



finalreport

Project code: NBP.313
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Tropical Beef Technology
Services
Date published: December 2005
ISBN: 1 74036 887 8

PUBLISHED BY
Meat & Livestock Australia
Locked Bag 991
NORTH SYDNEY NSW 2059

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Tropical Beef Technology Services

Abstract

Tropical Beef Technology Services (TBTS) is a joint initiative between Meat and Livestock Australia (MLA), Agricultural Business Research Institute (ABRI) and eight tropical breed societies. The TBTS project began in August 1997 after it was recognised that the level of BREEDPLAN performance recording in tropical seedstock herds was at a far lower rate compared to their British and European breed counterparts.

Over the term of this project (August 2002 to August 2005) TBTS has directly assisted the tropical breeds to increase the number of BREEDPLAN recorded calves from 47% (2000 drop) to 49 % (2003 drop). Over the same period the number of herds performance recording with BREEDPLAN has increased from 231 (2002 calendar year) to 250 (2005 calendar year).

This has been achieved through a range of communication events including 45 workshops/field days, 210 on farm visits and numerous articles in rural press and breed society publications.

The improvement in profitability via genetics was estimated using the Braham BreedObject \$Index trends. The net dollar (\$) gain to the northern beef industry via Brahma genetic improvement (over the term of this project) is estimated to be \$41.4 million.

The TBTS project is currently in its 3rd term and 8th year of operation.

Executive Summary

Tropical Beef Technology Services (TBTS) is a joint initiative between Meat and Livestock Australia (MLA), Agricultural Business Research Institute (ABRI) and eight tropical breed societies. The TBTS project began in August 1997 after it was recognised that the level of BREEDPLAN performance recording in tropical seedstock herds was at a far lower rate compared to their British and European breed counterparts in southern Australia. The following information relates to the 2nd term on the TBTS project which ran from August 2002 to August 2005.

It has long been acknowledged that genetic progress in beef cattle is slow due to long generation intervals and, in many cases, low selection intensity on traits of economic importance. However, genetic progress is cumulative and can be maintained at modest annual costs. The TBTS project has assisted many seedstock herds, and animals' within those herds, to be involved in Australia's national genetic evaluation program, BREEDPLAN.

A higher percentage of animals have BREEDPLAN EBVs available due to the TBTS project. It has directly assisted the tropical breeds to increase the number of BREEDPLAN recorded calves from 47% (2000 drop) to 49% (2003 drop). This has meant that more animals, within seedstock herds and bulls available to commercial herds have EBV rated genetics. This enabled more selection intensity for traits of economic importance and greater profitability via genetics for the northern beef industry.

More tropical beef herds participated in BREEDPLAN as a direct result of the TBTS project – stage 2. Over the term of this project the number of herds performance recording with BREEDPLAN increased from 231 (2002 calendar year) to 250 (2005 calendar year) - an increase of 8%.

BREEDPLAN EBVs are more accessible today than ever before via an internet system known as Internet Solutions. At the time of this report, this system was available to six tropical breed societies. TBTS played an integral role in introducing this information technology. The current trends in both number of page hits and unique users are outstanding. In the 04/05 financial year there were 617,010 pages hits on the tropical breed Internet Solutions' systems. This indicated that producers were accessing both pedigree and performance data for use in their selection decisions.

Genetic gain in dollar (\$) terms for the Brahman breed was estimated through the trends for the BreedObject \$Index for a Grassfed Jap Ox production system. The average rate of increase in the \$index during the life of this project was \$0.80/head/year. The total increase in the \$Index between the 2000 and 2003 drop calves was \$2.30.

Although it was difficult to accurately quantify the level of use of BREEDPLAN EBVs in the commercial sector, this was partly achieved in January 2004 when the MLA published results of an R&D awareness and adoption study. An independent body surveyed 502 Northern beef producers on a range of R&D issues. Key finding of this study showed that BREEDPLAN was the highest ranked breeding tool which producers were aware of when prompted (78%). Of those who were aware of BREEDPLAN, 45% used EBVs in deciding which bull to purchase or breed from (NB 15% of the total respondents surveyed were backgrounders or feedlotters who did not directly use BREEDPLAN).

TBTS played an important role in the northern beef industry. There was a high level of awareness and significant use made of BREEDPLAN EBVs as a selection tool. This was achieved through a range of communication events over the term of the project including 45 workshops/field days, 210 on farm visits and numerous articles in rural press and breed society publications. The results from the MLA independent survey were very encouraging but also showed there was still room for expansion of BREEDPLAN use in the Northern Australia.

All TBTS stakeholders, including the MLA, recently committed to a 3 year extension of the TBTS project.

