Animal Behaviour and Limousin Cattle

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For thousands of years cattle ran wild in Europe. The famous cave paintings of primitive cattle in the Lascaux Caves in France are estimated to be 17,000 years old. They had to survive predators and humans who hunted them. The keys to survival and the ability to reproduce were:

- Awareness of danger – strange noises or unusual visitors.
- Staying with the mob – don't get isolated.
- Awareness of escape routes.
- Ability to run fast and jump high.
- Protection of young calves against predators.

In the last 2000 years man has attempted to domesticate many species including cattle and 400 years ago we started to farm these animals.

To make these animals easy to manage we have attempted to breed out all of these survival traits. We want our cattle to be:

- Not frightened by strange noises and situations.
- Not worried about being separated from the mob.
- Not seeking escape routes.
- Not running fast and jumping high.

We do this in two ways. The first is by gaining the trust of the animal by frequent handling and feeding – just as we do when we break in a young horse.

The second is to select at the genetic level for less flightiness and greater docility.

It is not sufficient to simply cull the bad ones because if you continue to use sires with the same range of docility you will make very little genetic progress. We need to use a scoring system on calves to tell us about the genetics for docility of their dams and their sires.

Once we identify the sire and dam lines that are breeding more docile calves and the sire and dam lines that are breeding less docile calves we can start to make genetic progress by using only those dams and sires with good genetic docility.

There are three ways of scoring the docility of calves.

1 Crush Test
Scoring the behaviour of an animal when put into a crush using a 1-5 scale as our members do for Limousin calves.

2. Yard Test
Scoring the behaviour of an animal when put into a yard on their own and a handler attempts to hold them in a corner. This test is used for calves that have had considerable handling and need to be put under more pressure to exhibit differences in behaviour.

3. Flight Time
The time taken to move between two light beams as it exits a crush. This test is suitable for large herds if the equipment is available.

All three are measures of the docility of an animal and all are correlated with each other.

The problem with using raw scores to evaluate docility is that some cattle get a lot more handling than others before they are scored and each person who scores may score differently.

So we need to have a clever way of taking out the effects of prior handling and variation in scorers.

We do this by using all of the scores and pedigrees available to calculate Estimated Breeding Values (EBVs) for docility for sires, dams and their calves.

Limousin breeders started to score their calves in 1995 and have now scored about 17,000 calves.

These scores were first used to calculate docility EBVs for sires in 2000.

Since 2002 docility EBVs have been calculated and available from the Limousin website for sires, dams and calves.

Have we made any genetic progress?
There are two measures of progress. The first is to compare the docility EBVs of the 20 most widely used sires for 1998 born calves with the 20 most widely used sires for the 2002 born calves.

Table 1. 20 Most Widely Used AI Sires for 1998 Born Calves

Rank	Name	Docility EBV
1	Wulfs Choice	+33
2	NMCC Polled Black Powder	+42
3	Ramornie Polled Power Pack L51	+5
4	Refstrup Tabias	+26
5	WLCC No Substitute	-6
6	Mash Accolade	-15
7	Collian Park Hague	-3
8	Genial	-17
9	Kayenbe Phantom	-19
10	Cane Ridge Poll Stacker	+11
11	Heros Bis	+1
12	Broadmeadows Tombola	+7
13	Harvest Olympus	-15
14	Bodell Your Kidding	-3
15	Felah	-11
16	LKCC Tomahawks Touchdown	+24
17	Hammel Buffalo	+6
18	Kayenbe Nero	-5
19	Crawfordpark Uplands Hannibal	-13
20	Tango (Curragh)	-16

Average Docility EBV +1.6 **11 bulls with negative EBVs**

Table 2. 20 Most Widely Used AI Sires for 2002 Born Calves

Rank	Name	Docility EBV
1	Wulfs Rambler	-3
2	Dauphin	+29
3	Wulfs Choice	+33
4	Harris	+21
5	Wulfs Guardian	+35
6	Collian Park Paris	+4
7	Goldenview Krugerrand	+32
8	Chaz First Choice	+18
9	JCL Royal Flush	-
10	Premier Birubi S35	+4
11	White Lakes Sire Power	+3
12	Collian Park Hague	-3
13	Premier Breakthru	+20
14	EXLR Power Up	+11
15	SLVL Beef	+30
16	White Lakes Rawhide	-4
17	FTL Double Agent	+61
18	Broadmeadows Tombola	+7
19	Circle T Wrangler	+9
20	SLDJ Polled Equity	0

