# A YOUNG BULL PROVING SCHEME FOR AUSTRALIAN ANGUS

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## SUMMARY

The Angus Young Bull Proving Scheme was recently launched by the Angus Society of Australia. The scheme identifies candidate young bulls for proving based on an index of EBVs which targets commercial herd profit. Candidates which meet strict structural standards become test bulls, which will be used extensively in both seedstock and commercial herds. The scheme aims to identify about 3 elite sires for the breed from each round of testing. Details are described.

## INTRODUCTION

The Angus Society of Australia and its members have been high adopters of performance recording, genetic evaluation and breeding technologies for more than twenty years. The breed has taken up BREEDPLAN technology (Nicol et al. 1985) at a faster rate than other breeds. The breed was first to utilise across-herd Group BREEDPLAN evaluations for growth traits (1986) and to publish across-herd evaluations for ultrasonically-scanned carcase traits (1990).

In 1988 the Society put in place a software system which facilitates whole-herd recording. The basis for the system is a female inventory which allows for the use of artificial insemination (AI), natural sires and hand-mated sires, and for recording date-of-service or bull-in date and disposal codes. In 1995 there were 32,707 recorded registered females in the inventory and a further 16,362 performance-recorded commercial straightbred Angus females. The latter are from the Angus Performance Register (APR), a Society initiative to encourage similar performance recording and genetic evaluation for commercial stock as for registered stock.

The Society published across-herd genetic evaluations for the female fertility trait Days to Calving (Schneeberger et al. 1991) in 1993 and across-herd evaluations for Calving Ease in 1994.

With this range of Angus Group BREEDPLAN estimated breeding values (EBVs) available - encompassing each of the major performance trait complexes (calving ease, fertility, growth and carcase) - the breed is increasingly able to objectively identify and target the balance of traits that is best for commercial client profitability. This exciting possibility for furthering breed development, plus the need of members for objective information on traits which can presently only be obtained through progeny testing

(eg. marbling), led to the launch in March of 1995 of the Angus Young Bull Proving Scheme. This paper briefly describes this scheme.

## ANGUS YOUNG BULL PROVING SCHEME

The scheme aims to utilise the most promising young genetics of the Angus breed to further breed improvement for commercial beef attributes. It is a voluntary scheme open to both Angus Society members and commercial breeders.

The scheme involves three stages of selection - selection of Candidate bulls from among all young registered bulls, selection of Test bulls from the Candidate bulls, and identification of Elite bulls from the Test bulls following proving. The scheme is illustrated in Figure 1.

Figure 1. Angus Young Bull Proving Scheme
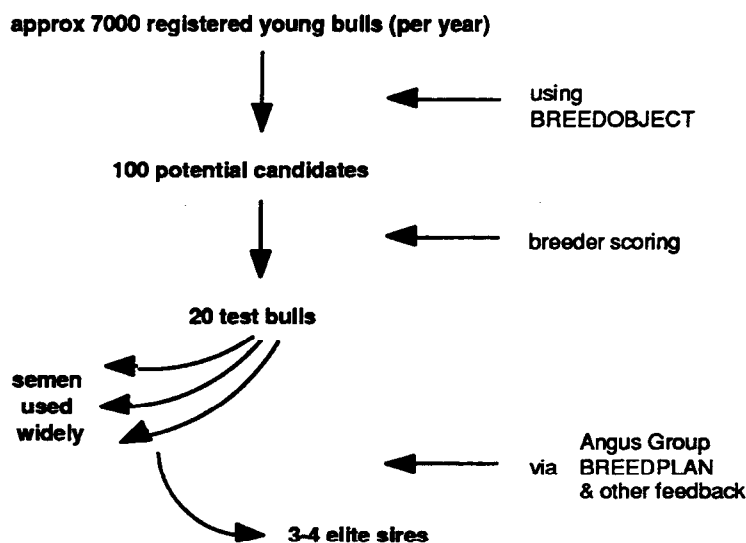


## SELECTION OF CANDIDATE BULLS

One hundred Candidate bulls will be identified each year by screening all of the registered yearling bulls of the breed for their balance of EBVs. This will be achieved using an index of EBVs developed with BREEDOBJECT (Barwick et al. 1992). To restrict inbreeding, the maximum number of sons that can be included by any one sire is 10.

