Southern Beef Technology Services: Eleven Years of Facilitating Genetic Improvement in the Southern Australian Beef Industry

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Summary

Southern Beef Technology Services (SBTS) has provided the southern Australian beef industry with technical support to improve the understanding and adoption of BREEDPLAN and related genetic improvement technologies since its inception in 2006. A range of extension initiatives have been implemented in this time, including workshops, field days, on property consultations, webinars and written documentation. In the ten years since SBTS began, the average weighted selection index of stakeholder breed associations has increased by $2.69 per year. In the five years prior to the implementation of SBTS, the increase in average weighted selection index per year was just $1.05. The SBTS project has been further funded until 2021, and will continue to deliver a wide range of extension initiatives with the aim of facilitating additional genetic improvement in the Southern Australian beef industry into the future.

Keywords: beef cattle, extension, BREEDPLAN, breeding values, genetic improvement

Introduction

The Southern (SBTS) and Tropical Beef Technology Services (TBTS) partner projects provide the southern and northern Australian beef industries, respectively, with hands-on technical support to improve the understanding and adoption of BREEDPLAN (Nicol et al. 1985) and related genetic improvement technologies. The SBTS project is a joint initiative of the Agricultural Business Research Institute (ABRI), Meat & Livestock Australia (MLA) and breed associations that run the majority of their cattle in southern Australia. These include Blonde d’Aquitaine, Charolais, Devon, Hereford, Limousin, Murray Grey, Red Angus, Red Poll, Salers, Shorthorn, Simmental, Speckle Park and Wagyu, while Angus, Gelbvieh and South Devon have had previous involvement in the project.

The SBTS project has been underway since 2006 and is currently in its third phase, with funding until 2021. According to figures available from the Australian Registered Cattle Breeders Association (2017), the project currently services breeders of approximately 63,000 seedstock cattle (average number of seedstock cattle registered with stakeholder breed associations for the 2014-2016 calving drops). These 63,000 cattle represent 46% of the Southern Australia seedstock industry, and 38% of the total Australian seedstock industry.
The aim of the SBTS project is to facilitate an increase in the rate of genetic improvement of seedstock cattle in stakeholder breed associations through a wide range of extension initiatives and activities.

Extension Activities

Technical Support

SBTS provides technical support to individual breeders and to staff, boards and technical committees of stakeholder breed associations on a day-to-day basis. For breeders, this ranges from the general provision of advice regarding the use and application of genetic technologies, to more complex EBV diagnostics. For breed associations, activities range from the review of preliminary GROUP BREEDPLAN results, assistance with the Beef Information Nucleus (BIN) programs and the development of genomic implementation plans. Assistance with the utilisation and interpretation of GeneProb (Kerr & Kinghorn, 1996), MateSel (Kinghorn, 2011) and BREEDObject (Barwick & Henzell, 2005) results are available to both breed societies and individual breeders.

Workshops and Field Days

SBTS has conducted 41 regional forums at numerous regional locations across Southern Australia. At these forums, the technical officers presented the latest updates, tips and tricks to 664 seedstock and commercial breeders and other beef industry personnel. Analysis of benchmarking questions asked before and after the forums in 2017, revealed that the forums were an effective method for conveying messages to breeders. Specifically, there was a 61% improvement in knowledge of optimal contemporary group formation, a 51% gain in knowledge about single step genomics and an average overall gain in BREEDPLAN knowledge of 33%. When asked whether they had a better understanding of BREEDPLAN following the Regional Forums, 92% of all participants agreed that they did and 90% of all participants rated the Regional Forums as either excellent or very good.

For commercial producers, SBTS offers BullSELECT Workshops (previously known as Closer to Your Client Workshops). These comprise of a mix of practical discussion and yard demonstration, specifically concentrating on the effective selection of breeding cattle and how to use EBVs and selection indexes when selecting a bull. Essentially, the BullSELECT workshops were aimed at providing commercial producers with a better understanding of the genetic information available and enabling more informed bull purchasing decisions, whilst also facilitating the opportunity for seedstock producers to create a closer relationship with their commercial clients by hosting a workshop on farm. Some workshops have also been hosted by state departments of agriculture and other industry organisations. Since 2007, ~2,300 beef producers and industry personnel have attended 75 BullSELECT workshops.