Contents

	Page
1	Background..... 6
2	Project Objectives 6
2.	Increase \$index/ by \$1.50/head/year for the Brahman breed. 6
3	TBTS activities 7
3.1	Communication 7
3.2	On-property visits 8
4	Success in Achieving Objectives..... 9
4.1	Increase the number of calves recorded on BREEDPLAN from 26,000 (2000 year base) to 33,500 (2003 calving year)..... 9
4.2	Increase \$index/ by \$1.50/head/year for the Brahman breed 12
4.3	Introduce BreedObject \$index technology to the internet databases of at least three tropical breeds including Brahman 13
4.4	Increase the number of weaning weights submitted electronically to BREEDPLAN by at least 10% each year 16
4.5	Develop a strategy to utilise sire line data out of the CRC for use by industry 16
5	Success in Achieving Objectives..... 17
5.1	Increase the number of calves recorded on BREEDPLAN from 26,000 (2000 year base) to 33,500 (2003 calving year)..... 17
5.2	Increase \$index/ by \$1.50/head/year for the Brahman breed 17
5.3	Introduce BreedObject \$index technology to the internet databases of at least three tropical breeds including Brahman 17
5.4	Increase the number of weaning weights submitted electronically to BREEDPLAN by at least 10% each year 18
5.5	Develop a strategy to utilise sire line data out of the CRC for use by industry 18
6	Impact on Meat and Livestock Industry – now & in five years time 18
7	Conclusions and Recommendations..... 19

1 Background

Tropical Beef Technology Services (TBTS) is a joint initiative between Meat and Livestock Australia (MLA), Agricultural Business Research Institute (ABRI) and currently eight tropical breed societies which include the Australian Brahman Breeders Association (ABBA), Santa Gertrudis Breeders (Australia) Association (SGBAA), Droughtmaster Stud Breeders Society (DSBS), Australian Braford Society (ABS), Belmont Australia (BA), Australian Brangus Cattle Association (ABCA), Australian Charbray Society (ACS) and Simbrah Society of Australia (SSA).

The TBTS project began in August 1997 after it was recognised that the level of BREEDPLAN performance recording in tropical seedstock herds was at a far lower rate compared to their British and European breed counterparts in the south.

The first term of the TBTS project ran from August 1998 to August 2002 under the helm of Richard Apps with all milestones exceeded ahead of schedule. The second term, which is the basis of this report, ran from August 2002 to August 2005. In August 2002 Christian Duff replaced Richard Apps as Technical Officer.

The TBTS project is in its 8th year of operation with all stakeholders, including the MLA, recently committing to a 3 year extension.

In the period documented in this report seven out of the eight breed societies listed above were stakeholders. The 3rd term of the TBTS project will see the Australian Charbray Society become a TBTS stakeholder.

2 Project Objectives

Objectives for the second term of the TBTS project were:

1. Increase the number of calves recorded on BREEDPLAN from 26,000 (2000 year base) to 33,500 (2003 calving year).
2. Increase \$index/ by \$1.50/head/year for the Brahman breed.
3. Introduce BreedObject \$index technology to the internet databases of at least three tropical breeds including Brahman.
4. Increase the number of weaning weights submitted electronically to BREEDPLAN by at least 10% each year.
5. Develop a strategy to utilise sire line data out of the CRC for use by industry.

MLA also required that TBTS ensure that the following key messages and activities were communicated:

1. The use of EBV's has been demonstrated scientifically to increase the genetic merit of cattle in northern Australia.
2. Productivity benefits from the use of EBV's occur in north Australia, not just southern Australia.
3. The use of EBV's has been demonstrated by beef producers to increase productivity in north Australia.
4. Genetic gains in beef cattle are slow to achieve but the benefits are cumulative and can be maintained at modest annual costs.
5. Genetic improvement is a low cost method to increase whole property productivity in north Australia.

3 TBTS activities

Between August 2002 and 2005 the TBTS project officer undertook a range of activities, focussing on the key messages and activities listed above. Activities included 45 workshops/field days, 210 on farm visits and numerous articles in rural press and breed society publications.

3.1 Communication

Over the past three year term TBTS has used a range of communication media as opportunities arise. These include:

- Continued contact with industry bodies such as Beef Improvement Association (BIA), Queensland Department of Primary Industries and Fisheries (QDPI&F), Beef Co-operative Research Centre (Beef CRC), Meat Standards Australia (MSA) and BREEDPLAN Technical Liaison Group (BTLG).
- Breed society Councils and sub-committees.
- Breed society publications.
- BREEDPLAN news.
- Direct contact with breeders.
- Discussion groups and training workshops.
- Rural Press – Queensland Country Life.
- ABC rural radio

Over the past three year term TBTS contributed to 45 workshops or field days. A sample of these events is listed below:

- Stud client open days:
 - Gylanda Santa Gertrudis – Theodore.
 - Eidsvold Santa Gertrudis – Eidsvold.
 - Balgree Santa Gertrudis – Goomeri
 - Kapalee Droughtmasters.- Biloela.
- DSBS Handling School - Gympie.
- ABS Educational Workshop – Boonah.

