

There is a lot of talk in the farming press about genomic testing and as vets we have certainly been asked a lot of questions about it recently. This newsletter will summarise what genomic testing is, how it can benefit your herd and give you information about Clarifide, the genomic testing service we are now offering.

Why should I care about genetics?

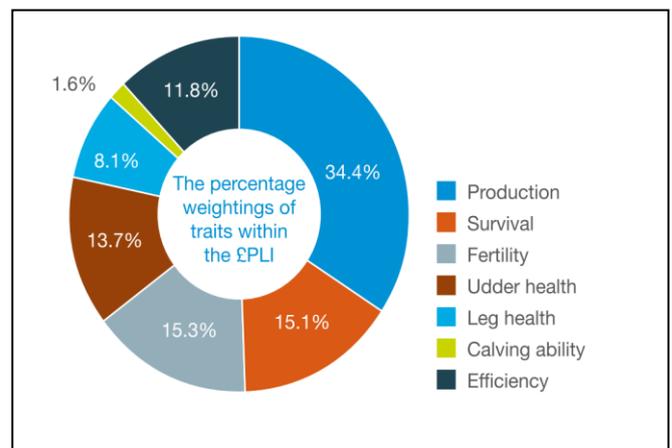
Production and health traits of cows is 50% nature and 50% nurture. With the best environment in the world you will never get an average genetic merit cow to produce 12000 litres. Similarly, you will not get a genetically supreme cow capable of producing 12000L to produce as expected if you don't feed her properly. As vets we spend a long time talking about the nurture side, the environment cows are kept in, husbandry and nutrition. However, genetics play a key role in how a cow performs. You may have looked at catalogues of bulls from the AI companies and picked bulls that you like and match your needs. However, few farmers will have investigated the genetics of their cows.



Current genetic analyses:

AHDB offer a very good genetic analysis report which is free to access and provides very useful

data about your herd. It looks at the overall genetic merit of your herd based on profitable lifetime index or £PLI. £PLI ranges from -400 to +900 with 0 being an average cow. So, a cow with a £PLI of 500 will be expected to be £500 more profitable across her lifetime. £PLI is a national index made up of different production and health traits. How it is weighted is shown below but it is most heavily weighted towards milk production, survival and fertility.



£PLI is used for all year-round calving herds but there is also £SCI (spring calving index) and £ACI (autumn calving index) for block calving herds. These are more heavily weighted towards fertility.

The AHDB report also looks at your herd's predicted transmitting abilities (PTAs) for other individual traits such as milk, protein, fat, fertility index, SCC and mastitis.

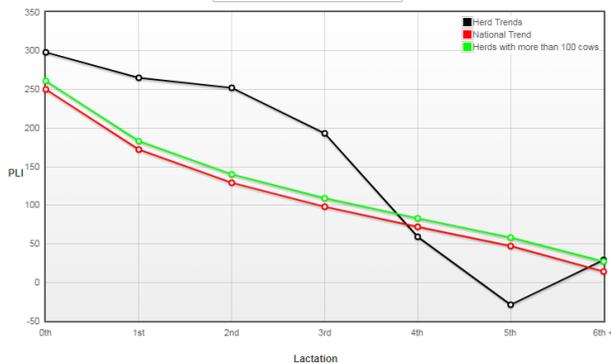
This data is based on parentage (bull and cows used), production values (via milk recording) and classifying data (if available). This makes the data great for looking at herd average and choosing bulls but poor for looking at individual cows. The data becomes more reliable the older a cow is.

A 5+ lactation cow can expect to have a reliability of around 70% whereas a <12-month-old calves' data will be around 30% reliable.

