



**TRANSFER OF BREEDPLAN
TECHNOLOGY TO THE QUEENSLAND
BEEF INDUSTRY**

MRC PROJECT DAQ. 069

FINAL REPORT

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DAQ.069

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ABSTRACT

A project was initiated to assist the Queensland beef industry in making greater use of objective measurement and selection in decisions regarding bull evaluation and selection.

Initially efforts were made to increase the number of Queensland herds using BREEDPLAN technology. This was followed by assisting commercial producers to become more aware of the advantages of using not only BREEDPLAN data but objective measurement generally. The third phase of the project involved assisting producers to define the markets for which they were breeding and to develop the most appropriate breeding systems to produce cattle meeting those market requirements. The project has been based largely on a series of forums and field days, initially for staff training and then for producers, to bring about a change in attitude to the use of objective selection methods.

The project has resulted in an increase in the number of stud herds using BREEDPLAN, the use of GROUP BREEDPLAN by the major tropical breeds and an increased awareness amongst producers of the benefits of objective selection.

This project has placed Queensland producers in a strong position to develop breeding systems in the future based on meeting market requirements and to take full advantage of value based marketing systems when they are introduced.

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EXECUTIVE SUMMARY

Background

The project "Transfer of BREEDPLAN technology to the Queensland beef industry" was developed to address the problem that although approximately 40 percent of the beef cattle in the country were in Queensland there had been very little use of objective selection techniques in the industry in the state prior to 1988.

The Queensland Department of Primary Industries (QDPI) recognised the progress that had been made in other industries, especially the dairy industry, through the use of objective recording and selection procedures similar to those which were then available to the beef industry through the National Beef Recording Scheme (NBRS) and its evaluation services, BREEDPLAN and GROUP BREEDPLAN. It initiated a project to assist producers to make effective use of similar procedures in the beef industry.

The project initially involved the training of staff so they were competent to offer advice to all sectors of the industry in relation to objectively based genetic improvement. This was followed by three distinct phases aimed at achieving a greater use of objective measurement and selection in the beef industry.

Objectives

In the first stage there was an effort to achieve a greater use of BREEDPLAN technology by Queensland stud breeders. Over a period of three years the number of studs enrolled in BREEDPLAN increased from 55 to 245, or 19% of all studs with 30 or more breeders in Queensland.

This provided a basis for the second stage of the project which was to encourage commercial beef producers to look for objective data when buying bulls.

This phase of the project was conducted in 1992 and 1993 and involved a series of approximately 100 "Buying Better Bulls" field days which were held throughout the state and were attended by about 2,000 producers.

These field days focused not only on the use of the BREEDPLAN data by bull buyers but on the need for producers to seek objective data on all aspects of performance when buying bulls. Other areas covered in detail were structural soundness and breeding capacity of the bulls.

The third phase of the project involved encouraging producers to look critically at the markets for which they were ultimately breeding cattle and to define the breeding system which would best help them to breed the cattle required for those markets.

This phase of the project commenced in 1994 and is has involved a series of "Breeding for Profit" field days which have been conducted throughout the state. To date, approximately 500 producers have attended close to 30 of these field days.

These days have been based on producers defining accurately the type of cattle they are producing now, the type of cattle they need to produce to meet market requirements in the future and the changes that need to be made to their breeding systems to produce suitable cattle for those future markets.

Results

As a result of the efforts to date, there has been an increase in the number of herds enrolled in BREEDPLAN from 55 to 245. This now represents 19% of all studs in Queensland with 30 or more breeders.

Of the major tropical breeds of cattle in Queensland, the Brahman and Belmont Red breeds now have GROUP BREEDPLAN analyses being conducted each year, while the Santa Gertrudis breed will have its initial group analysis done in 1995 and the Droughtmaster breed is actively working towards establishing a group analysis.

