Breeding structure of the UK pedigree Limousin population

Introduction

- Limousin is the UK’s most numerous beef breed
- At least 75% of Limousin stock bulls in commercial herds are pedigree (Todd et al 2011)
- 90% of limousin sired progeny are slaughtered for prime beef (Todd et al 2011)
- Long term positive genetic trend in Beef Value (BV)
- A key question for genetic improvement is ; which herds drive selection in the breed?

Aim

- Investigate the influence of herds contributing the most sires within the pedigree population
- Quantify the impact of imported genetics
- Identify if top herds (by sire contribution) use EBV technology

Method

- Pedigree and BV records from the BASCO database analysed
- Herds categorised according to the number of sires and paternal grandsires (PGS) of bull calves registered in 2010 which they bred
- Population statistics were calculated for the top 5% of such herds
- Proportion of imported sires and semen sires calculated
- 2010 BV used to estimate selection intensity

Results

- 1270 herds registered 8492 bull calves in 2010
- 31% of these calves were bred by AI
- The top 5% (63) of herds bred 29% of these calves and 50% of the sires of these calves

- The top 5% of herds also bred 74% of UK born paternal grandsires (39% of all PGS)
- 47% of PGS were either directly imported or were the fathers of imported sires.

Figure 1. The origin of sires of Limousin bull calves registered in 2010

Table 1. Beef Value and accuracy of animals in the top 5% of herds (by contribution of sires and PGS) compared with the average UK herd.

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<tr>
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<th>Top 5%</th>
<th>All UK herds</th>
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<tbody>
<tr>
<td>2010 born bull calves</td>
<td>25.3 (0.62)</td>
<td>23.5 (0.54)</td>
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<tr>
<td>Sires</td>
<td>27.5 (0.83)</td>
<td>24.0 (0.71)</td>
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<tr>
<td>Dams</td>
<td>21.1 (0.73)</td>
<td>19.2 (0.61)</td>
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<tr>
<td>Paternal grandsires</td>
<td>25.4 (0.91)</td>
<td>22.4 (0.81)</td>
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Conclusions

An elite group of bull breeding herds drives selection in the UK pedigree Limousin herd

These herds use sires with above average Beef Values. Although accuracies are higher, this is not enough to account for higher BV, particularly in PGS

Imported genetics continues to play an important role in UK Limousin

Elite Limousin herds play a key role in genetic improvement in the commercial beef herd

References

BASCO database, accessed November 2011.

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