

## Murray Greys Surge Forward Genetically

To quote the President of another breed society: "To strategically measure all traits which are currently available and the ability to offer a full and accurate description of our product has become an essential requirement within the seedstock and commercial beef industry".

How is the Murray Grey breed measuring up to this challenge and how much genetic progress is the breed making?

The most recent genetic analysis included a large amount of data which has been collected by breeders since 1976 as shown in Table 1.

### Table 1 The Total Number of Records Analyzed in the Summer 2005 Analysis

Gestation Length 10,214 Mature Cow Weight 9,444 Calving Ease 26,851 Scrotal Size 9,257 Birth Weight 102,216 Days to Calving 29,937 200-day Weight 79,976 Ultrasound Scans 21,599 400-day Weight 55,143 Carcass Measurements 728 600-day Weight 38,319

The proportion of animals recorded for each trait is also impressive. As shown in Table 2, a birth weight was submitted for 85.4 percent of 2003 born calves which is up by 17.4 percent on 1998 recording levels.

The level of recording is also up for other traits such as 400 day weights, scrotal measurements and ultrasound scan data. Note that 2003 born calves are used as the benchmark as there has not been time to submit records on all 2004 born calves.

Being "in BREEDPLAN" is defined as having a 200, 400 or 600 day weight and 62.6 percent of 2003 born Murray Greys filled this criteria (up by 9.8% on the 1998 level).

### Table 2

**1998 2003 Change Total Calves Recorded** 12,001 8,842 **Birth Weights** 67.1 % 84.5 % +17.4 % **Weaning Weights** 48.5 % 52.8 % +4.3 % **400 Day Weights** 35.0 % 37.9 % +2.9 % **Scrotal (bulls)** 21.0 % 23.6 % +2.6 % **Scan Data** 18.2 % 19.7 % +1.5 % **In Breedplan** \* 52.8 % 62.6 % +9.8 % \*Animal must have 200, 400 or 600 day weight.

### Measuring Genetic Progress

Genetic progress can be measured by the change in individual traits over time but the only way to measure overall genetic gain is to use a \$Index which accounts for the change in all traits expressed in dollars.

The \$Index accounts for direct traits such as weight and carcass traits and also maternal traits such as fertility and milk expressed by females once they become cows. The \$Indexes also account for antagonistic genetic relationships. For example an increase in 200 or 400 day weights is likely to cause an increase in birth weights and therefore reduced calving ease. An increase in marbling is likely to cause a decrease in retail beef yield.

The Murray Grey breed has made spectacular gains in their two \$Indexes over the last three years. There was little change in the Long Fed Export \$Index from 1980 to 1995 but from 1996 to 2001 it increased by an average of \$0.98 per year and since 2001 has increased by \$2.53 per year.

See Figure 1. The Long Fed Export Index places most emphasis on growth and marbling and calving ease.

### **Figure 1. Genetic Change for the Long Fed Export \$Index.**

The Domestic Market \$Index which does not require marbling and places more emphasis on retail beef yield. There was also little change in this \$Index from 1980 to 1995 but from 1996 to 2001 it increased by \$0.98 per year and since 2001 has increased by \$1.87 per year.

### **Figure 2. Domestic Market \$Index**

Meat and Livestock Australia provides considerable funding for genetics projects in the beef industry including funding of the Animal Genetics and Breeding Unit at Armidale which does ongoing research and development for BREEDPLAN. The MLA Beef Genetic Strategic Plan for 2001 to 2006 set a goal of “increasing genetic gain in the beef industry to \$2.00 per cow by 2006. The Murray Grey breed has already achieved this goal for the Long Fed Export \$Index and has almost achieved the goal for the Domestic \$Index.

### **Gene Markers**

The Murray Grey Society has encouraged their members to test their sires for the available gene markers. Some 312 sires have now been tested.

The frequency of two star, one star and zero stars in the Murray Greys tested is as follows:

#### **2 Star**

**1 Star 0 Star Marbling Marker** 11.3% 38.1% 50.5% **Tenderness 1 Marker** 73.7% 23.2% 3.0% **Tenderness 2 Marker** 29.0% 48.3% 22.5%

It is significant that the Murray Grey breed has a much higher incidence of two star animals for the Tenderness 2 marker than any other breed with 30 percent of Murray Greys having two stars.

The nearest to this was Angus with eight percent and Wagyu with two percent.