Over the life of the project, there has been a marked increase in the number of producers using objective measurements in their bull buying decisions. A recent survey indicates that in excess of 30% of producers are using objective information in relation to growth rate, with slightly less than 30% using objective information in their decision making in relation to carcass and fertility traits.

The achievements to date have helped position the industry for the next major step in the use of objective selection procedures in the beef industry. This step will involve the development of value based marketing systems which will enable finishers, both feedlot and grassfed, to adequately assess the potential of cattle entering their systems to produce carcasses which will meet specific market requirements.

Such systems will then be able to feed back through the production chain so that commercial cattle breeders will receive feedback on the type of cattle they need to produce to go into finishing operations and eventually stud breeders will receive feedback on the type of bulls they need to be producing for sale. This feedback will be based on objective information at all stages.

The expertise developed in the Queensland Department of Primary Industries through this project will enable staff to offer a range of services to client groups at all stages of the production chain to assist in the development of these feedback systems and the development of objectively based breeding systems to meet market requirements.

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MAIN RESEARCH REPORT

Background to the project and the industry context

The National Beef Recording Scheme (NBRIS) and its associated BREEDPLAN and GROUP BREEDPLAN analyses were commenced in 1985.

By October 1988 there were only 55 beef herds in Queensland enrolled in NBRIS out of a total of approximately 1,300 stud herds with 30 or more breeders.

The Queensland Department of Primary Industries had been involved in the Australian Dairy Herd Improvement Scheme (ADHIS). This involvement had highlighted the magnitude of the gains that could be made through the use of objective selection techniques in a structured genetic improvement program.

Up to this time there had been very limited involvement of DPI staff in the extension of genetic improvement programs in the beef industry and little activity in Queensland by NBRIS.

This lack of involvement in objective genetic selection programs was also a feature of the beef industry itself in Queensland. Despite having approximately 40 percent of the beef cattle in the country, there was almost no involvement by Queensland beef producers in the services offered by the NBRIS. In October 1988 there were only 55 beef producers in Queensland enrolled in BREEDPLAN.

The Beef Genetic Improvement Project (BGIP) was launched by the Queensland Department of Primary Industries (QDPI) in November 1988. The project was aimed at assisting beef producers utilise objective measurement and selection procedures in their beef breeding programs.

Due to the very low level of adoption of objective selection in the beef industry, the initial aim of the project was to encourage stud breeders in Queensland to enrol in, and use, BREEDPLAN and, where applicable, GROUP BREEDPLAN.

The second phase of the project was intended to encourage commercial producers to become aware of the potential to purchase bulls using BREEDPLAN and GROUP BREEDPLAN data and so put pressure on stud breeders to supply this information.

Later phases of the project have involved an extension of the use of objective selection to traits such as bull soundness and fertility and to the development of crossbreeding programs where these are appropriate to meet market specifications.

A survey of Departmental officers who would be involved in the project indicated that their knowledge in the area of genetic improvement was limited. It was obvious that this situation would have an adverse impact on the project if it was not corrected.

Hence, a program of in-service training for staff involved in the project was developed to ensure that they were skilled in the new technology and that they had the motivation and ability to communicate this information to the industry. It was this training of staff to which the funds in this project were mainly applied.

Project objectives

There were both short term and long term objectives developed for the project.

The long term objectives were :-

forty percent of Queensland's 2000 beef cattle stud herds using BREEDPLAN by the end of 1993,

a sire referencing (GROUP BREEDPLAN) system in place within major breeds by the end of 1994, and

the majority of Queensland commercial beef producers making use of the benefits from objective selection in their breeding and/or fattening programs by the end of 1994.

The initial short term objectives were :

to increase the adoption of BREEDPLAN by stud and commercial bull breeders, and

to promote the concepts and advantages of BREEDPLAN to all sectors of the Queensland beef industry.

In addition to the above objectives which specifically relate to BREEDPLAN, the project was expanded in 1990 to promote further aspects of bull selection such as structural soundness, serving capacity and other aspects of bull fertility.