Initially, the index targets a breeding objective for straightbred beef production where there is flexibility to turn off animals at 15-18 months off pasture or to carry them on for lot-feeding and turn-off at 24 months. Traits considered in the breeding objective (Barwick et al. 1992) are sale weight (direct), sale weight (maternal), cow weight, dressing percentage, saleable meat percentage, fat depth, cow weaning rate, calving ease (direct), calving ease (maternal), bull fertility and cow survival rate. Marbling is not included in the first year of the scheme but will be included in the index as this becomes possible.

## SELECTION OF TEST BULLS

All candidates, together with their female relatives, will be inspected by a panel of three to decide the 20 bulls to be tested each year. No more than five bulls by any one sire will be included in the Test bulls in any one round. The number of bulls tested in any year could be modified by seasonal conditions and demand for semen and numbers may also change with further research.

## BULL PROVING

Semen will be collected from the 20 Test bulls each year and use of the semen encouraged across the breed. Registered, APR and commercial herds will all be involved. This progeny testing will boost the accuracies of the EBVs available on the young Test bulls. Fertility, calving, scanned carcase and growth traits will be comprehensively recorded and evaluated for progeny in registered and APR herds. Steer progeny and surplus heifers will also be grown out on pasture and their feedlot performance and carcase performance assessed in commercial herds.

## IDENTIFICATION OF ELITE SIRES

It is envisaged that about three sires per round will be identified and accorded the status of Elite sires. Semen from these sires will be available for widespread use in the national Angus herd and will be potentially valuable for export. The details of the method to be used to classify Elite sires have not been finalised. However this will include a post-test re-evaluation of the merit of the Test bulls for the breeding objective targeted, a reassessment of the bulls for structural soundness, and further consideration of the likely impact on inbreeding. Further research will be carried out on optimum use of these sires.

## ANGUS 95

The index of EBVs used to identify Candidate bulls for testing in 1995 is called Angus 95. It is an aggregate EBV for the nominated breeding objective, with units of $ per cow joined per year. The Angus 95 index was used to identify Candidate 1993 drop bulls for testing in 1995. Average EBVs for the 20 leading Candidate bulls are shown in Table 1.

## DISCUSSION

The textbook approach to breeding says that the breeding objective should be decided before the selection criteria are established and the recording system set up. The reality for Angus in Australia and perhaps for other breeds of the world has been that breeders first need to gain confidence in the proxies for performance (EBVs) in a range of traits before considering more comprehensive objectives and optimal selection criteria. For many breeders this confidence has now been gained. Angus breeders generally recognise that not only is there a need to improve a mix of traits, ie. for balanced breeding, but that the real target is to achieve the trait improvement that best helps the beef producer to be profitable.

Table 1. Average EBVs for the top 20 Candidate 1993 drop bulls for testing. Breed average for contemporaries is given in parentheses.

| | |
|---|---|
| Calving Ease (direct) | -0.4 % (-0.4) |
| Calving Ease (maternal) | +0.1 % (+0.1) |
| Birth Weight (direct) | +5.0 kg (+2.9) |
| Birth Weight (maternal) | +0.05 kg (+0.0) |
| 200-Day Growth | +36 kg (+18) |
| 400-Day Weight | +67 kg (+36) |
| 600-Day Weight | +91 kg (+46) |
| 200-Day Milk | +4.8 kg (+4.1) |
| Days to Calving | -0.8 day (+1.2) |
| Scrotal Size | +1.1 cm (+0.3) |
| Eye Muscle Area | +4.3 sq cm (+0.3) |
| Rump Fat | +0.15 mm (+0.2) |
| Angus 95 | +64 (+25) |

Also noteworthy is the increasing importance of artificial breeding technologies to genetic advancement. In recent years 20-25 percent of registered Angus cattle have been produced by AI, with up to a further 5 percent being bred using embryo transfer. The level of artificial breeding in commercial Angus herds has also increased. This is evidenced by the level of commitment shown by Angus breeders to industry progeny tests of feedlot steers. Considerably more than 50 percent of steers from temperate areas in recent tests have been Angus (Baud et al. 1994).

The Angus Young Bull Proving Scheme is an exciting development for the Angus breed. Initially it targets the ability to perform for a single beef enterprise type, albeit a versatile one where animals could be turned off at 15-18 months or at 24 months after feedlot finishing. As the scheme develops it may be necessary to employ indexes targeting more than one type of enterprise. This is because the scheme aims to improve Angus genetics for commercial beef production systems operating across Australia. These matters will be the subject of ongoing review and discussion with breeders.

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