2.8%	66	2.8%
3.5	LAUDAN	3.0%	13	3.7%

- 22,119 grand-dtrs combined for these 4 sires
- Difference in grand-dtrs infected → 3.3%
 - = 22,119 * 3.3% = 720 Extra infected cows!



Available Holstein Bulls - 839 results





Herd Genetic Reports (HGR)

- Available for milk recording herds (NMR,CIS,UDF)
- Gives the genetic potential of every milking animal on the farm
- Available for 3rd party access by vets, consultants and breeding advisors
- Allows strengths and weaknesses to be easily identified



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Breeding & Genetics

UK breeding objectives

Bull search

Herd genetic reports

£PLI

£SCI

Useful resources & related information

Glossary of terms

Data Partners

Genetic evaluation publication dates

TB Advantage

Buildings

Environment

BREEDING & GENETICS

Welcome to the AHDB Dairy genetic evaluations homepage

AHDB Dairy Breeding is the independent source for the latest UK genetic evaluation results, explanations of the indices and statistical analysis of all major breeds in the United Kingdom.

To ensure you use the genetics best suited to your business, please select from the correct index below to be directed to the relevant bull lists. Further details on each index can be found below via the links below.

Use £SCI for -
Spring block calving herds
Making extensive use of spring grass targeting 4,500 kgs/yr
Across-breed selections
Low level of input through autumn and winter
Click for £SCI

Click for your Herd Genetic Report



Summary

HERD GENETIC REPORT SUMMARY Herd Number: 909036600 Evaluation Date: December 2015 Evaluation Group: Holstein

							Predicted Tra	nsmitting Abili	ty (PTA 2014)	Herd Average	S		
	Lactation Group	Number of animals	£PLI	Inbreeding %	Rel %	Milk (kg)	Fat (kg)	Prot (kg)	Fat (%)	Prot (%)	Lifespan	SCC	Fertility Index
ð	0-12 months	85	255	2.2	34	71	10.6	6.1	0.10	0.05	0.25	-8.5	4.2
ð	12-18 months		195	2.2	37	110	9.9	6.3	0.07	0.03	0.19	-5.2	1.7
ð	18-24 months	33	205	1.5	37	64	7.1	5.4	0.06	0.04	0.19	-6.8	4.0
ð	24+ months	69	132	2.0	39	13	3.2	3.0	0.03	0.03	0.10	-2.8	3.3
/	1st Lactation	73	122	1.8	51	10	3.4	2.1	0.04	0.02	0.13	-5.8	2.0
1	2nd Lactation	57	79	2.0	63	60	4.6	4.2	0.03	0.03	0.08	0.6	-0.3
•	3rd Lactation	27	56	2.0	66	55	3.6	3.1	0.02	0.02	0.01	-1.9	0.8
•	4th Lactation	34	61	1.8	67	-20	1.6	2.1	0.03	0.03	0.03	-2.6	0.8
•	5th Lactation	13	-43	2.6	68	-15	-0.2	1.5	0.01	0.03	-0.07	0.1	-3.8
•	>5th Lactation	21	-19	1.6	68	-252	-5.5	-5.0	0.06	0.04	0.03	-3.1	0.4
	Average	458	136	2.0	48	30	5.1	3.6	0.05	0.03	0.13	-4.3	2.0

View youngstock report

View milking herd report



Holstein Herd Standards

Compare

The table below shows your current herd averages bench marked (highlighted in yellow) against current UK breed percentiles. Each trait is evaluated individually; a herd in the top 1% for milk can equally be in top 10% for protein. All averages are calculated from the course.



Percentile	£PLI	PTA Milk (kg)		PTA Prot (kg)	PTA Fat (%)	PTA Prot (%)	Lifespan	SCC	Fertility Index
1	129	275	7.9	6.2	0.12	0.08	0.28	-6	10.4