In 1991 greater emphasis was focused on commercial bull buyers with a co-ordinated state-wide program with the theme of "Buying Better Bulls".

In 1993 the project was further expanded to focus both commercial and stud breeders on the need to breed cattle which would meet market specifications, either through straightbreeding or crossbreeding. The theme for this phase of the project was "Breeding for Profit".

Methodology

Training needs

To address the aim of the MRC funded project it was necessary to train staff so that they had a working knowledge of the principles behind the use of objective selection programs in the beef industry and were competent to assist beef producers to make use of such programs in their beef enterprises.

When the project commenced in 1988 there were 77 Departmental officers involved throughout the state.

A survey of staff to be involved in the project showed that 94% of officers were either "strongly in favour" or "in favour" of the beef genetics project. In virtually all the technical areas of the project, less than 30% of officers considered that they had a high level of knowledge.

The above figures indicated that while there was a high level of commitment to the project there was not the strong depth of knowledge required to ensure success.

A major training program was initiated.

The 77 officers in the project were divided into nine regions throughout the state and training needs were assessed within each region.

A series of workshops was carried out to train staff initially in basic genetics and an understanding of BREEDPLAN and GROUP BREEDPLAN.

Producer forums and workshops

Once officers were given this initial training, producer forums and workshops were organised in each region. The forums were structured to allow producers to describe what was important to them in the selection of cattle, assess what benefits may be had by using BREEDPLAN as an aid in their selection and overcome any perceived problems and barriers to adoption through a better understanding of the new technology. While overnight forums were the preferred producer option, in some circumstances it was necessary to conduct one day, non-residential workshops.

The forums and workshops were generally conducted using an extension specialist as facilitator with technical expertise provided by the project geneticist. In some instances extra technical expertise was provided by staff of the National Beef Recording Scheme.

At each of these workshops some positions were allocated to project staff and it was made clear to participants that the staff were involved in a learning process to enable them to conduct similar workshops in the future. This approach made staff aware of the areas of concern as seen by producers and helped focus staff on the provision of services needed by producers.

Further training

In addition to training through participation in producer workshops and forums, formal training in basic genetics, BREEDPLAN and crossbreeding was carried out through a series of workshops, either on a regional basis or state-wide basis.

Three officers undertook specialist training in genetics and animal breeding at the University of New England.

Officers were encouraged to become involved with local producers who were using BREEDPLAN and help them in their preparation and submission of BREEDPLAN records, both to assist the producers and as a means of furthering the officers in their own understanding of the system.

Various officers have attended specialised BREEDPLAN workshops at the Agricultural Business Research Institute (ABRI) which have provided updates on new developments in BREEDPLAN and B-OBJECT, which is a system for developing breeding objectives and index selection methods.

Producer demonstration sites and local consensus data

Another initiative was for DPI staff to become involved in producer demonstration sites (PDS), which looked at the use of bulls of high and low breeding values and an evaluation of the progeny of these bulls. These trials have served both to demonstrate the effectiveness of using bulls selected on the basis of Estimated Breeding Values (EBVs) and again as a training exercise for the officers involved in helping to organise the trials.

Additional PDS activities have been associated with demonstrating the effectiveness of synchronisation and artificial breeding programs.

In Central Queensland officers were involved in local consensus data (LCD) groups, which looked at the use of objective selection amongst many other aspects of best practice being documented.

Field days

Two series of field days, on "Buying Better Bulls" and "Breeding for Profit", were designed to encourage producers to use objective methods in all aspects of their bull evaluation and selection and to evaluate methods of breeding cattle to meet market specifications. In association with these field days, booklets bearing the same titles were produced. These have been used at the field days and sold to producers throughout the state.

During the period of the project, over 2,000 producers have attended "Buying Better Bulls" field days and over 500 have attended "Breeding for Profit" field days. This represents approximately 100 "Buying Better Bulls" days and 30 "Breeding for Profit" days. All of these days have been attended by staff both in a facilitatory role and in a learning role.