- Tremere Field Day (Belmont Red) - Moura
- Dalradie Field Day (Belmont Red)– Glastonbury.
- Genetics Horizons Expo – Rockhampton.
- ABBA Junior Beef School - Rockhampton.
- Santa Gertrudis Selection school – Dookie.
- Northern Beef program – Annual meeting.
- HerdMaster Training School – Rockhampton.
- Watasanta BREEDPLAN field day – Tamworth.
- Rosevale BREEDPLAN field Day - Jandowae
- Central Queensland Beef Improvement Association Branch meeting- Rockhampton.
- Far North Queensland Droughtmaster Breeders zone meeting – Mareeba.
- Beef CRC – Emerald Beef School.
- Brahman Selection School – Gympie.
- Braford NSW branch meeting (Benita Davis) – Armidale.
- Beef 2003 – Rockhampton.
- BreedingEdge pilot – Roma.
- ABBA BREEDPLAN users workshops (1 x Charters Towers, 2 X Rockhampton).

3.2 On-property visits

A significant component of time utilisation was spent contacting and canvassing prospective BREEDPLAN herds, as identified by each Society or visiting current BREEDPLAN herds. TBTS conducted approximately 210 individual herd visits in the past three year term.

The major reason for the requests was to assist with and provide training in herd recording programs. This was time well spent. People who were more confident and skilled with their herd recording program submitted greatly improved pedigree and performance data.

Herd visits were time consuming and expensive due to the distances involved and the need to travel interstate. However TBTS believes they should remain a high priority on the work program as they were the most effective way to demonstrate the functionality and requirements of participating in BREEDPLAN. They were also the most effective means of addressing complex data quality issues.

4 Success in Achieving Objectives

The TBTS project saw progress made towards the achievement of its objectives. Following are the outcomes and discussion for each project objective.

4.1 Increase the number of calves recorded on BREEDPLAN from 26,000 (2000 year base) to 33,500 (2003 calving year)

Table 1: No. of calves recorded on BREEDPLAN (by calving year)

Calving Year	ABBA	SGB(A)A	DSBS	ABS	ABCA	BA	Total
2000 (base year)	10,657	8,950	2,967	704	1,912	2,167	27,357
2001	10,769	9,342	2,778	648	1,104	2,172	26,813
2002	11,937	8,612	2,751	672	1,236	2,483	27,691
2003	10,653	7,874	2,990	662	907	1,671	24,757
2001 Target							28,000
2002 Target							31,000
2003 Target							33,500

The targets set at the beginning of this phase of the TBTS project were:

- to increase the number of calves recorded on BREEDPLAN in year 2001 calving year to 28,000;
- to increase the number of calves recorded on BREEDPLAN in year 2002 calving year to 31,000; and
- to increase the numbers of calves recorded on BREEDPLAN in year 2003 calving year to 33,500.

Table 1 shows the number of the 2000 (base), 2001, 2002 and 2003 calves (as defined by calving year) performance recorded in BREEDPLAN by the tropical breeds. The reason for reporting the statistics for the 2000 to 2003 drop calves in this report is due to the lag time between calves being born and performance recorded with BREEDPLAN. For example, in the 2005 calendar year it is standard practice to observe and report the statistics for the 2003 calf drop as they were the most current calf drop with a full set of performance data.

Overall there was a drop in the total numbers of calves recorded with BREEDPLAN. The drop was from 27,357 for the 2000 calving year to 24,757 for the 2003 calving year (10.6%). This drop in BREEDPLAN recorded calves was accompanied by a corresponding drop in calves recorded with each of the breed association. Over the same "calving" years, the numbers recorded on the primary and secondary registers decreased from 55,218 to 50,214 (9.06%). This was in line with herd reductions due to the drought over this corresponding period.

Most industry observers consider that the drought influence on cattle numbers has flow on effects for up to four years. This made it very challenging to meet this objective, but the continued high interest in BREEDPLAN, as shown by the increase in BREEDPLAN members (table 2) was promising. The number of herds currently enrolled in BREEDPLAN is summarised in Table 2.

