BREEDPLAN - PARTICIPATION RATES, NEW TRAITS AND LINKS WITH THE BEEF CO-OPERATIVE RESEARCH CENTRE

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SUMMARY
Breedplan enrolments increased satisfactorily until 1993, then plateaued during the drought of 1993-95. Since then, enrolments have again increased. Overseas involvement is very encouraging, particularly in New Zealand. Features in recent years has been the adoption of carcase and fertility traits and the introduction of an indexing system. Links with the Co-operative Research Centre (CRC) for Meat Quality are an important new development. These matters are discussed along with extension priorities.

Keywords: Breedplan, adoption rate, traits, beef cattle

INTRODUCTION
Breedplan is the Australian and international beef cattle genetic evaluation system, operating since 1985. This paper discusses its adoption rate, extension priorities, progress with the introduction of carcase and fertility traits. Links with the major new Australian research group, the Meat Quality Co-operative Research Centre are also explored.

ADOPTION RATE
Australian enrolments plateaued during the drought of 1992-95, at around 1,300 members. Membership has since risen significantly in 1996, to around 1,600, partly due to new corporate membership arrangements with Breed Societies. Breedplan is increasingly dealing with Breed Societies rather than individual members. The Societies have control of their databases and decide policy on such things as the release of new Estimated Breeding Values (EBVs). There is a trend in several breeds for the remaining larger herds to join. The participation of these herds is, of course, critical. In the Hereford breed for example, approx 70% of bulls sold, come from the largest 11% of herds. Over 90% of all Angus seedstock herds producing 100 or more calves a year, are in Breedplan, with Hereford and Poll Hereford over 80%. This compares to 40-50% in some breeds. The total numbers of recorded animals and records processed, therefore, has continued to rise satisfactorily with this participation by large herds.

OVERSEAS INVOLVEMENT
The participation of overseas breeders continues to show encouraging growth. This is for both individual herds and particularly Breed Associations. This is important as it allows Breedplan overheads to be spread over more herds and it assists international evaluations and the exchange of genetics. Breedplan now conducts Trans-Tasman analyses for several breeds (Table 1) and Murray Grey also include UK and US herds. The US Salers and Shorthorn analyses are done by Breedplan, and there are individual herds in Argentina, Brazil, Thailand, Canada and the Philippines. The Canadian Angus pedigree system is also run by Breedplan.

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**BREEDS AND TRAITS IN GROUP BREEDPLAN**

Group Breedplan, which compares animals across herds within a breed, is now by far the most widely used system. Within-herd analyses are used only by a small number of genetically-unlinked herds in the main breeds and by members of smaller breeds. Some Tropical breeds in Australia which have lower use of AI and performance recording, are also still in this category. Table I shows the breeds, and their traits recorded in Group Breedplan. Gelbvieh is the next breed expected to join this list shortly.

### Table 1 Breeds and traits in 1996 group Breedplan

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<tr>
<th>Breed</th>
<th>Aust</th>
<th>NZ</th>
<th>Calving</th>
<th>Gestation</th>
<th>Birth</th>
<th>Milk &amp; 2/4/600d</th>
<th>Scrotal</th>
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<th>EMY%</th>
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<tr>
<td>Angus</td>
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<td>Belmont Red</td>
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<td>Charolais</td>
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<td>Hereford</td>
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<td>Limousin</td>
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<td>Murray Grey</td>
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<td>Poll Hereford</td>
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<td>Santa Gertrudis</td>
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<td>Simmental</td>
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<td>South Devon</td>
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Note: These breeds collectively represent over 85% of the straightbred bulls in Australia.

**BREEDOBJECT**

With increasing numbers of EBVs available, and the demand for balanced genetics, methods of combining EBVs into an economically weighted index has been slowly building. Foreseeing this requirement the Animal Genetics & Breeding Unit (AGBU), with MRC funding, has for several years been developing the concept. It was recently launched as Breedobject (Breeding Objective). Options include a bureau service through the Breed Societies and Breedplan; a PC version for consultants to develop customised indices for breeders, societies etc; and a junior version for individual breeders to do indices for clients, and their own selection. Breedobject is currently enjoying some popularity to assist the judging of performance classes at shows.

