



Sustainable Beef Production on Tropical Tallgrass using the Local Best Practice (LBP) approach

Jim Kernot

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Project Summary:

The primary objective of the Local Best Practice (LBP) project was to meet the demand from the beef producer, industry representatives, and the community at large for recommendations and actions to improve the management of the regions' grazing lands for efficient production and for a balanced environment

Components in reaching this overall project objective were

- To document best-bet whole property management strategies recommended by experienced producers.
- To identify knowledge deficiencies in sustainable development.
- To identify high priority research and development directions.
- To promote change in land management towards sustainable usage and development.
- To enhance ownership of research and development to land managers

The project ran for five years, from January 93 to December 97, and was jointly funded by DPI and MRC.

The LBP process involved forming producer groups based on land type. These groups worked through a series of three workshops. The first two meetings documented producers recommendations for optimal property management. The third workshop used a computer herd model to examine the performance and profitability of typical current management practices and then to identify and explore a range of improved management options.

Twenty-two producer groups completed the LBP process. The successful formation of these groups was a key outcome of the project. Strong producer groups that have trust and confidence in each member, as well as an ongoing commitment to learning and improvement, are an essential ingredient in achieving change.

As well as documenting best-bet, whole property recommendations, the LBP reports have provided a benchmark of current management practices. Of greater benefit however was the sharing of knowledge and experience occurring within the groups.

The herd modelling used in the third workshop was, for most groups, the first time that they could accurately determine the true performance of a typical herd in their area. Actual branding rates and death rates calculated by the model were often in stark contrast to the optimistic figures producers described in the first two workshops.

The improved management option analysis explored a range of alternative management strategies. Whenever possible, a producer from the group was used to describe to his peers the benefits he was actually achieving from an innovative management practice and the costs involved.

The LBP reports detailed the true picture of current practice in the northern beef industry. This picture differed from many preconceived views. The reports revealed that the industry is operating well below its productive potential, and that there is scope for major improvements in productivity, profitability and sustainability. While in many cases improved technology is known, adoption levels remain low. This is partially due to the major changes in management required to adopt new technology.

Key issues highlighted by the groups were

1. The increase in tree density associated with increased stocking rates, the lack of fires and below average rainfall.
2. An extremely poor knowledge of native pastures and general pasture ecology.
3. The reluctance of most graziers to adjust stocking rates to seasonal factors or feed availability.

4. Awareness of the need for sustainable production systems and the threat of the green lobby.
5. The loss of species, erosion and degradation of better land types.
6. The significant gap between district average production and the production levels of innovators.
7. Increasing problems associated with the cost price squeeze.
8. Reduction in the size of the workforce.

The key ingredient in achieving change is the formation and maintenance of strong producer groups that have an ongoing commitment to learning, change and improvement. To be successful, these groups must have an ongoing learning framework and a dedicated group coordinator.

The project team has identified an ongoing framework that involves Future Profit and the Smart Manager benchmarking process. Most LBP groups are proceeding along either this pathway or in other self determined directions.

The project highlighted the importance of a group coordinator. The role is to assist and facilitate and is essential to maintain group energy and momentum. It is preferable for this role to be filled by a producer but most lack the time, skill or inclination.

In summary, the LBP process is the ideal starting point for producer groups in the ongoing process of change. The LBP Project has provided a structured framework for graziers to share knowledge and experience, to self critique existing knowledge, to explore options for change and to develop confidence in new management ideas. Ongoing group activities are needed to assist change at the property level.

Executive Summary

The industry issue addressed by the project:

In the years prior to the commencement of the LBP project much attention had been focussed on the need for sustainable use of our agricultural resources. In a press release in October 1990, the Chairman of the then AMLRDC, Dr Nigel Monteith, gave a dire warning that “graziers in northern Australia will have to do something now about sustainability or someone else will do it for them”. There had been numerous forums for discussions on sustainability among grazier groups, as well as Government and industry funded research.

There was an awareness that a problem existed and there was also a body of information and opinions on how this problem could be resolved. What was missing was a co-ordinated approach towards taking effective action in meeting the demands that the problem presented. Without this consensus the grazing industry was receiving a confused message on sustainability, resulting in a lack of action. This was leading to a continued run down in its productive resources.

The LBP process was considered to be the best method of providing short and long term solutions to the development of sustainable production systems. The project aimed to co-ordinate action to identify the costs and benefits of strategic management strategies for sustainable land use. The driving force in the process was to be the gathering and sharing of grazier recommendations and the harnessing of landholders as a force in the process of change.