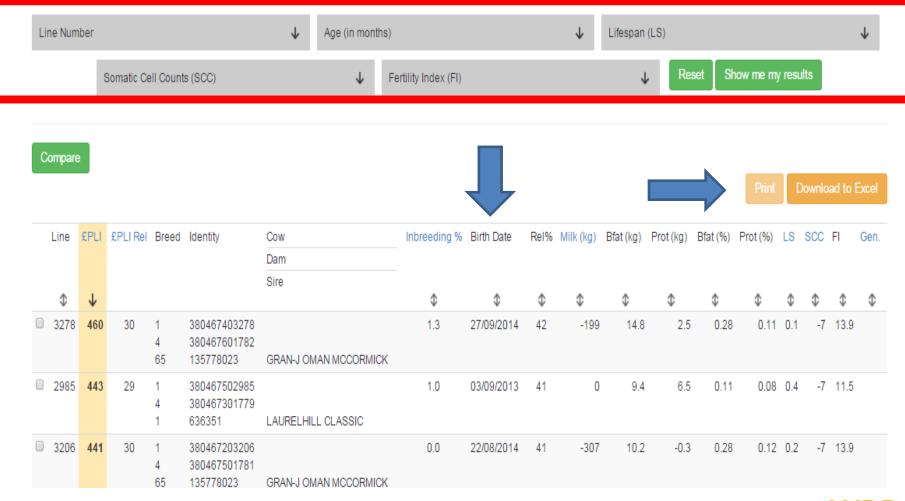


													L	1 1016				
Line	£PLI	£PLI Rel	Breed	Identity	Cow	PI	Curr Lact	Inbreeding %	Rel%	Milk (kg)	Bfat (kg)	Prot (kg)	Bfat (%)	Prot (%)	LS	SCC	FI	Gen.
					Dam													
					Sire													
\$	4					\$	\$	\$	\$	\$	Φ	Φ	\$	\$	\$	Φ	\$	\$
38	371	30	1 1 1	380467703036 380467702140 636351	LAURELHILL CLASSIC	0	1	3.6	41	308	10.6	13.2	-0.02	0.04	0.4	-16	8.8	
540	319	47	1 1 1	380467102540 380467301758 631308	COGENT TWIST		2	2.9	66	292	19.3	16.4	0.09	0.08	0.2	-11	-1.1	
4019	297	32	1	380487403019 380487601187	187	(3)	1	2.7	42	67	4.7	5.9	0.03	0.05	0.4	-15	9.2	





Youngstock Genetic Report - 233 results





Herd Sire List - 81 results

Compare

rint Download to Ex

								Production			Fitness					
Dai	ughter Count	Bull Name	Breed	£PLI	£PLI Rel	Milk (kg) ◆	Fat (kg)	Prot (kg)	Fat (%)	Prot (%)	FI 💠	LS	scc	Main	Gen.	Y. Sire
	37	BALLYCAIRN TIERGAN	HOLSTEIN	312	97	-1	14.0	6.0	0.18	0.08	-1.0	0.3	-16	-8	G	
	32	LAURELHILL CLASSIC	HOLSTEIN	533	88	305	10.3	16.2	-0.02	0.08	15.7	0.6	-16	10	G	
	27	COGENT TWIST	HOLSTEIN	425	98	399	31.9	18.5	0.20	0.07	-2.6	0.6	-12	23	G	
	22	GRAN-J OMAN MCCORMICK	HOLSTEIN	527	99	-84	19.0	4.6	0.29	0.09	20.4	0.2	-13	-2	G	
	17	COGENT AZURE	HOLSTEIN	197	98	616	9.7	18.4	-0.17	-0.02	6.2	-0.1	18	4	G	
	16	HYDAWAYS GOLDMINE	HOLSTEIN	150	97	259	6.8	1.7	-0.04	-0.08	-1.9	0.2	-21	0	G	
	12	KED OUTSIDE JEEVES	HOLSTEIN	204	99	317	8.0	4.4	-0.06	-0.07	6.5	0.4	3	-3	G	
	11	ABS RIVIERA	HOLSTEIN	208	96	247	7.1	14.4	-0.03	0.08	1.1	0.2	-5	-2	G	
	11	BAKOMBRE	HOLSTEIN	372	88	738	33.9	24.5	0.06	0.01	-4.4	0.2	0	-1	G	
	11	BURLANE TENNYSON	HOLSTEIN	244	99	563	17.4	14.9	-0.06	-0.04	3.7	0.0	-14	4	G	
	10	BILSROW JOCK	HOLSTEIN	205	95	332	19.5	15.2	0.08	0.05	-3.7	0.1	0	3	G	
	8	BO-IRISH KRUISER	HOLSTEIN	117	90	-17	8.8	-0.9	0.12	0.00	5.3	-0.1	-10	3	G	
	8	WILTOR CRUISE	HOLSTEIN	482	68	535	23.6	20.0	0.03	0.03	7.1	0.3	-14	14	G	YS



