

Herd Genetic Reports (HGRs) have been available for a number of years through AHDB Dairy to all UK dairy farmers who milk record. These HGRs allow farmers to see the genetic potential of their herd by providing the following information for the cows registered on their farm:

- Profitable Lifetime Index (£PLI)
- Milk (kg)
- Fat and Protein (kg and %)
- Inbreeding Level
- Management Traits - SCC, Lifespan and Fertility

Within the HGR the data is displayed in four parts – Herd Genetic Report Summary, Individual Milking Cow, Individual Youngstock and Breed Herd Standards.

Herd Genetic Report Summary

The Herd Genetic Report Summary allows your herd's strengths and weaknesses to be identified by age or lactation number, enabling you to monitor the genetic trends of your herd for a variety of traits. In addition, this summary allows genetically weaker traits to be identified and targeted on a whole herd basis.

Table 1 – Herd Summary

Lactation Group	Number of animals	£PLI	Predicted Transmitting Ability (PTA 2014) Herd Averages									
			Inbreeding %	Rel %	Milk (kg)	Fat (kg)	Prot (kg)	Fat (%)	Prot (%)	Lifespan	SCC	Fertility Index
0-12 months	85	255	2.2	34	71	10.6	6.1	0.10	0.05	0.25	-8.5	4.2
12-18 months	46	195	2.2	37	110	9.9	6.3	0.07	0.03	0.19	-5.2	1.7
18-24 months	33	205	1.5	37	64	7.1	5.4	0.06	0.04	0.19	-6.8	4.0
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
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

Individual Milking Cow

The Individual Milking Cow Report can be used to identify the strengths and weaknesses of each cow (highlighted on the example report below); corrective breeding can then be implemented, either on a cow by cow basis or by highlighting the key traits that require improvement when identifying bulls for future breeding.

Table 2 – Milking Herd Report

Line Number ↓

Current Lactation ↓

Lifespan (LS) ↓

Somatic Cell Counts (SCC) ↓

Fertility Index (FI) ↓

Reset

Show me my results

Compare

Print

Download to Excel

Line	£PLI	£PLI Rel	Breed	Identity	Cow	PI	Curr Lact	Inbreeding %	Rel%	Milk (kg)	Bfat (kg)	Prot (kg)	Bfat (%)	Prot (%)	LS	SCC	FI	Gen.
36	371				Dam Sire		1	3.6	41	306	10.6	13.2	-0.02	0.04	0.4	-16	8.8	
540	319						2	2.9	66	292	19.3	16.4	0.09	0.08	0.2	-11	-1.1	
4019	297						1	2.7	42	67	4.7	5.9	0.03	0.05	0.4	-15	9.2	

Individual Youngstock

Similar to the individual milking cow report, individual animal strengths and weaknesses can be easily re-ranked and identified. Future breeding policies can then be implemented with youngstock. In addition, if the youngstock has been genomically tested the report will use this more accurate information in the tables. As with the individual cow report, filters have been added to the report, along with a print function, allowing groups of animals due to be mated to be assessed more easily.

Table 3 – Youngstock Report

Line Number	Age (in months)	Lifespan (LS)	Somatic Cell Counts (SCC)	Fertility Index (FI)	Reset	Show me my results											
Compare																	
Print Download to Excel																	
Line	£EPLI	£EPLI Rel	Breed	Identity	Cow	Inbreeding %	Birth Date	Rel%	Milk (kg)	Bfat (kg)	Prot (kg)	Bfat (%)	Prot (%)	LS	SCC	FI	Gen.
					Dam												
					Sire												
3278	460	30	1			1.3	27/09/2014	42	-199	14.8	2.5	0.28	0.11	0.1	-7	13.9	
2985	443	29	1			1.0	03/09/2013	41	0	9.4	6.5	0.11	0.08	0.4	-7	11.5	
3206	441	30	1			0.0	22/08/2014	41	-307	10.2	-0.3	0.28	0.12	0.2	-7	13.9	

Breed Herd Standards

Finally, a benchmarking report is also included to allow each herd to benchmark itself against the breed average by whole herd or lactation group. The report highlights areas where the herd is performing well, but also allows potential goals to be set when making future breeding decisions.