**CARCASE TRAITS**

Carcase EBVs for fat, eye muscle area and more recently yield%, have been available since 1991. These are developed from scanning live cattle. Despite the cost of $6-10/head, this has proven very popular. 30% to 75% of sires reported in the Annual Sire Summaries of Murray Grey, Hereford, Poll Hereford and Angus had carcase EBVs in 1996. These are much more widely available than in North America for example, where only the Angus breed has significant carcase
EBVs (these are from abattoir carcase data and include marbling, but are only computed on a Sire model).

AGBU, with Meat Research Corporation, Breed Society and CRC support, is researching scanning for marbling. This will be available as an EBV as soon as the technology is proven.

An improved yield % EBV will be introduced in 1997, after analysis of Beef CRC slaughter data on 1,600 purebred steers. Commercial abattoir carcase data will be incorporated into Breedplan by late 1997. Future carcase EBVs will probably be estimated from a mix of scanning, abattoir data and DNA tests.

LINKS TO THE BEEF CRC
Breedplan has strong links with the genetics program of the Beef CRC (and several other large commercial and research progeny tests). The CRC straight breeding program involves the Angus, Hereford, Murray Grey, Shorthorn, Brahman, Santa Gertrudis and Belmont Red breeds. Studs of these breeds generate progeny for CRC use, from associated commercial herds. Prominent link sires are used, and the growth and carcase data are being fed into Breedplan, with 1,600 steers processed so far.

The CRC Northern Crossbreeding experiment involves Brahman cows joined to the above breeds except Murray Grey, but with Charolais and Limousin added.

Half of all progeny are being finished on grain and half on grass. There are common sires for both programs, and slaughter at three weights. This will allow the comparison of EBVs for straight and purebreeding, grain or grass finishing and data to allow several breeds to have a common Breedplan base and generate Multibreed EBVs if desired.

OTHER NEW TRAITS AND SERVICES

* Calving Ease. Australian Angus, Limousin and Simmental now publish EBVs on sires, for direct Calving Ease and Daughters Calving Ease. These are computed from birth weight, calving ease score and gestation length data.

* Mature Weight EBVs. The research for this has been completed by AGBU. At least one Breed Society is expected to produce EBVs for the 1997 analysis.

* Multibreed EBVs. Liaison is continuing with AGBU, Breed Societies, MRC, industry and government research groups on the establishment of a database for crossbreed progeny test information. This would ideally be linked to the Breed Society databases, allowing the use of all data in all analyses.

* Multiple sire joinings and marking to weaning options. These innovations are designed for larger herds and those not able to collect birth dates. Both are now incorporated in the
main Breedplan system at ABRI and await Breed Society initiatives to customise the data input and reporting software.

* **Electronic data entry** is becoming more widely used and a small discount is offered. Several breeds offer sire search services.

* **Tropical breeds.** While participation by seedstock breeders has been slower than desirable there are currently signs of a rapid improvement. Scrotal Size and carcase EBVs have been released for Belmont Red and Brahman, and the first GROUP analysis has been done for Santa Gertrudis, in 1996.

**EXTENSION ACTIVITIES**

Extension support in Australia continues to be delivered by a mix of State extension services, and increasingly, Breed Society technical staff. State extension staff vary greatly in their ability to support Breedplan. While the overall trend is to wind these services down, most states still have some active, well trained people. Victoria, and NSW have several new young beef extension officers. A major extension initiative in the 'public sector', has been a series of Field Days - "Better Bull Buying to Target Markets". These teach the applied use of Breedplan with a market orientation.

A full time extension co-ordinator position at ABRI was jointly supported by the States in rotation and with MRC financial help, until 1992. Since then, NSW Agriculture has provided an officer part time with ABRI paying a consultancy fee for that portion of the work which is National. This facility provides some support for State and Breed Society extension staff. With the latter group, there is considerable co-operation and sharing of extension literature.

**SOME CHALLENGES FOR THE FUTURE**

* Ensuring continuing industry/government. funding of R and D.
* Maintaining a balance of Breed Society and independent extension.
* Developing EBVs for crossbred cattle.
* Ensuring adequate participation in Northern Australia. The funding of an extension position, perhaps jointly funded by ABRI, Breed Societies and MRC, is a priority.
* Educating members in the correct use of management group codes, and the need for full herd recording.
* Implementing female fertility EBVs for Tropical breeds.
* Introducing marbling EBVs, and combining scanning data with abattoir carcase measurements.