Breeding for M, F + P kg's

							D		bility (PTA 2014)	Herd Avera	ges		
	Lactation Group	Number of animals	£PLI	Inbreeding %	Rel %	Milk (kg)	Fat (kg)	Prot (kg)	Fat (%)	Prot (%)	Lifespan	SCC	Fertility Index
€	1st Lactation	54	24	4.7	57	298	3.4	4.5	-0.10	-0.06	0.05	-2.8	-0.5
•	2nd Lactation	49	52	4.4	66	328	6.3	6.3	-0.08	-0.05	0.04	-1.0	-0.5
•	3rd Lactation	40	21	4.3	67	294	4.7	4.9	-0.08	-0.05	0.02	1.1	-1.6
•	4th Lactation	40	1	4.6	69	233	0.5	2.0	-0.10	-0.06	0.03	-1.3	0.2
€	5th Lactation	21	-19	4.0	69	226	-0.5	2.7	-0.11	-0.06	0.03	0.1	-0.6
•	>5th Lactation	22	-10	3.6	70	86	-2.3	-1.0	-0.07	-0.05	0.09	1.2	1.5
	Average	226	18	4.4	65	265	2.8	3.8	-0.09	-0.06	0.04	-0.8	-0.4



Percentile	£PLI	PTA Milk (kg)	PTA Fat (kg)	PTA Prot (kg)	PTA Fat (%)	PTA Prot (%)	Lifespan	SCC	Fertility Index
1	115	265	7.6	5.9	0.12	0.08	0.27	-6	10.3
5	73	173	4.5	3.4	0.08	0.05	0.19	-4	6.1
10	53	126	3.2	2.3	0.06	0.04	0.15	-3	3.8
15	41	96	2.2	1.6	0.05	0.03	0.13	-2	2.6
20	32	69	1.6	1.0	0.04	0.03	0.11	-2	1.9
25	25	45	1.0	0.6	0.03	0.02	0.10	-1	1.4
30	19	25	0.5	0.2	0.03	0.02	0.09	-1	1.0
35	14	6	0.0	-0.2	0.02	0.01	0.08	-1	0.7
40	9	-13	-0.5	-0.6	0.02	0.01	0.07	0	0.5
45	3	-33	-1.0	-1.0	0.01	0.01	0.06	0	0.2
50	-2	-50	-1.5	-1.4	0.01	0.00	0.05	0	0.0
55	-7	-68	-2.0	-1.8	0.00	0.00	0.05	0	-0.2
60	-13	-90	-2.6	-2.3	0.00	0.00	0.04	1	-0.4
65	-19	-114	-3.3	-2.9	-0.01	-0.01	0.03	1	-0.6
70	-26	-143	-4.0	-3.5	-0.01	-0.01	0.02	1	-0.9
75	-33	-176	-4.9	-4.3	-0.02	-0.01	0.01	2	-1.1
80	-42	-215	-6.0	-5.2	-0.02	-0.02	0.00	2	-1.3
85	-54	-264	-7.4	-6.3	-0.03	-0.02	-0.01	3	-1.6
90	-71	-329	-9.7	-8.0	-0.04	-0.03	-0.03	3	-2.0
95	-104	-443	-13.3	-11.2	-0.05	-0.04	-0.06	5	-2.5
									ALIDD



Line	<u>£PLI</u>	Breed	Identity	Ped. Status	Cow	Curr Lact	Inbreeding %	Rel%	Milk (kg)	Bfat (kg)	Prot (kg)	Bfat (%)	Prot (%)	Lifespan	SCC	Fertility Index
					Dam								┸	,		
\$	\$				Sire	\$	\$	\$	\$	\$	\$	\$	A	\$	\$	\$
													0.40	-		
396	-119	1 1 65				1	4.7	60	490	-3.0	1.6	-0.26	-0.16	0.0	-8	-3.2
883	-287	1 1 1				4	3.8	70	300	-9.9	-2.8	-0.26	-0.15	-0.2	-1	-7.1
997	27	1 1 65				4	4.3	68	208	2.1	-4.9	-0.07	-0.14	0.3	-4	5.1
183	-117	1 1 65				2	5.3	67	668	15.6	8.9	-0.12	-0.14	-0.2	-3	-11.8
340	-158	1 1 64				1	5.6	56	430	-3.4	1.5	-0.24	-0.14	-0.1	-6	-4.9
126	13	1 1 65				3	5.2	68	635	8.0	8.0	-0.19	-0.14	0.2	1	-3.6
980	-10	1 1 65				4	4.6	68	366	-0.2	-0.3	-0.17	-0.14	0.2	2	2.9
963	47	1 1 1				4	7.1	69	496	6.7	4.9	-0.15	-0.13	0.1	-9	0.0
		,												^	шг	ND.