£PLI by Lactation

See how your herd compares to herds of a similar size:

Herds with more than 100 cows



Percentile	£PLI	PTA Milk (kg)	PTA Fat (kg)	PTA Prot (kg)	PTA Fat (%)	PTA Prot (%)	Lifespan	SCC	Fertility Index	Inbreeding	Mastitis	Maintenance
1	260	444	14.9	12.3	0.14	0.09	0.33	-9	11.9	0.0	-0.9	-14.0
5	204	343	11.7	9.6	0.10	0.06	0.26	-7	8.5	0.1	-0.4	-5.8
10	178	287	10.0	8.2	0.08	0.05	0.23	-6	6.3	0.4	-0.2	-2.8
15	161	246	8.8	7.3	0.06	0.04	0.20	-6	5.0	0.8	-0.1	-1.1
20	148	216	7.9	6.5	0.05	0.03	0.19	-6	4.1	1.2	0.0	0.1
25	137	189	7.1	5.8	0.05	0.03	0.18	-5	3.5	1.6	0.1	1.1
30	127	162	6.4	5.2	0.04	0.02	0.17	-5	3.1	1.9	0.1	1.8
35	118	138	5.8	4.6	0.03	0.02	0.16	-4	2.7	2.3	0.2	2.4
40	110	115	5.2	4.1	0.03	0.02	0.15	-4	2.4	2.7	0.3	3.0
45	102	93	4.6	3.6	0.02	0.01	0.14	-4	2.1	3.0	0.3	3.4
50	92	69	4.0	3.1	0.02	0.01	0.13	-4	1.8	3.3	0.4	3.8
55	84	44	3.2	2.5	0.01	0.01	0.13	-3	1.5	3.6	0.4	4.3
60	76	20	2.5	1.8	0.01	0.00	0.12	-3	1.3	3.8	0.5	4.6
65	66	-11	1.6	1.1	0.00	0.00	0.11	-2	1.0	4.1	0.5	5.0
70	55	-46	0.7	0.3	0.00	0.00	0.10	-2	0.7	4.3	0.6	5.4
75	40	-85	-0.5	-0.8	-0.01	-0.01	0.09	-2	0.4	4.5	0.7	5.7
80	25	-134	-1.9	-1.9	-0.02	-0.01	0.08	-1	0.1	4.7	0.8	6.0
85	4	-187	-3.5	-3.4	-0.02	-0.02	0.06	-0	-0.2	4.9	0.9	6.4
90	-26	-265	-5.9	-5.5	-0.03	-0.02	0.03	1	-0.6	5.2	1.0	6.9
95	-81	-391	-10.0	-9.1	-0.05	-0.03	-0.02	3	-1.2	5.5	1.3	8.0

Above are some images from the AHDB genetic report and shows how this herd compares to the national herd for PLI by lactation (top) and then by individual PTAs (bottom).

Genomic testing

Genomic testing allows you to get a much more detailed and accurate genetic profile from a single animal at any age. An ear punch is taken and the DNA analysed to reveal the animal's £PLI and PTAs for all parameters. This can give you data from a one-day old calf with an accuracy of over 70%.

Genetics of the national herd are constantly improving as the use of young and better-quality genomic bulls is becoming more common. This means on average your heifers will be better than your cows. For example, the average UK Holstein in milk has a £PLI of 92 and the average UK Holstein calf has a £PLI of 225! This means the

best and quickest way to improve the genetics of your milking herd is to breed your replacements from your maiden heifers.

How do I use genomic testing?

Clarifide is a genomic service we now offer. Anyone who is purebred Holstein or Holstein Friesian and breeds their own replacements can use Clarifide. You can genomically test batches of animals at any age and within 50 days the results can be interpreted.

Once the results have been received it is analysed in Searchpoint, a computer programme which allows you to select animals based on your own genetic index. You can set the traits you want to select for (e.g. more milk and better fertility) and Searchpoint will select the best heifers based on this.

The idea is to select the best heifers to breed replacements from, ideally via the use of sexed semen. The poorest heifers can be bred to beef or sold. This not only allows more rapid genetic progress of your herd but also increased income from saleable dairy heifers. Remember your worst heifers may still be better than someone else's best!

If you have any questions regarding genomic testing, please do not hesitate to contact the practice.

All the best, Chris



In recent weeks there has been a national shortage of local anaesthetic (Willcain and Adrenacaine) due to manufacturing problems. This has caused major concern, as it is necessary for all farm animal surgery, disbudding and dehorning. We are pleased to have been able to source a supply imported from Europe. We will retain enough for our emergency surgery needs but have some available for sale to farmers who need it for disbudding. The product is called Procaine and is available in 250ml bottles.