Table 2: BREEDPLAN membership in tropical breed associations (by calendar year)

Calendar Year	ABBA	SGB(A)A	DSBS	ABS	ABCA	BA	Total
2002 (base)	71	88	29	18	14	11	231
2003	83	90	26	17	15	11	242
2004	83	90	31	16	16	14	250
2005	88	81	32	18	18	13	250
Increase since 2002	24%	-8%	10%	0%	29%	18%	8%

The number of BREEDPLAN member increased from 231 (2002 base year) to 250 (2005) over the term of this project. This was an 8% increase in BREEDPLAN membership for the tropical breeds. The ABBA and ABCA experienced increases in membership of over 20%. However, The SGB(A)A saw a decrease in membership of 8%. This arose from herds dispersals within the SGB(A)A.

Simbrah numbers are not presented in tables 1 or 2. They were difficult to distinguish separately in the Simmental herd book.

When considering these statistics one should be mindful that within all breeds, there are a relatively large number of small herds. Many of which find it difficult to implement BREEDPLAN effectively. While this problem existed for all breeds it was more significant in the tropical breeds due to the effect of generally longer joining and subsequent calving periods together with a lower utilisation of artificial insemination. These factors compounded the formation of effective contemporary groups

It should be noted that some herds within each society were recorded as BREEDPLAN members although they had not yet submitted performance data for analysis. Calves they recorded with any respective breed society were not included in the Table 1.

While it was useful to monitor the number of herds enrolled in BREEDPLAN and the number of calves those breeders recorded, it was more relevant to compare the number of calves analysed with the number being recorded to assess the level of uptake

These statistics report the number of calves recorded in the Associations primary and secondary registers for the 2003 calving year and are compared with those recorded on BREEDPLAN (Table 3). Recorded with BREEDPLAN means they have at least one post birth weight recorded.

Table 3: No. calves recorded on BREEDPLAN compared with calves herdbook recorded in 2003

	ABBA	SGB(A)A	DSBS	ABS	ABCA	BA	Total
2003 calving year calves recorded with BREEDPLAN	10,653	7,874	2,990	662	907	1,671	24,757
2003 calving year calves recorded on society database*	19,759	13,914	10,469	1,980	2,269	1,823	50,214
% BREEDPLAN Recorded	54%	57%	29%	33%	40%	92%	49%

The above comparison of calves recorded by breed societies with BREEDPLAN recorded calves illustrates that a significant proportion (49%) of most tropical breeds are now being evaluated. This figure also shows that there is still room for increase in performance recording with BREEDPLAN.

Table 4 provides a comparison of the 2000 base year with all years to the current position, based on the number of BREEDPLAN evaluated calves as a percentage of calves recorded in Primary and Secondary registers.

Table 4: Percentage of calves recorded on BREEDPLAN compared with calves herdbook recorded in 2000

%BREEDPLAN (Calving Year)	ABBA	SGB(A)A	DSBS	ABS	ABCA	BA	Total
2000 (base)	45%	54%	31%	29%	53%	80%	47%
2001	48%	58%	29%	27%	39%	97%	48%
2002	54%	57%	27%	30%	42%	98%	50%
2003	54%	57%	29%	33%	40%	92%	49%

Important points coming out of table 4 are that:

- The percentage of calves evaluated by BREEDPLAN rose from 47% (2000 base year) to 49% (2003 calving year) over the term of the project.
- Most breeds increased the percentage of calves recorded with BREEDPLAN (2003) compared to the base year (2000).
- Brahman, the dominant breed in Northern Australia, increased from 45% (2000 base year) to 54% (2003 calving year)

The following table describes the flow through effect of EBV rated genetics. It is based on a simple count of animals based on their calving year. An animal was counted as “in BREEDPLAN” if it had a post birth weight, scrotal size or carcass scan record. Those animals not recorded in BREEDPLAN were further checked to identify if they had a sire or maternal grand sire that had progeny analysed

for any of the post-birth traits (eg has progeny with a 200 day weight analysed). From this the total BREEDPLAN impact, expressed as a percentage, is given for each calving year.

Table 5: Percentage of herdbook recorded calves with performance (weight, carcass scan or scrotal size) recorded or a sire or maternal grand sire that have progeny performance recorded with BREEDPLAN.

Calving Year	ABBA	SGB(A)A	DSBS	ABS	ABCA	BA
2000 (Base)	74.2%	72.6%	59.1%	51.8%	64.9%	94.1%
2001	74.4%	72.8%	59.3%	54.4%	59.2%	98.3%
2002	76.9%	75.3%	59.6%	53.8%	60.2%	96.4%
2003	78.7%	75.6%	60.5%	54.5%	60.3%	90.4%

There is a strong flow through effect to unrecorded herds indicating that performance recorded herds were the key suppliers of seedstock sires. This is also an indicator of genetic linkage to non-BREEDPLAN herds.