The Sustainable Beef Production Systems (SBPS) project (using the LBP process) commenced in Central Queensland in 1991. The success of this project in meeting these objectives prompted MRC to initiate a similar project in North Queensland. A series of meetings were held during 1992 to develop the project and in January 1993 the northern LBP project commenced.

Economic significance to the industry

Numerous estimates have been made about the percentage decrease in productivity from over utilisation of primary resources. Given that Queensland has approximately 43% of Australia’s cattle, with an estimated 1.4 billion dollars in annual beef production, any rundown in productive potential is economically significant to the industry and the nation.

In their 1992 situation statement on the condition and productivity of the grazing lands of northern Australia, Tothill and Gillies estimated that 70% of the northern speargrass was degraded to some extent, with 55% (6.7 million hectares) amenable to rehabilitation through management. A further 1 million hectares of the *Bothriochloa/Chloris/Aristida* land type was in the same category.

It is essential that the beef industry consistently supplies a uniform high quality product to the increasingly discerning export markets which purchase the majority of Queensland’s total beef production. Sustainable land use offers the potential to meet these requirements by avoiding the fluctuations in supply and quality, endemic in an industry that is over utilising its resources.

Project Objectives:

The primary objective of the project was to meet the demand from the producer, the beef industry, and the community at large for recommendations and actions to improve the management of the regions’ grazing lands for efficient production and for a balanced environment.

The project targeted the tallgrass component of the NAP2 objective “To have 20% of degradation prone grazing land in Northern Australia operating by the year 2000 under land use production systems which are, at the same time, environmentally sustainable and commercially viable”.

Components in reaching this overall project objective were

- To document best-practice whole farm management strategies recommended by experienced producers.
- To identify knowledge deficiencies in sustainable development.
- To identify high priority research and development directions.
- To promote change in land management towards sustainable usage and development.
- To enhance ownership of research and development to land managers

The specific project objectives for the LBP project were

By December 97 to

1. Document best practice, whole farm management practices and strategies recommended by experienced producers for 24 groups in five regions in North Queensland and to share this knowledge between producers.
2. Identify and publish management strategies that improve productivity and profitability and are environmentally sustainable.
3. Identify and document knowledge deficiencies in sustainable production systems and identify high priority research and development needs.
4. Prepare and detail activities to promote changes in land management towards long term profitable and sustainable whole property management.

Results and achievements

The project had a target of completing 24 LBP groups by December 97. Twenty-two groups completed the LBP process. Two groups commenced the process, (Weipa and Proserpine), but did not proceed beyond the first meeting. The Mt Coolon group had two meetings but requested that their report not be released for publication. The original project objective of documenting current, whole farm management strategies recommended by experienced producers and sharing this knowledge between producers was therefore achieved.

While in most cases the producer reports documented current practice rather than best practice, the third workshop addressed this issue by comparing and discussing the productivity and sustainability of the innovative producers in an area relative to the district average.

While the LBP reports are highly beneficial to local graziers, industry bodies, government agencies and agribusiness the primary benefit of the meetings was the exchange of local experience, knowledge and technology by graziers within the group. The facilitation of peer group discussions on best management practices resulted in a greater awareness, acceptance and uptake of new technology than was achieved through many years of conventional extension.

A further benefit of the LBP reports is that they act as benchmarks of current practice and can therefore be used to measure the adoption of new technology in the future and its impact on the beef industry.

The group meetings have enabled a true picture of current industry practices and views to be documented. In many cases these practices and views have been significantly different to preconceived

ideas and beliefs held by both graziers and DPI staff. The reports indicate that the northern beef industry is operating well below its productive potential. In many cases, improved technology is known to the industry but adoption levels remain low. There is clearly scope for a major increase in the productivity and profitability of the industry and in the use of more sustainable management practices.

The LBP reports satisfy project objectives 2 and 3 namely:

To identify and publish management strategies that improve productivity and profitability and are environmentally sustainable, and

To identify and document knowledge deficiencies in sustainable production systems and identify high priority research and development needs.

The first 3 project objectives were relatively easy to achieve. The real challenge for the project team, and for the industry, is to achieve actual changes in management that lead to long term profitable and sustainable whole property management. The fourth project objective was the preparation and detailing of activities to promote these changes.

The key ingredient in achieving change is the formation and maintenance of strong producer groups that have an ongoing commitment to learning, change and improvement. To be successful, these groups must have an ongoing learning framework and a dedicated group coordinator.

