

Tools to Make Genetic Progress

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Genetic Advisory Forum – What is it?

The DairyCo Genetic Advisory Forum is comprised of farmers, Breed Society representatives, AI Companies, Milk Recording Organisations, SAC and other industry representatives. The purpose of the forum is 'To advise actions to maximise the sustained financial rate of return to UK Dairy Farmers from genetic improvement of dairy cattle.' The forum reports on genetic trends and is currently discussing a review of the PLI, mainly due to the increasing input costs and milk price rise since 2007 but also due to changing environmental considerations.

Herd Genetic Summary

One of the newer tools currently being offered by DairyCo and the milk recording agencies is the Herd Genetic Summary (see Figure 1).

Figure 1 Herd Genetic Summary for Future Herd (Source: Dairy Herd Management)

Data	Lact No 1	Lact No 2	Lact No 3	Lact No 4	Lact No 5	Lact No 6	Lact No 7	Lact No 9	Grand Total
Count of Cow No	31	29	36	14	7	7	4	1	129
Average of Cow £PLI	80.2	67	71.2	75.6	37.9	-9.1	-6.8	-38	63.5
Average of Cow PTA Milk	-90.5	-93.1	-81.8	-225	-107	-396	-329	-575	-132
Average of Cow PTA BF%	0.16	0.12	0.14	0.22	0.11	0.11	0.12	0.08	0.14
Average of Cow PTA PR%	0.08	0.07	0.08	0.12	0.08	0.07	0.08	0.02	0.08
Average of Sire FI	4	4.1	-5.5	-0.8	3.2	-4.7	-0.9	4.5	0.2
Average of Sire LS	0.3	0.4	0.3	0.2	0	0.1	-0.1	0.5	0.3
Average of Sire SCC	-11.8	-1.2	-11.8	-7	4	-0.6	3.5	-10	-6.9

(See Appendix 1 for steps to accessing Herd Genetic Summary)

The table above summarises the PTA (Predicted Transmitting Ability) of the milking cows at the latest milk recording and the average for the sires on the fitness traits (Fertility Index, Lifespan and Somatic Cell Count). The above table shows that the average PLI for the herd is £63.5, the PTA for milk is -132kgs, while for Butterfat it is 0.14% and for Protein it is 0.08%. This is a reflection of the recent breeding initiative to produce a herd with high components. As fitness traits aren't currently reported on individual cows the Average of the Sires' used in the herd are presented. They clearly demonstrate that bulls with good fitness traits have been used in recent years with the Fertility Index, Lifespan and SCC all indicating that the herd should be comprised of robust cows with good longevity.

Using the Herd Genetic Summary

The first step to using this information is to develop a breeding plan for your herd. It is essential that producers think about those traits that they wish to place most emphasis on, whether that is yield, components or fitness traits.

The breeding team at CAFRE have been using this information in order to make a more informed choice with their Sire Selection. In 2010 they used the following selection criteria:

Figure 2 Bull Selection Criteria for Future Herd

Trait	Bull Selection Criteria
£PLI	>150
PTA Milk (kgs)	>0
PTA Protein (%)	>0.08
Reliability (%)	>70
Sire PTA Fertility	+ve
Sire PTA Lifespan	+ve
Sire PTA SCC	-ve
Dairy	>1.0
Mammary	>1.0
Feet & Legs	>1.0

While not all producers will necessarily want to apply these selection criteria, the important point is that the Herd Genetic Summary gives the average for your herd for a range of traits, therefore by selecting bulls which are better than the current average; more rapid genetic progress will be made. It is important to note that none of this analysis is possible unless the Sires for your herd are identified with your Milk Recording Organisation.

Choosing Your Sires

After deciding on the selection criteria, the next step is to find the bulls that match those criteria. One option is to scroll through the available bull list produced by DairyCo. The list can also be downloaded to an Excel spreadsheet from which it is possible to filter the list by applying the selection criteria. CAFRE also make the Top 100 sires available by PLI in NI on the Rural Portal website (www.ruralni.gov.uk). Likewise, Holstein UK have a Bull Selector programme (http://www.ukcows.com/holsteinuk/publicweb/huk_home.aspx) where you can set pre-defined criteria and search the database for bulls to match your requirements.

Genetic Gap Analysis

Figure 3 Estimated First Lactation Production for Future Herd

	PTA for Herd	Breeding Value (PTA x2)	Average for UDF recorded herds	Estimated Herd Production
Milk (kgs)	-132	-264	7103	6839

Summary

- PLI is a financial value and will reflect changing circumstances
- Herd Genetic Summary – shows where the herd is at currently in terms of production, components and fitness traits.
- Develop a breeding plan based on Herd Genetic Summary results
- Select bulls to fit the Breeding Plan

Appendix 1 - Steps to Accessing Herd Genetic Summary

1. Logon to Dairy Herd Management via 'Your Herd'
(http://ukcows.com/thecis/secure/UDF_Login.aspx?ReturnUrl=MainMenu.aspx)
2. Click on 'Action Lists, Graphs & Rankings'
3. Click on 'Herd Genetic Report'
4. Click on 'View Herd Genetic Summary Report'