4.2 Increase \$index/ by \$1.50/head/year for the Brahman breed

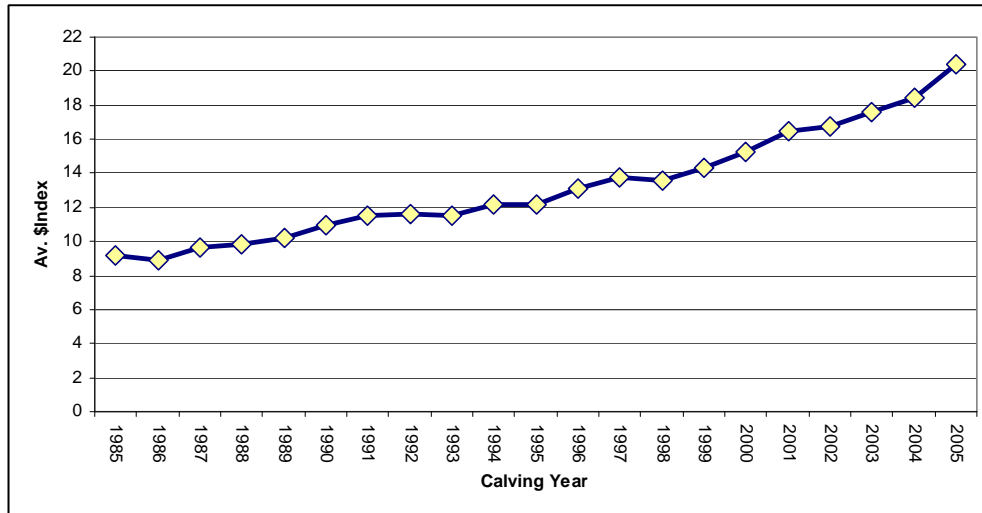
Figure 1 below gives the trend in BreedObject \$Index for the Brahman Grassfed Jap Ox production system. The average rate of increase in the \$index during the life of this project was \$0.80/head/year. The total increase in the \$Index was \$2.30. The average value of the \$Index for years of the TBTS project are listed in table 6.

Table 6. Average Brahman
jap ox \$Index by calving year

Calving Year	Average \$Index
2000 (Base)	\$15.30
2001	\$16.50
2002	\$16.80
2003	\$17.60
2004	\$18.40
2005	\$20.40

While the annual rate of increase did not reach \$1.50/head/year, it increased from \$0.2/head/year between 1997 and 1998 to \$0.8/head/year in the last full year of progeny records. For the rate of increase to reach \$1.50 and greater, Brahman members will need to record and select more effectively on fertility traits (days to calving & scrotal size). This is because a large amount of weighting (40%) is on the fertility EBVs in this \$Index. An encouraging sign was the increase of \$2.00/head/year between the 2004 and 2005 drop calves but this may change when more data is recorded..

Figure1: BreedObject \$Index for Brahman for Grassfed Jap Ox production system



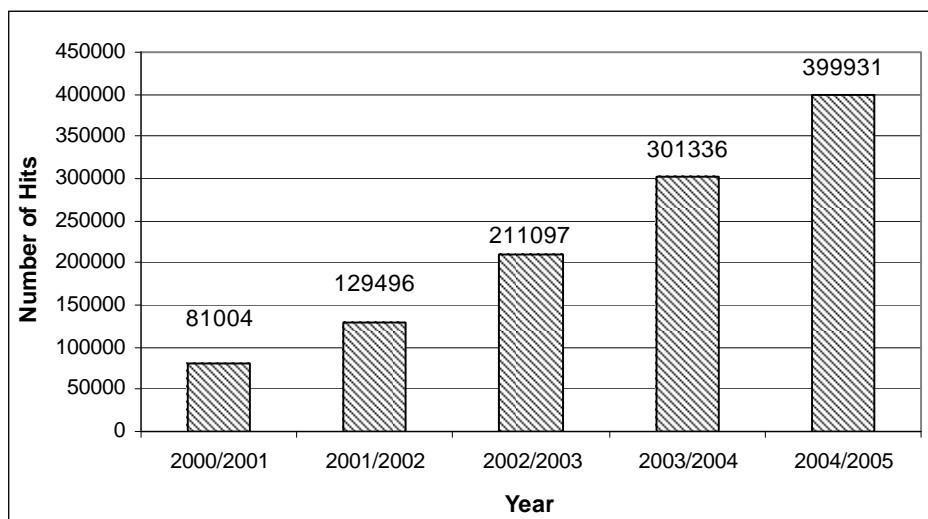
4.3 Introduce BreedObject \$Index technology to the internet databases of at least three tropical breeds including Brahman

There were two parts to this objective. The first part was the addition of at least three breed society databases search facilities on the web. The second part was the development and introduction of a BreedObject \$Index to these databases.