Marketing plan

Three officers attended a course on "Business Management and Marketing Skills" conducted by the Rural Extension Centre at the University of Queensland Gatton Campus in November-December 1994 and March 1995.

As part of this course the officers prepared a "Marketing Plan for the Queensland Beef Genetic Improvement Project". This involved surveying both industry groups and producers to determine their attitude to, and involvement in, objective selection programs, including BREEDPLAN, and to determine the future needs of the industry in relation to the DPI Beef Genetic Improvement Project.

Results and discussion

Adoption of BREEDPLAN in Queensland

The early success of the project was measured in terms of the increase in the number of herds enrolled in BREEDPLAN in Queensland.

In October 1988, just prior to the commencement of the project there were 55 Queensland herds enrolled in BREEDPLAN. At that stage there were approximately 1,000 herds enrolled in the scheme throughout Australia.

By October 1989 the number of Queensland herds enrolled had risen to 189. It continued to increase to 238 by October 1990 and 245 by October 1991. On a national basis, the number of herds enrolled by October 1991 had risen to approximately 1,350. Thus the Queensland herds, as a percentage of the herds enrolled nationally rose during that period from 5% to 19%.

The strong emphasis on increasing the number of herds enrolled in BREEDPLAN in Queensland was adopted as there was little point in promoting to commercial producers the benefits of using BREEDPLAN figures when selecting bulls while there were almost no bulls in the state with BREEDPLAN figures available.

The percentage adoption of BREEDPLAN varied throughout the state. Of studs with more than 30 cows, the percentage adoption rate of BREEDPLAN was 6.9% in North Queensland, 12.4% in Central Queensland, 26.3% in South-East Queensland, 35.8% in South Queensland and 42.8% in Western Queensland, giving an overall adoption rate throughout the state of 19.0%.

The main activities undertaken to achieve the increase in the number of herds enrolled in BREEDPLAN were one-day or overnight forums. In the forums, producers were encouraged, through group discussion, to describe what was important to them in the selection of cattle, to assess what benefits might be achieved by using BREEDPLAN as an aid in their selection and to overcome any perceived problems and barriers to adoption through a better understanding of the new technology. Because of the complexity of the information being provided to producers, one-to-one visits to stud producers also occurred.

These visits and forums were aimed at stud producers with 30 or more breeding cows.

The lower adoption rate in North Queensland was due in part to a lower percentage of herds in that region that used single sire mating. This probably also applied to some extent in Central Queensland. In addition, in the early stages of the project, the extension teams in South, South-East and Western Queensland tended to conduct a larger number of forums and workshops and this was reflected in the higher adoption rate in these districts.

Since 1991 there have been only limited changes in the number of herds enrolled either at a state level or at a national level.

Awareness of BREEDPLAN amongst commercial producers

Having achieved a significant increase in the number of studs in Queensland enrolled in BREEDPLAN, efforts were made to make more commercial producers aware of the benefits to be achieved from using BREEDPLAN and GROUP BREEDPLAN information when buying bulls.

A brochure outlining the benefits of buying bulls using BREEDPLAN information was prepared.

Stock agents

Efforts were made to conduct forums and workshops for stock agents who would be assisting commercial producers in their bull-buying decisions. These efforts were generally not successful at the time (1990) with most agent groups not prepared to commit the time to participate in the workshops. In a few instances, BREEDPLAN was discussed at general training workshops conducted by some of the major agency companies.

The lack of commitment to the new technology was probably associated with a general low level of interest, understanding and adoption by the agents' major clients - both sellers and buyers.

In later years, with a far greater appreciation and use of BREEDPLAN and GROUP BREEDPLAN figures, there has been a major change in attitude amongst most agents, with many now emphasising the need for BREEDPLAN data to be provided by sellers if they wish to remain viable in the stud breeding sector of the industry.