In addition, SBTS has also attended and presented sessions at approximately 215 beef industry field days and events that have been attended by ~15,000 attendees. These events include those hosted by individual breeders, state departments of agriculture, breed associations and other industry organisations.

On Property Consultations

SBTS offers individual herd visits to seedstock producers where detailed herd analyses and
reviews are provided. These analyses include the BREEDPLAN Completeness of Performance (CoP) and SBTS Genetic Improvement Benchmarking Summary reports. The CoP report assesses the quantity of pedigree and performance information that has been submitted to BREEDPLAN by the herd. This report allows producers to identify those performance traits which they are not recording, as well as any traits that are being recorded on only a small percentage of animals. This report also allows SBTS personnel to make recommendations on how the level of performance could be increased. The Genetic Improvement Benchmarking Summary report provides producers with information relating to the current genetic merit of their animals, the genetic improvement achieved in recent years and the structure of their herd in relation to a number of key drivers of genetic improvement within breeding programs. This report allows the producer to benchmark their enterprise and to identify areas that can be targeted to improve their genetic improvement. To date, 337 herd visits have been conducted with some herds targeted for a visit on the basis of their influence within the breed. This targeting allows SBTS to assist breeders who are likely to lead their respective breed’s genetic improvement.

Webinars and Social Media

Since 2009, SBTS has produced and delivered 40 interactive webinars. These are ~1 hour video presentations on relevant cattle breeding topics where the online audience can submit questions to the presenters live. Once recorded, all webinars are posted to the SBTS YouTube channel (https://www.youtube.com/user/sbtstbts) where they have been viewed 10,490 times as of September 2017. The webinars were attended live by 2,266 producers and industry personnel. At the end of each webinar, attendees were asked to answer a short survey. The most recent webinars were run in 2016, with 86% of participants finding the webinars useful and 85% agreeing that they had a greater understanding of the topics presented. Similar results were achieved in previous years.

Since May 2013, SBTS has utilised Facebook (https://www.facebook.com/SBTSTBTS/) and Twitter (@SBTSTBTS) to inform breeders of upcoming SBTS events, newly released documentation and any other general industry information of relevance. As of September 2017, the SBTS Facebook page has 518 likes while the SBTS Twitter account has 250 followers.

Written Documentation

SBTS has developed an extensive set of technical articles, BREEDPLAN tip sheets and BREEDPLAN booklets. This documentation informs seedstock producers on current developments in the genetic progress technology area and any upcoming extension initiatives. The written documentation is distributed in both electronic and hard copy format by SBTS, BREEDPLAN and stakeholder breed associations. All publications are available to download from the SBTS (http://sbts.une.edu.au/) and BREEDPLAN (http://breedplan.une.edu.au) websites.

Project Impact

A key objective of the SBTS project has been to facilitate an increase in the rate of genetic progress of the stakeholder breed associations. This metric is measured by the change in the weighted average BreedObject selection index value of animals, where the breed associations’
indexes are weighted to reflect the proportion (number of animals) of that breed in the SBTS project. As Figure 1 illustrates, from 2006 when the SBTS project began until 2016, the average weighted selection index has increased by $26.86, or an average of $2.69 per year. In comparison, the increase in average weighted selection index for the 5 years preceding the SBTS project was $1.05 per year.

![Weighted average selection index trend in current SBTS breed associations.](image)

**Conclusion**

Since 2006, the SBTS project has provided a range of technical support initiatives and extension activities for the southern Australian beef industry. This has facilitated an increase in the rate of genetic improvement for the stakeholder breed associations, with the average weighted selection index for these breeds increasing by $26.86 between 2006 and 2016. With the SBTS project currently funded until 2021, the delivery of extension initiatives will continue with the aim of facilitating additional genetic improvement in the Southern Australian beef industry.

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