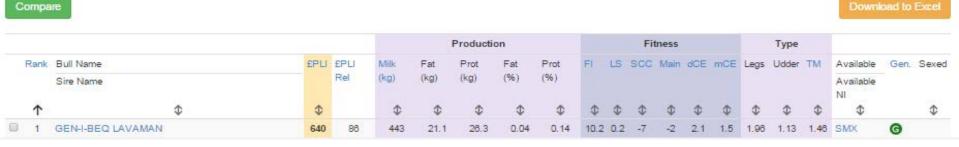
Line	£PLI	Bree	d Identity	Ped. Status	Cow	Curr Lact	Inbreeding %	Rel%	Milk (kg)	Bfat (kg)	Prot (kg)	Bfat (%)	Prot (%)	Lifespan	SCC	Fertility Index
					Dam											
\$	\$				Sire	\$	\$	\$	\$	\$	\$	1	\$	\$	\$	Φ
849	10	1 1 1				5	4.9	71	624	-0.9	9.8	-0.29	-0.12	0.1	-2	-2.5
622	-33	1 1 1				7	4.3	66	451	-6.0	11.2	-0.27	-0.04	-0.1	14	-2.3
883	-287	1 1 1				A 4	3.8	70	300	-9.9	-2.8	-0.26	-0.15	-0.2	-1	-7.1
396		1 1 65				1	4.7	60	490	-3.0	1.6	-0.26	-0.16	0.0	-8	-3.2
79	-115	1 1 1				3	2.7	65	178	-13.5	-1.5	-0.25	-0.09	0.1	4	-1.1
19		1 1 65				3	2.3	70	537	-0.7	5.6	-0.25	-0.13	-0.2	6	4.3
47	-69	1 1 1				3	5.8	67	200	-13.1	1.7	-0.25	-0.06	0.0	-1	-0.5
340		1				1	5.6	56	430	-3.4	1.5	-0.24	-0.14	-0.1	-6	-4.9
		64														