Breed societies

In the early stages of the project, assistance was given to the Australian Brahman Breeders' Association to introduce a GROUP BREEDPLAN analysis within its breed. This was the first such analysis within any of the tropical breeds. In more recent years, GROUP BREEDPLAN analyses have been run by the Belmont Red breed. The first Santa Gertrudis GROUP BREEDPLAN analysis is due to be run this year, while a group of Droughtmaster breeders have initiated efforts to establish an analysis within that breed.

Objective bull selection

In the next phase of the project, the emphasis changed to assisting commercial bull buyers to become more aware of the benefits of selecting bulls based on objective measurement. In recognition of the fact that BREEDPLAN information only supplies objective information for growth rate and, in very limited circumstances, fertility and carcass traits, the theme of "Buying Better Bulls" was adopted for a series of field days that were held throughout the state.

These field days were aimed at assisting producers define, within a group discussion situation, what characteristics were important to them in making decisions regarding the purchase of bulls. To assist this focus, time was given to discussing what the true cost of a bull is in terms of the cost per calf on the ground.

The field days provided information on the potential role of BREEDPLAN in bull buying decisions but also emphasised the need for buyers to look at traits such as structural soundness and serving capacity. It was stressed that unless buyers demanded such information from studs selling bulls it would not be provided.

A booklet entitled "Buying Better Bulls" was prepared for use in conjunction with the field days and was provided to participants as part of the fee for the field day. The field days were conducted on the basis of participants paying a fee which covered the costs of travel for the DPI staff involved and the cost of the booklet. The booklet was also made available for purchase by producers.

The days were very successful. Over a two year period in 1991 and 1992, approximately 100 field days were held throughout Queensland, with about 2,000 producers attending at least one field day.

These field days are still provided if there is a demand in an area for them.

Breeding for market requirements

It was intended to change the emphasis in 1993, with the new theme being "Breeding for Profit". This theme was intended to assist producers to define the market, or markets, for which they were breeding cattle and then to determine the best way of breeding the cattle required for those markets, whether it be through straightbreeding or crossbreeding.

Due to extreme drought conditions throughout most of the beef producing areas of Queensland in that year there was virtually no progress in getting this new aspect of the project under way.

Despite the continuing drought in 1994, the new program was commenced and throughout 1994 over 500 producers attended approximately 30 "Breeding for Profit" field days throughout the state.

These field days were conducted using a similar format to the successful "Buying Better Bulls".

Using group discussion techniques producers were assisted to define the cattle they were currently producing. They then identified the markets for which they were attempting to produce and the characteristics which would be necessary in their cattle to meet those markets.

The discussion led into the breeding systems necessary to meet their markets and the options of straightbreeding and/or crossbreeding were thoroughly explored. Throughout the field days the need for objectively based breeding programs was continually emphasised.

As with the "Buying Better Bulls" field days, a "Breeding for Profit" booklet was prepared for use in conjunction with the field days and for sale to producers. The field days were again conducted on the basis of a small fee to cover expenses associated with the field day and the booklet.

Producer demonstration sites

A number of Producer Demonstration Sites have been established throughout the state to examine the effect of using high and low growth rate EBV bulls on the progeny produced. In these, bulls have been selected for high or low EBVs for growth, usually to 600 days. The bulls are mated to a random sample of breeder cows within a herd and the progeny are followed through until slaughter to determine the differences between the progeny of the high and low EBV bulls.

These trials commenced within the last two to three years, so the first results are only just starting to become available. In one trial in Central Queensland there was a difference of approximately 25 kg between the progeny of high and low EBV bulls by about 600 days of age. The other trials have not yet reached the stage where results can be determined.

Attitudinal study

In late 1994 and early 1995, three members of the project team undertook a study to determine the attitudes of producers and industry groups to beef genetic improvement and to prepare a marketing plan for the Beef Genetic Improvement Project for the future.