Percentile	£EPLI	PTA Milk (kg)	PTA Fat (kg)	PTA Prot (kg)	PTA Fat (%)	PTA Prot (%)	Lifespan	SCC	Fertility Index
1	122	262	7.3	5.9	0.12	0.08	0.27	-5	9.7
5	81	168	4.2	3.3	0.08	0.05	0.20	-3	5.6
10	61	121	2.8	2.1	0.06	0.04	0.15	-2	3.5
15	51	87	1.9	1.4	0.05	0.03	0.13	-2	2.4
20	42	60	1.2	0.8	0.04	0.03	0.11	-1	1.7
25	35	37	0.6	0.3	0.03	0.02	0.10	-1	1.2
30	29	17	0.1	-0.1	0.03	0.02	0.09	-1	0.8
35	24	-3	-0.5	-0.5	0.02	0.01	0.08	0	0.5
40	19	-21	-0.9	-0.9	0.02	0.01	0.07	0	0.3
45	13	-41	-1.4	-1.3	0.01	0.01	0.06	0	0.1
50	8	-58	-1.9	-1.7	0.01	0.00	0.05	1	-0.2
55	3	-78	-2.4	-2.1	0.00	0.00	0.05	1	-0.3
60	-2	-99	-2.9	-2.6	0.00	0.00	0.04	1	-0.5
65	-8	-124	-3.6	-3.2	-0.01	-0.01	0.03	1	-0.7
70	-14	-152	-4.3	-3.8	-0.01	-0.01	0.02	2	-0.9
75	-21	-183	-5.2	-4.5	-0.02	-0.01	0.01	2	-1.2
80	-29	-224	-6.3	-5.4	-0.02	-0.02	0.00	3	-1.4
85	-41	-268	-7.8	-6.5	-0.03	-0.02	-0.01	3	-1.7
90	-57	-336	-9.9	-8.1	-0.04	-0.03	-0.03	4	-2.1
95	-89	-443	-13.3	-11.2	-0.05	-0.04	-0.06	5	-2.6

Table 4- Herd benchmarking

How often is it updated?

HGRs are updated at every bull proof run in April, August and December. The updates are based upon new data received about individual cows, progeny (daughters) or relatives.

How do I register for a Herd Genetic Report?

Email AHDB Dairy at: breeding.evaluations@ahdb.org.uk. To register for your login details, we will need your milk recording number, trading name and email address. For the reports to be created you need to be fully milk recording with CIS, NMR or UDF.

Can my vet/consultant be given access to my Herd Genetic Report?

Yes. Contact AHDB Dairy by emailing: breeding.evaluations@ahdb.org.uk. An advisor log-in can be created and your herd will then be added to your vet's/consultant's account once the relevant authorisation form has been completed.

Breeding individuals which are closely related can cause dangerous levels of inbreeding (above 6.25%) and result in inbreeding depression in the herd. Inbreeding has a detrimental effect on the performance and vigour of the resulting offspring and increases the risk of bringing undesirable recessive genes together. The **Inbreeding Checker** is a new addition to the Herd Genetic Report (HGR) which will check how closely related any sire with a genetic index is to any heifer or cow in a milk recording herd. With increasing numbers of available sires and ever-more complex pedigrees this tool makes checking the inbreeding level of any proposed mating, from the entire database of dairy sires listed on the AHDB Dairy website, quick and simple.

Inbreeding Checker

Step 1 – Select group of cows to mate

Choose the group of cows that you would like to mate from the list. Youngstock and milking animals have been kept in separate groups as breeding priorities for bulls to be mated to youngstock may differ slightly from those to be mated to the milking herd – e.g. easier calving bulls used on youngstock.

Edit Group Names

- Milking Herd
- Youngstock

Step 2 – Select cows to mate

Select the cows from chosen group that you want to mate using the tick box at the left hand side of each listing. The arrows along the top of the columns can be used to reorder records by specific traits of importance to the breeding goals of the herd. Use the 'Save and Continue' button to save changes or a new group and move onto the next step.

Line Number ↓ Age (in months) ↓ Lifespan (LS) ↓

Somatic Cell Counts (SCC) ↓ Fertility Index (FI) ↓

Reset Show me my results

Select All

Go to unselected animals Discard changes Save and Continue

Line	£PLI	£PLI Rel	Breed	Identity	Cow	Inbreeding %	Birth Date	Rel%	Milk (kg)	Bfat (kg)	Prot (kg)	Bfat (%)	Prot (%)	LS	SCC	FI	Gen.
↓	↓				Dam	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
↑	↑				Sire	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
<input type="checkbox"/>	5037	394	26			4.6	08/09/2015	34	305	14.8	12.2	0.03	0.03	0.2	-12	9.8	
<input type="checkbox"/>	5126	362	31			4.0	18/07/2015	36	334	9.4	7.2	-0.04	-0.04	0.4	-12	13.5	
<input type="checkbox"/>	5048	361	25			5.3	08/10/2015	33	235	12.3	10.1	0.04	0.03	0.2	-12	9.4	
<input type="checkbox"/>	5025	357	31			4.9	02/08/2015	36	325	8.2	5.9	-0.05	-0.05	0.5	-12	12.8	

Step 3 – Select breed/group of mating sires

Choose a breed or previously created group of bulls that you want to use. For purebred herds, select the breed of your herd. For cross-breeding herds, select the first breed of interest and run this group through, then return to this step to run a different breed of bulls against your herd.