There were six TBTS breed societies with database search facilities on the web. These were the ABBA, SGB(A)A, ABS, DSBS, BA and ABCA. The ABBA and SGB(A)A had this search facility since August 2000 and May 2002 respectively. The ABS and DSBS database facilities were linked to their home pages in early 2004. In early 2005 the BA implemented the Internet Solutions facility with a link to their home page. By late 2005), the ABCA had also implemented the Internet Solutions facility with a link to their home page.

TBTS played an integral role in introducing this information technology to the breed associations listed above. This involved demonstrating it via data projector to the various councils. The trends on the ABBA web database were also used in this demonstration. A sample of these trends can be viewed below (Fig 2).

Figure 2. Hits on ABBA web database



In the 2004/2005 year the ABBA web enquiry database was visited by 4,239 unique users with 399,931 hits or pages of information displayed and viewed. This was a 390% increase in page hits on the ABBA database over just five years. The average enquiry level of users over a year was considerable (e.g. 94 pages of data).

The monthly page hits in 2004/2005 for the ABBA, SGB(A)A, ABS, DSBS and BA are displayed in table 8 and graphed in figure 3. There was an obvious spike in page hits from August through to October resulting from the northern bull sales. The graph also shows the increase in use of the online enquiry database from 03/04 to 04/05. This increase was driven by both the increase in use by breeds with existing online search facilities (ABBA, SGB(A)A) and the introduction of this facility by other breeds (ABS, DSBS, BA).

TBTS will continue to promote the web database facilities amongst members of the ABBA, SGB(A)A, ABS, DSBS and BA and encourage non-web database societies to obtain this facility.

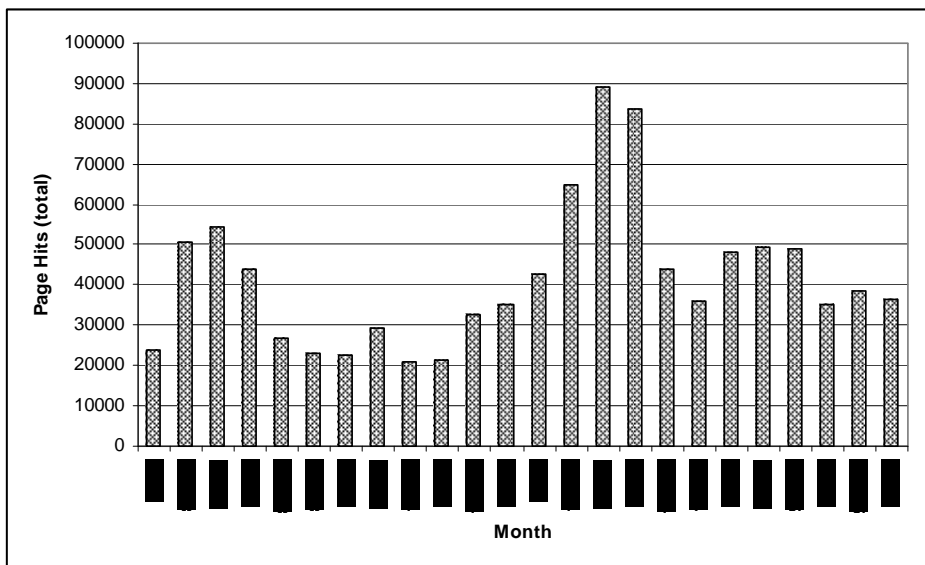
At the end of this project, only one TBTS society has a BreedObject \$Index available:- this being the ABBA. This \$Index was generated for a Grassfed Jap Ox production system. The ABBA technical committee recently discussed the generation of a second \$Index based on a domestic trade, self replacing herd production system.

It is anticipated that the SGB(A)A will be the next breed society to generate at least one and probably two BreedObject \$indexes. TBTS provided assistance in developing the parameters and generating the \$Indexes prior a SGB(A)A technical meeting (November 2005). More progress to the development of the \$Indexes as the SGB(A)A was undertaken subsequently with the inclusion of the first "days to calving" EBV analysis. The days to calving EBV is a very important component of the \$index for a self replacing production system.