The producer survey covered 48 commercial beef cattle breeders throughout Queensland. Producers were sampled across each of the geographical regions of the state.

In this survey, about 60% of producers had previous experience with the DPI Beef Genetic Improvement Project (BGIP) and the remainder had no previous experience with BGIP. Ninety-eight percent were commercial producers, 17% were stud breeders (mostly combined with commercial operations), 73% were breeders and finishers and 48% were breeders and store producers.

Selection for growth rate, without using BREEDPLAN, was done sometimes or always by 56% of producers, with the rest considering it as unimportant or impractical. BREEDPLAN was used sometimes or always by 32% of producers, with its use usually being restricted to the purchasing of new sires. Many producers had insufficient knowledge of BREEDPLAN to

use it effectively, or did not think it was important on their properties. It was stated frequently that BREEDPLAN data on sale bulls was not available.

Bull soundness evaluation was used quite commonly. Half of the producers always used soundness evaluation, with a further 27% using it sometimes. Serving capacity testing was used by only 15% of producers while semen testing for bull soundness evaluation was used by 30% of producers. Those not using these technologies generally considered that they were unnecessary or impractical.

It was claimed by 35% of producers that they used objective selection for calving ease and by 27% that they used objective selection for carcass traits. It was felt that these were overestimates of the real figures due to some confusion with terminology.

Producers were asked to indicate their interest in a number of topics. The topics, with the percentages indicating interest in parentheses, were bull soundness(19%), serving capacity testing (17%), general bull fertility (8%), growth rate assessment, particularly BREEDPLAN (23%), carcass selection (27%), crossbreeding (29%), breed selection (10%), breeding for markets (8%), general herd fertility (13%), female selection (13%), and selection for calving ease(13%).

Of those producers with previous experience with BGIP (60%), 97% had attended an activity and 28% had hosted an activity. Sixty-nine percent had attended a "Buying Better Bulls" field day, 38% had attended a "Breeding for Profit" field day and 31% had attended a BREEDPLAN seminar.

Fifty-nine percent of those who had attended a BGIP activity said that it had influenced their property management with 76% of these saying this influence had been in the area of bull selection and purchase.

Sixty-three percent of those who had not attended a BGIP activity said they would be interested in attending a "Buying Better Bulls" field day and 58% said they would be interested in attending a "Breeding for Profit" field day.

The industry group survey covered 16 organisations, including seven breed societies, two financial institutions which were primary lenders to the beef industry, three Beef Improvement Association branches, one pastoral house, a feed production company, the Cattleman's Union and an abattoir. Between them the industry organisations represented approximately 7,300 members or staff within the beef industry.

Of the industry organisations which were surveyed, 87% considered that the DPI Beef Genetic Improvement Project could provide a training service for their staff and/or their members. The technical information required included basic genetic information (50%), bull selection, planning of objective breeding programs and BREEDPLAN (44% each), "Breeding for Profit" type information (37%), carcass, growth and fertility related technology (31% each), market related information (19%), and research information (19%).

Success in achieving objectives

The principal objectives of the project were :-

- (i) forty percent of Queensland's 1,200 beef cattle stud herds using BREEDPLAN by the end of 1993;
- (ii) a sire referencing (GROUP BREEDPLAN) system in place within major breeds by the end of 1994; and
- (iii) twenty-five percent of Queensland's commercial beef producers using BREEDPLAN EBVs to select animals for their breeding and/or fattening programs by the end of 1994.

In relation to the first objective (40% of Queensland's 1,200 beef cattle stud herds using BREEDPLAN by the end of 1993), the overall adoption rate for BREEDPLAN by studs with 30 or more breeders has been 19.0%. The adoption rate has varied across the state, ranging from 6.9% in North Queensland to 42.8 % in Western Queensland.