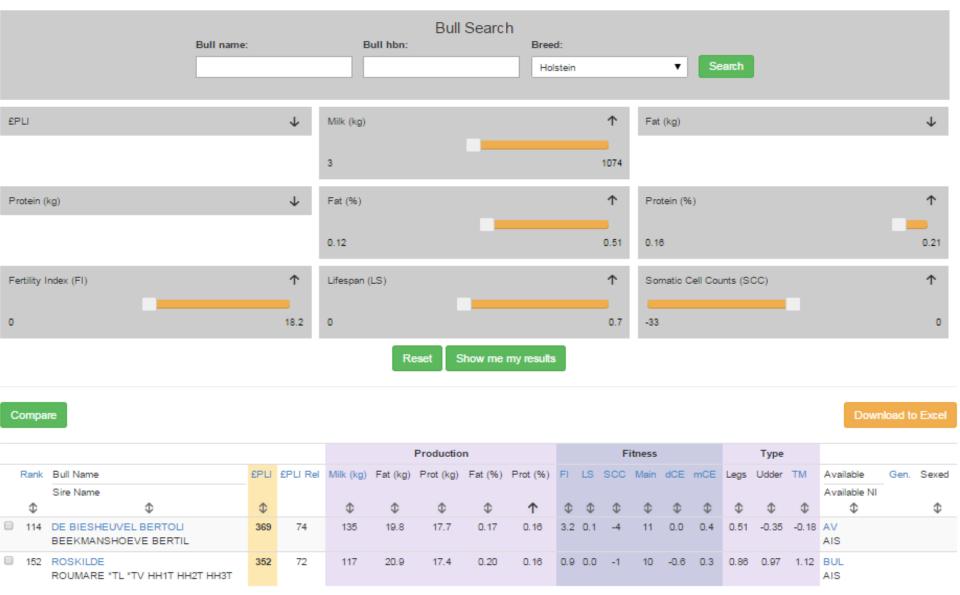
Available Holstein Bulls - 778 results

Search	
↓ Fat (kg)	4
→ Protein (%)	4
↓ Somatic Cell Counts (SCC)	4





Available Holstein Bulls - 2 results





Traditional Spring Calving Herd

			Predicted Transmitting Ability (PTA 2014) Herd Averages										
		Number of animals	£PLI	Inbreeding %	Rel %	Milk (kg)	Fat (kg)	Prot (kg)	Fat (%)	Prot (%)	Lifespan	SCC	Fertility Index
•	0-12 months 9	95	141	0.4	33	-473	-5.2	-5.1	0.17	0.13	0.18	5.5	9.7
•	18-24 months 6	69	117	0.4	31	-498	-6.2	-5.8	0.17	0.13	0.23	8.9	8.7
•	24+ months 1	13	68	0.2	37	-578	-6.8	-8.7	0.21	0.13	0.18	8.0	7.5
•	1st Lactation 7	78	102	0.3	37	-491	-6.2	-6.8	0.17	0.12	0.18	6.2	8.9
•	2nd Lactation 7	77	114	0.1	59	-570	-9.3	-8.9	0.17	0.12	0.24	7.6	9.8
•	3rd Lactation 8	3	-23	0.5	63	-320	-2.8	-4.9	0.13	0.07	-0.06	16.0	4.1
•	4th Lactation 1	12	-57	0.6	65	-389	-5.8	-6.8	0.12	0.07	-0.08	10.6	4.4
•	5th Lactation 4	18	-11	0.8	66	-451	-7.9	-7.5	0.13	0.09	0.06	7.2	6.3
•	>5th Lactation 4	16	12	1.0	67	-502	-10.4	-8.7	0.12	0.10	0.13	8.5	8.4
	Average 4	146	85	0.4	46	-495	-7.1	-6.9	0.16	0.12	0.17	7.4	8.6



Compare against national averages for Milking Herd

Percentile	£PLI	PTA Milk (kg)	PTA Fat (kg)	PTA Prot (kg)	PTA Fat (%)	PTA Prot (%)	Lifespan	SCC	Fertility Index
1	129	275	7.9	6.2	0.12	0.08	0.28	-6	10.4
5	88	182	5.0	3.8	0.08	0.05	0.20	-4	6.5
10	69	135	3.7	2.7	0.06	0.04	0.16	-3	4.1
15	56	106	2.7	2.0	0.05	0.03	0.14	-3	2.9
20	47	79	2.1	1.5	0.04	0.03	0.12	-2	2.2
25	40	56	1.5	1.0	0.03	0.02	0.11	-2	1.6
30	33	36	1.0	0.6	0.03	0.02	0.10	-2	1.3
35	28	16	0.5	0.2	0.02	0.01	0.09	-1	1.0
40	22	-2	0.1	-0.2	0.02	0.01	0.08	-1	0.7
45	17	-21	-0.5	-0.6	0.01	0.01	0.07	-1	0.4
50	12	-40	-0.9	-1.0	0.01	0.00	0.07	0	0.2
55	6	-58	-1.4	-1.4	0.00	0.00	0.06	0	0.0
60	1	-77	-2.0	-1.9	0.00	0.00	0.05	0	-0.2
65	-5	-102	-2.7	-2.4	-0.01	-0.01	0.04	0	-0.4
70	-13	-131	-3.5	-3.0	-0.01	-0.01	0.04	1	-0.6
75	-20	-162	-4.4	-3.8	-0.02	-0.01	0.03	1	-0.9
80	-30	-205	-5.4	-4.7	-0.02	-0.02	0.01	2	-1.1
85	-42	-252	-7.0	-5.9	-0.03	-0.02	0.00	2	-1.4
90	-61	-319	-9.2	-7.6	-0.04	-0.03	-0.02	3	-1.8
95	-95	-430	-12.7	-10.8	-0.05	-0.04	-0.05	4	-2.3

Summary

- Setting YOUR OWN breeding goals is vital
- HGR's are the first step to knowing what you've got.
- £PLI/£SCI is one of a number of tools to use
- Selecting specific management traits is key (FI, LS, SCC etc)
- Use TB Advantage NOW for future gain.
- £PLI/£SCI have been developed to breed cows suited to UK farming systems and milk contracts!