Edit Group Names

- Top International Guernsey Bulls Ranked on GMI
- All Available Ayrshire and Red Bulls
- Available Brown Swiss bulls
- Available Fleckvieh bulls
- Available Friesian Bulls
- Available Holstein Bulls
- Available Jersey Bulls
- Available Montbeliarde bulls
- Available Ayrshire Bulls
- All top Shorthorn bulls ranked on £PLI
- Available Holstein Genomic young sires

Step 4 – Select mating sires

Choose the bulls from the available bull or breed list that you want to check for suitability, using the tick box at the left hand side of each listing. Similar to step 2, arrows along the top of the columns can be used to re-rank the bulls by trait.

The 'Average expected inbreeding' column gives the average expected inbreeding level of the progeny for each bull, when mated to the group of cows selected in step 2. The 'Number of safe matings' column indicates the number of cows which can safely be mated to the bull (resulting in less than 6.25% inbreeding). These two columns allow the user to instantly see whether it is acceptable to use a particular bull, and if so, the number of cows in the herd which would be a suitable match. The ability to check the "expected inbreeding" on specific cows against all available bulls, allows farmers to consider sires that may previously have been disregarded due to concerns over their relatedness to the herd. Depending on number of records the lists may take a short while to load.

The 'Bull Search' bar can also be used to search for bulls no longer available or stock bulls with a genetic index. By including historic bulls, users can ensure that excess straws from their last purchase do not go to waste. Again, use the 'Save and Continue' button to save changes or a new group and move onto the final step.

Bull Search

Search
Reset

EPLI	Milk (kg)	Fat (kg)	
Protein (kg)	Fat (%)	Protein (%)	
Fertility Index (FI)	Lifespan (LS)	Somatic Cell Counts (SCC)	

TB Adv.
Reset
Show me my results

																		Go to unselected animals	Discard changes	Save and Continue			
Rank	Bull Name Sire Name	EPLI	EPLI Rel	Production				Fitness						Type			Inbreeding						
				Milk (kg)	Fat (kg)	Prot (kg)	Fat (%)	Prot (%)	FI	LS	SCC	Main	dCE	mCE	TB Adv.	Legs	Udder	TM	Available	Gen.	Sexed	Number of safe matings	Average expected inbreeding
1	GEN-I-BEQ LAVAMAN LONG-LANGS OMAN OMAN	626	94	348	22.2	23.4	0.10	0.15	13.5	0.1	-3	-9	1.1	1.6	1.9	1.18	1.14	1.23	SMX SMX	G		92	6.95
2	KINGS-RANSOM ERDMAN CRI ENSENADA TABOO PLANET	622	84	515	24.2	15.6	0.05	-0.01	13.2	0.7	-20	-19	0.6	1.5	0.3	0.37	0.38	0.43	BUL AIS	G	S	199	5.34
3	TEEMAR SHAMROCK ALPHABET-ET LADYS-MANOR PL SHAMROCK	591	76	489	18.2	17.8	-0.01	0.02	13.3	0.6	-6	-16	2.3	3.0	2.1	1.11	0.10	0.40	GEN GEN	G		97	6.50

Step 5 – Results

All inbreeding levels for potential matings are shown with cow IDs down the left and bull IDs along the top. Arrows below each bull name allows the user to reorder the cow IDs by inbreeding level against the bull. Cows and bulls can be selected for printing and downloaded for future reference.

- ! – Unsafe level of inbreeding from this mating (>6.2%).
- ▲ – Limited pedigree available for this calculation (Less than 5 generation pedigree).

Select bulls for printing
Print

		<div style="display: flex; justify-content: space-around; font-size: small;"> GEN-I-BEQ LAVAMAN KINGS-RANSOMERDMAN CRI NO FLA EMULATE 30369 S-S-I BOOKEM MORGAN S-S-I SHAMROCK MYSTIC-ET TEEMAR SHAMROCK ALPHABET-ET UNITED-PRIDE ERDMAN EVAN </div>								
Line Number	Cow Name	Herdbook Number	EPLI	626	622	568	565	574	591	560
5005	320533304005	138	5.2	4.76	5.97	8.02!	9.83!	6.94!	4.82	
3462	320533603462	86	2.8 ▲	2.85 ▲	3.35 ▲	3.1 ▲	3.14 ▲	3.44 ▲	2.69 ▲	
3498	320533703498	184	7.2!	5.65	7.89!	6.59!	6.52!	6.92!	6.44!	
3549	320533203549	175	6.81!	4.96	7.44!	6.31!	6.56!	6.55!	5.5	
3556	320533203556	114	4.5	4.21	5.32	7.25!	8.69!	6.05	4.15	
3557	320533303557	104	6.5!	4.87	7.74!	8.91!	10.65!	7.23!	5.57	
3586	320533403586	132	7.13!	4.03	4.85	5	5.66	4.58	3.82	
3587	320533503587	223	7.07!	3.83	4.83	4.89	5.49	4.43	3.7	