There are various reasons for the lower than anticipated overall adoption rate. There is still a strong perspective among producers of BREEDPLAN being something developed in the south and not really applicable to the north. It is hoped that the producer demonstration sites will help to overcome some of the scepticism about BREEDPLAN.

Many studs, particularly in the north, do not single sire mate and until now this has limited their ability to participate in BREEDPLAN. The National Beef Recording Scheme is now developing systems which will allow studs not single sire mating to participate in BREEDPLAN. Parent identification through DNA analysis will also open up opportunities for the use of BREEDPLAN in multiple sire mating situations.

Another reason for the lower than anticipated adoption rate for BREEDPLAN in Queensland is that there are quite a number of studs of "composite" breeds, such as Braford, Brangus, etc. With varying parent breed percentages in these breeds, particularly during the development stages, many of these studs have not been able to use of BREEDPLAN. Again, this problem is being addressed by the National Beef Recording scheme and results to come out of the Beef CRC will assist in this direction.

With an increasing number of tropical breeds adopting GROUP BREEDPLAN, there is likely to be an increasing pressure on studs within those breeds to join BREEDPLAN and GROUP BREEDPLAN so that they could take advantage of the benefits of selling at multi-vendor sales with GROUP BREEDPLAN figures being published.

While there is still a need for on-going work to encourage a greater adoption of BREEDPLAN across the state, some, or all, of the above factors should result in a greater adoption rate of BREEDPLAN in the future.

In relation to the second objective (a sire referencing [GROUP BREEDPLAN] system in place within major breeds by the end of 1994), GROUP BREEDPLAN analyses have now been run for both the Brahman and Belmont Red breeds. The first Santa Gertrudis GROUP

BREEDPLAN analysis is due to be run in the second half of 1995, while a working party has been established within the Droughtmaster breed to establish a GROUP BREEDPLAN analysis within that breed.

These four breeds are recognised as the four major tropical breeds in Australia. As mentioned previously, there are problems currently with BREEDPLAN in the "composite" breeds such as the Braford, Brangus, etc.

With each of these breeds there has been a significant input from the BGIP team members to assist with the establishment of their GROUP BREEDPLAN analyses.

In relation to the third objective (25% of Queensland's commercial beef producers using BREEDPLAN EBVs to select animals for their breeding and/or fattening programs by the end of 1994), the survey referred to above indicates that BREEDPLAN was used sometimes or always by 32% of producers, with its use usually being restricted to the purchasing of new sires.

This figure is supported by a survey of some 1,218 bulls offered for sale in 1993 at sales in South Queensland. Of these bulls, 46% (566) had BREEDPLAN information for growth, 26% (313) had BREEDPLAN information for fertility and 10% (120) had BREEDPLAN information for carcass traits. In the same year, it was estimated that 10-15% of all bulls offered at the Brahman sales had BREEDPLAN information for growth presented.

Impact on meat and livestock industry

The immediate impact of the project to date has been an increased awareness of the role of objective measurement and selection within the beef industry.

The major indicator of this increased awareness is the adoption of GROUP BREEDPLAN by the four major tropical breed societies. This reflects a growing awareness of the role that objective selection and valid comparisons of bulls across herds can play in improving the genetic merit of herds.

Another indicator of the impact of the project has been the very high demand for the two field days which have been conducted as part of the project. Over 2,000 producers attended the "Buying Better Bulls" field days throughout the state. This represents over 20% of all beef producers in the state.

The third indicator of the impact of the project to date has been the increase in the number of herds enrolled in BREEDPLAN, the number of bulls being offered for sale with BREEDPLAN data available and the number of producers making use of objective data in their bull selection decisions.

While the immediate impact is a heightened awareness of the benefits of objective selection, a far greater impact of beef genetic improvement programs will come when there is an adequate feed-back system to relate returns paid for animals, either as slaughter cattle or store cattle, to the genetic potential of the animal being sold.