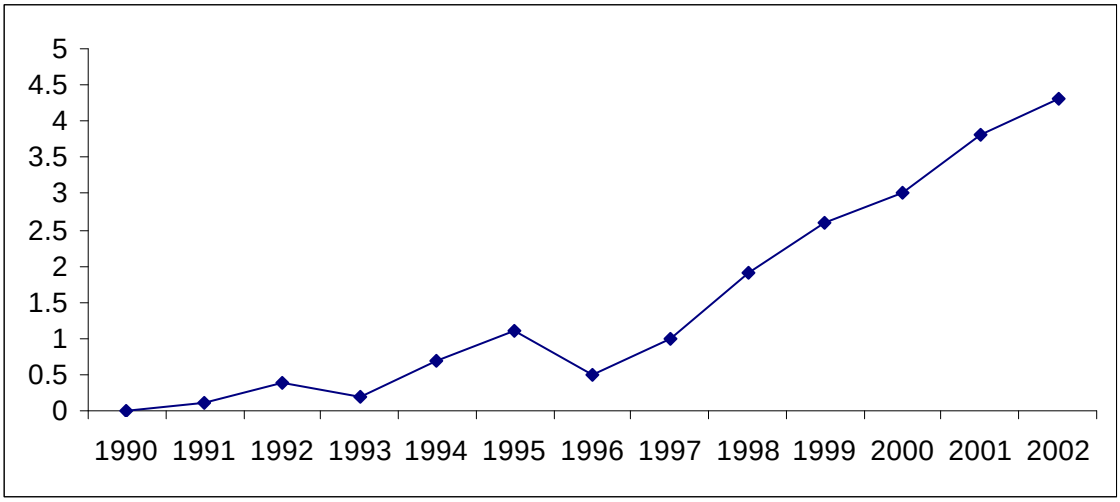
Average Docility EBV +16.2 **3 sires with negative EBVs**

There has clearly been a big improvement in the average docility EBV of the 20 most widely used sires and much lower use of very negative sires since 1998.

By calculating the average docility EBV for the calves born each year we can track the genetic change for the breed.

Table 3 shows the genetic change for calves since 1990.

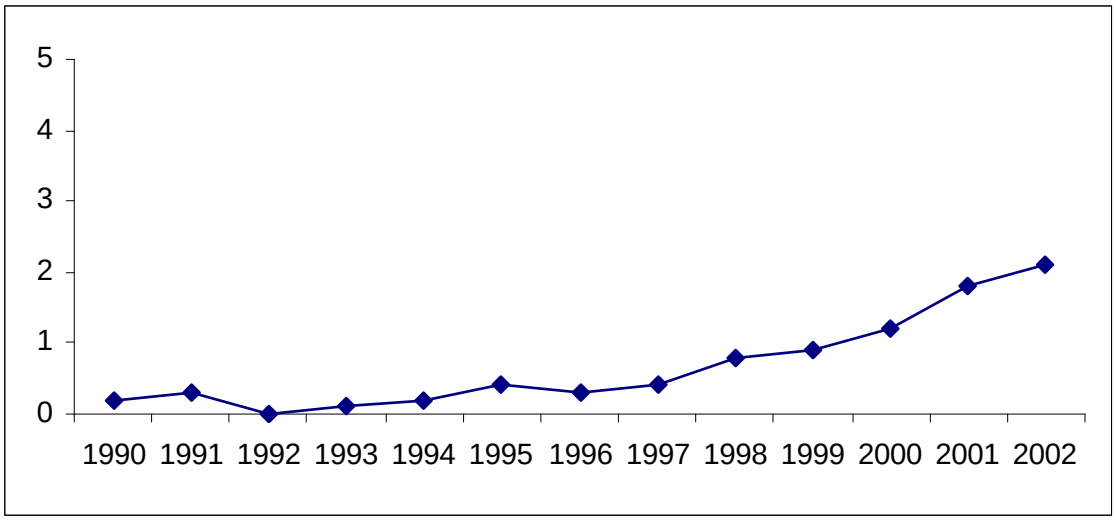
Table 3. Genetic Trend for Calves



Note that there was very little change from 1990 to 1996 but since then there has been a very positive trend for improved docility.

The genetic trend for cows in the breed can also be monitored (see Table 4).

Table 4. Genetic Trend for Dams



Genetic change in the cow herd is always much slower because the turnover of cows is slow. However there is a small positive trend for the Limousin cow herd since 1996 with the average EBV now +2.1.

Docility and Eating Quality

Recent research in tropical breeds has shown a good genetic correlation between docility and tenderness and eating quality as perceived by consumer panels. This means that selection for improved docility will produce more tender beef for our consumers. Limousin is the only breed that has the tools available to select for better docility and better eating quality of beef.