Table 8. Internet Solution page hits by breed and month

Month	ABBA	SGB(A)A	DSBS	ABS	BA	Total
Jul-04	17,013	15,989	6,160	3,708		42,870
Aug-04	30,938	16,253	14,687	3,166		65,044
Sep-04	62,795	7,815	14,827	3,552		88,989
Oct-04	69,739	2,928	8,068	2,928		83,663
Nov-04	34,054	3,383	5,638	942		44,017
Dec-04	29,039	2,353	4,042	453		35,887
Jan-05	33,282	4,231	9,700	1,009		48,222
Feb-05	27,759	4,186	14,755	2,228	454	49,382
Mar-05	27,003	8,301	12,544	845	433	49,126
Apr-05	22,169	4,338	6,949	1,363	293	35,112
May-05	25,217	5,348	5,745	1,636	557	38,503
Jun-05	20,923	8,600	4,448	1,461	763	36,195
<i>Total</i>	<i>399,931</i>	<i>83,725</i>	<i>107,563</i>	<i>23,291</i>	<i>2500</i>	<i>617,010</i>

Figure 3. Page Hits by Month on Tropical Breeds Web databases.



The major limiting factor in generating a BreedObject \$Index for the other TBTS breed societies was the lack of animals with a range of traits recorded and analysed (weight, fertility, carcass). For a BreedObject \$Index to be of any use as a selection tool this must occur. In the 3rd term of this project, TBTS will continue to encourage BREEDPLAN members to record a range of traits, particularly fertility traits.

4.4 Increase the number of weaning weights submitted electronically to BREEDPLAN by at least 10% each year

Electronic submission of pedigree and performance information to breed societies and BREEDPLAN was beneficial in many ways. It increased the accuracy of data due to internal data checks in the herd recording software and also allowed more efficient data processing for inclusion in the BREEDPLAN analyses. During 2002/03, 2003/04 and 2004/05 the number of weaning weights received by the various breeds and the distribution by paper and electronic was documented. The results are as shown below.

Table 9. Percentage of weaning weights received in electronic form.

Year	ABBA	SGB(A)A	DSBS	ABCA	BA	ABS	Average
2002/03 (base)	91%	70%	36%	80%	70%	0%	74%
2003/04	96%	76%	70%	86%	87%	3%	81%
2004/05	92%	82%	56%	82%	84%	15%	79%
Increase	1%	12%	20%	2%	14%	15%	5%

The percentage of weights received electronically averaged 74% in 2002/2 and increased by 5 % over the term of the project to finish at 79%.. Electronic submission for all breeds increased over the term of the project. Due to the high percentage of weaning weights initially being submitted electronically, this objective was not high priority.

4.5 Develop a strategy to utilise sire line data out of the CRC for use by industry

Performance information out of the CRC for cattle and Beef Quality was included, with the assistance of TBTS, in the GROUP BREEDPLAN analyses of the relevant breed societies (ABBA, BA). This high quality data improved the accuracy of EBVs generated and broadened the range of traits available for selection.

Prior to the 2004 and 2005 GROUP analyses TBTS was involved in updating the ABBA databases with pedigree and performance data out of the Beef CRC 2.3 research project. This included working with David Johnston (Senior Scientist – AGBU) and Andrew McCann (Database manager - AGBU) to format the data so it could be entered electronically through the batch system. This data included:

- Recording Base dams: 1,828
- Calf recording or transfer progeny: 1,605.
- Animals with a full weight set (200, 400, 600 Day): 2,119
- Animals with abattoir carcass data: 1,634

- Animals with carcass scan data: 3,400

Research conducted by the CRC will lead to improvements in the analysis software such as revised adjustment factors, and updated genetic parameters (eg heritabilities, correlations). These are scheduled to be calculated and implemented prior to the 2006 GROUP analyses.

On the 7th and 8th of March 2005 Christian Duff represented TBTS at a CRCIII research delivery and extension planning workshop. This workshop involved discussions and planning into the delivery and extension of Research findings out of beef CRCIII. As the research into beef CRCIII is based on beef genetics TBTS will be well positioned to play a more structured role in the delivery of the findings to industry.

5 Success in Achieving Objectives

5.1 Increase the number of calves recorded on BREEDPLAN from 26,000 (2000 year base) to 33,500 (2003 calving year)

In the 2003 calving year there were 24,757 calves performance recorded with BREEDPLAN. This is short on the 33,500 milestone, but represents an overall increase in the percentage of BREEDPLAN recorded calves from 47% (2000 drop) to 49 %. . The original milestone has proved to be an extremely optimistic target with hindsight: given the drought conditions and other factors already mentioned.

5.2 Increase \$index/ by \$1.50/head/year for the Brahman breed

The annual rate of increase has not yet reached \$1.50/head/year but increased from - \$0.2/head/year between 1997 and 1998 to \$0.8/head/year in the last full year of progeny records.

5.3 Introduce BreedObject \$index technology to the internet databases of at least three tropical breeds including Brahman

There are currently Six TBTS breed societies with database search facilities on the web. These are the ABBA, SGB(A)A, ABS, DSBS, BA and ABCA. By the end of the project, only one TBTS society had a BreedObject \$Index available, this being the ABBA. This \$Index was generated for a Grassfed Jap Ox production system. Nevertheless good progress was made towards achieving this objective as the SGB(A)A had planned to instigate at least one and probably two BreedObject \$indexes generated by July 2006 .

