Technote No. 4

Addressing the issue of standardisation

Australian Dairy Herd Improvement Scheme

Key messages

- Australian Breeding Values (ABVs and ABV(i)'s) are important tools, from an independent source, to aid farmers in selecting bulls.
- To clearly indicate the true range that exists in the population for each trait, ABVs are not standardized in Australia.
- Non-production ABVs are expressed as a percentage more or less than 100.

New expression of non-production ABV's

From April 2008, ABVs for non-production traits will be expressed relative to the current average of the Australian herd, which is set at 100. An ABV of 105 means a bull is 5% more than average for a particular trait. An ABV of 93 means a bull is 7% less than average for a particular trait. It is similar to the way Production Index (PI) is used in herd test reports, where animals are compared to each other with a herd average of 100.

All non-production breeding values will be expressed in the same way. Once you know the expression of one trait you effectively know the expression of all non-production traits.

Farmers usually want to compare one bull against another. As ABVs are expressed in relative terms, as a result the best way to utlise ABVs is in comparing one bull to another. ABVs also indicate whether the bull is more or less than the average for a given trait.

What is standardisation?

"Standardising" breeding values is a term used to describe an expression where breeding values are artificially stretched or squashed so that the range of breeding values for all traits is the same. In this approach bulls that are one standard deviation from the mean for each trait are identified by the same number. However, standardised ABVs do not clearly indicate the true range which exists in the population. Because of this factor ADHIS does not standardise ABVs in Australia.

What happens in other countries?

Countries around the world have made their own decisions about whether to standardise or not – some countries do some don't. There are pros and cons to both systems. Over many years, ADHIS has maintained a policy to show the variation that truly exists in the bull population. ADHIS has selected the method which it believes gives farmers the most accurate description of where the bull sits in the population.

What range in ABVs are we likely to see?

Some traits have a wide variation between the best and worst in the population, while in other traits, the difference in the population is not that great. Let's take the examples of teat length and foot angle. The standard deviation for teat length may be 12 indicating that there is a big difference between the longest and shortest teats in the population. On the other hand, the standard deviation for foot angle may be six indicating that the difference between the best and worst bull is much smaller.

By using non-standardised expression, a farmer can clearly see that there is a greater range in the

population for teat length than foot angle. The greater range in the population makes it easier to select for teat length than foot angle. Farmer's also have a clearer expectation as to what can be achieved through selection in a short period of time.

Why doesn't ADHIS use standardisation?

A standardised approach means that breed leaders for traits of large variation are penalised while breed leaders for traits of small variation are over compensated when breeding values are standardised. To ensure farmers see a realistic picture of the ability of a bull to improve a trait, a "non-standardised" method of expression has been selected.

What if I want to identify bulls that are more than one standard deviation for a particular trait?

Farmers wanting to obtain data on the standard deviations can download a list called "Ranges, Means, Distributions and Top 1%" from the ADHIS website (www.adhis.com.au). This table gives the standard deviation for each trait allowing farmers to identify bulls who are extreme for specific traits.

It is useful to remember that animals still rank the same for profitability using the Australian Profit Ranking regardless of how ABV's for individual traits are expressed.

Published by ADHIS Pty Ltd. This Technote is published for your information only. It is published with due care and attention to accuracy, but ADHIS accepts no liability if, for any reason, the information is inaccurate, incomplete or out of date whether negligent or otherwise. For more information contact ADHIS at Level 6, 84 William St, Melbourne, Vic 3000 Australia. Phone 03 9642 8042. Fax 03 9642 8166. Email dabernethy@adhis.com.au. Internet www.adhis.com.au. ADHIS is an initiative of Australian Dairyfarmers Ltd. (ADF) and is partially funded by dairy farmer levies via Dairy Australia.