This next step will depend on the development of valued based marketing systems which will enable finishers, both feedlot and grassfed, to adequately assess the potential of cattle entering their systems to produce carcasses which will meet specific market requirements.

This process has been the thrust of the "Breeding for Profit" days which have been run throughout the state. It has been obvious from these days that most commercial beef cattle breeders focus their attention on the animal that leaves their farmgate, with little, if any, recognition of the fact that the production of this animal is just one step in a chain which commences with mating on the breeder's property and finishes with a carcass which will meet the requirements of a particular market.

A network must be developed which relates the suitability of the carcass back through the animal entering the finishing operation to the animal being produced on the breeder's property and ultimately to the bull being purchased from a bull breeder.

This network must ultimately involve decisions not only about the particular bulls being purchased, but also about the breeding system being used. The breeding system may either be a straightbreeding system or a crossbreeding system. Either system will involve decisions about the best breeds of cattle to be using and the best sires to be selecting within those breeds. The crossbreeding systems will also involve decisions about how the various breeds are combined and the particular crossbreeding system to be used.

Conclusions and recommendations

The major impact of the project in the future will be market driven.

For beef producers to be effective and profitable in the future it will be necessary for them to define the market, or markets for which they are producing cattle. This is irrespective of where they are situated in the production chain. Regardless of whether a breeder is selling weaners or store cattle or finishing cattle on the property of origin, the final market for those cattle must be considered.

For this system to be effective, there must be a value based marketing system in place for the final product.

The messages as to suitability of product must then feed back from the retail meat trade, to the finisher, either feedlot or grass-fed, to the store cattle producer, to the commercial breeder, and ultimately to the stud breeder. It is this complete chain which will eventually lead to the stud cattle breeders producing bulls of specifications which will produce the end product to meet market needs.

Each step in this chain must be defined objectively. There is a need for cooperative ventures between processors, finishers and breeders to ensure the chain operates effectively.

For the commercial breeder there is still a need for on-going "Breeding for Profit" and "Buying Better Bulls" field days to assist commercial breeders to better define the markets for which they are breeding and to emphasise the need for greater use of objective assessment at all stages of bull evaluation, selection and purchase.

For the stud breeder there is an on-going need to increase the usage of BREEDPLAN and GROUP BREEDPLAN so that objective data is available to commercial bull buyers. There is a need to ensure that breeders who are enrolled in BREEDPLAN are using the system effectively.

For groups such as breed societies, stock agents, feedlotters, grass finishers and butchers there is a need for an on-going involvement to ensure that each group is aware of its role in ensuring that the chain of information feeds back from the end product meeting a specific market to the stud breeder producing bulls for sale.

There will be a need for the DPI and/or consultants to offer a continuing service to all the above groups to ensure that all aspects of beef genetic improvement are understood by those involved at all stages of the production chain and that all parties are equipped to make decisions based on objective measurement.

This will involve the continuation of specialist groups in each of the five regions throughout the state. The members of these groups will need to be continually trained so that they are able to offer a professional service to client groups.

The services to client groups could be offered on a consultancy basis with a fee for service being charged to cover the operating costs of the services being provided.

There will be a need for the DPI to clearly define the services that can be offered to clients. These services will include items such as bull assessment workshops, bull selection theory and practical workshops, female assessment workshops, "Breeding for Profit" workshops, BREEDPLAN workshops, definition of breeding objectives, breeding program design, live animal assessment/evaluation, reproductive management including artificial insemination techniques, oestrus synchronisation program advice, growth and carcass quality assessment, targeting markets through genetic selection for carcass traits, semen collection, processing and sales and artificial breeding equipment sales.

Having clearly defined the services which can be offered and the staff available to provide these services, negotiations will have to be carried out with client groups to determine the particular services required by each group and the price to be paid for each service. Services will then usually be provided on a regional basis. Greater detail of this proposed marketing plan is included in the publication "Queensland Beef Genetic Improvement Project Marketing Plan, March 1995".

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