5.4 Increase the number of weaning weights submitted electronically to BREEDPLAN by at least 10% each year

The percentage of weights received electronically was currently very high for a number of breeds and averaged 79% over all breeds for the 2004/05 year. This was an increase of 5 % over the term on the project.

5.5 Develop a strategy to utilise sire line data out of the CRC for use by industry

Prior to the 2004 and 2005 GROUP BREEDPLAN analyses, TBTS was involved in updating the ABBA databases with pedigree and performance data out of the Beef CRC 2.3 research project. This high quality data helped improve the accuracy of EBVs generated and broadened the range of traits available for selection.

On the 7th and 8th of March 2005 Christian Duff represented TBTS at a CRCIII research delivery and extension planning workshop. This workshop involved discussions and planning into how TBTS will be instrumental in the delivery and extension of research findings out of beef CRCIII.

6 Impact on Meat and Livestock Industry – now & in five years time

It has long been acknowledged that genetic progress in beef cattle is slow to achieve due to long generation intervals and, in many cases, low selection intensity on traits of economic importance. However, when genetic progress is achieved the benefits are cumulative and can be maintained at a modest annual costs. The TBTS project has assisted many seedstock herds, and animals' within those herd, to be involved in Australia's national genetic evaluation program, BREEDPLAN.

TBTS has played an important role in the Northern beef industry having high level of awareness and significant use of BREEDPLAN EBVs as a selection tool. This has been achieved through a range of communication events over the term of the project including 45 workshops/field days, 210 on farm visits and numerous articles in rural press and breed society publications

A higher percentage of animals have BREEDPLAN EBVs available due to the TBTS project. It has directly assisted the tropical breeds increasing the number of BREEDPLAN recorded calves from 47% (2000 drop) to 49 % (2003 drop). More tropical beef herds are also participating in BREEDPLAN as a direct result of the TBTS project. Over the term of this project the number of herds performance recording with BREEDPLAN increased from 231 (2002 calendar year) to 250 (2005 calendar year).

This has meant that more animals, within seedstock herds and bulls available to commercial herds had EBV rated genetics. This has and in the future will allow more selection intensity for traits of economic importance and greater profitability via genetics for the northern beef industry.

The improvement in profitability via genetics can be estimated by using the BreedObject \$Index trends. BreedObject \$Indexes indicate differences in net profit per cow mated. The increase of the Brahman Jap Ox \$Index over the term of this project was \$2.30. Using this information together with the estimated 1.8 million breeding Brahman females in Australia (Australian Bureau of Agriculture and Resource Economics (ABARE), 2000), the overall genetic improvement in dollar terms can be calculated. This gain was approximately \$41.4 million (\$2.30 x 1.8 million). This benefit to industry is not instantaneous due to the lag time between the genetic improvement in the seedstock and commercial sector but it is both cumulative and on-going. These figures do not take into account the high percentage of Brahman infused cattle in northern Australia (i.e. Brahman sires joined to Bos Indicus derived or Bos Taurus females).

It is difficult to accurately quantify the level of use of BREEDPLAN EBVs in the commercial sector. This was partly achieved in January 2004 when the MLA published results of an R & D Awareness and Adoption study. An independent body surveyed 502 Northern beef producers on a range of R & D issues. Key finding of this study showed that BREEDPLAN was the highest ranked breeding tool which producers were aware of when prompted (78%). Of those who were aware of BREEDPLAN, 45% used EBVs in deciding which bull to purchase or breed from (please note that 15% of those surveyed were backgrounders or feedlotters therefore do not directly use BREEDPLAN). The results from the MLA independent survey are very encouraging but also show there is still room for expansion of BREEDPLAN use in the Northern Australia.

7 Conclusions and Recommendations

The TBTS project is an innovative concept and possible model for the future delivery of extension and adoption of new technologies in the beef industry. It is a collaborative approach that is jointly owned by breed societies, ABRI and industry – all parties have a vested interest in ensuring its success.

Great success in meeting objectives was achieved in stage one of TBTS. Stage two (this project) has built on that initial success but the impetus has slowed because of drought and the progress achieved in stage one. However, TBTS is well positioned to play a vital role in the delivery of CRC outcomes based on traits that are not able to be selected by visual appraisal but are available only through gene marker technology and BREEDPLAN information.

While not all of the objectives as outlined at the commencement of this project have been met, good progress has been made and the service provided over the last 3 years has been highly valued. This is evidenced not only by an actual increase in the number of participating herds but also by the addition of the Australian Charbray Society in the 3rd term of the TBTS project.