LBP has proven to be an ideal starting point for producer groups in the ongoing process of change. The relationship between producers and government agencies changes fundamentally with LBP. The traditional extension role of being “all seeing and all knowing” is replaced by a genuine partnership that values local knowledge and lays the foundation from which group members may self direct both learning and eventual change. The adult learning relationship developed in LBP is essential to the success of subsequent group activities. The LBP process was fundamental in the development of trust and confidence both within the group and between group members and department staff.

The LBP project was also responsible for introducing DPI project staff to a much wider producer audience than they had previously been in contact with.

In summary, LBP provided a structured framework for graziers to

- develop trust and confidence between group members
- share knowledge and experience
- explore options for change
- develop confidence in new management ideas

The ongoing learning framework: post LBP

The challenge for the project team was to provide a process framework that would enable the LBP groups to continue the process of group learning and development, resulting in group members actually changing current practices and adopting improved management technology.

The group itself must decide which activity, if any, they undertake after the LBP process is completed. Some groups identified high priority issues that demanded immediate action. An example was the Coen and Weipa LBP groups who joined together to develop live cattle export from Weipa. Similarly a number of groups in the Dalrymple Shire have taken advantage of the NHT funding to develop group projects addressing issues of sustainability.

However the ability of groups to develop and encourage on going learning requires a process framework. The framework used in north Queensland has been to encourage groups to proceed from LBP into the eight workshop Future Profit workshop series where whole property business plans are developed.

Participants in Future Profit analyse their current position, set target goals of where they would like to be in the future and look at ways of reaching their goals. Future Profit looks at the business in terms of its natural resources, the financial position, the people and the herd performance.

The next step in the group framework used in the north is the Smart Manager process. Smart manager involves groups using benchmarking to continue the ongoing learning initiated with LBP and continued in Future Profit. Groups are encouraged to wait 3-6 months after completing Future Profit before starting Smart Manager.

Smart Manager uses the Breedcow herd model to enable producers to accurately determine their current production parameters and profitability. They then compare their figures with the rest of the group to determine their relative strengths and weaknesses. Improved management options are identified and evaluated using the herd model. The production and financial pathways involved for producers moving from their current situation to an improved position in the future are then determined.

Smart Manager groups revisit their benchmarks on at least an annual basis. This allows group members to measure the benefits of change and to ensure they are moving in the right direction. Future goals and production and financial targets can be renegotiated at this meeting. The annual meeting is essential to ensure the group is committed to ongoing improvement and learning.

While LBP, Future Profit and Smart Manager provide the overall group framework it is important that groups concurrently address the key issues and problems they have identified. These issues can be addressed using a range of options including field days, group visits, producer demonstration sites (PDS), producer initiated research and development (PIRD), inviting experts to address local meetings as well as ongoing local group meetings.

The role of the group coordinator

The other key factor essential for ongoing group success is the presence of a coordinator. Without this person, the momentum and group energy developed by LBP is lost. Clearly it is preferable that the group coordinator be a producer, but our experience in North Queensland is that very few producers have the time, skill or inclination to take on this role. Whether it be a producer, consultant or DPI extension officer it is crucial that a coordinator be available to every group. The role is purely to assist and facilitate the group. The group itself must determine the direction they wish to proceed in.

There are a number of excellent group processes and activities available to groups but without a coordinator the ultimate goal of achieving change in practice will remain elusive. Project staff were frustrated by their inability to remain actively involved with groups after the third LBP workshop, due to the need to meet milestone requirements with other groups. There was a continual underestimation of the time required to continue the role of group coordinator. These activities were also in many cases not funded directly and relied on funds being redirected from other projects.

If the coordinator is not a producer group member then it is highly desirable that there be continuity in the role. While producer members can rotate the role without any loss of group momentum, the same is not the case with changing external coordinators.

The success of groups in the future is dependent on a coordinator being available for groups to take advantage of the opportunities that exist and to realise their potential. I believe that an individual DPI officer could manage at most 3 or 4 groups. Unless this role is formalised, funded and adequate time set aside for the role, then group extension will not bring about the changes in practices that are needed for the future success of the beef industry.

In summary, a key outcome of the project was the formation of strong producer groups that have continued the ongoing process of learning and improvement beyond the LBP process.

Industry Implications and Recommendations

The major issues and concerns highlighted by the groups were

1. The increase in tree density associated with increased stocking rates, the lack of fires and below average rainfall.

Virtually all the LBP groups reported significant increases in tree density. Most groups spoke of the impact of Brahman cattle, supplementary feeding strategies that reduced death rates, increased stocking rates and reduced fuel loads preventing hot fires as the main causes. Other groups took the more short term view and blamed the drought of the early 1990's.

Most groups, but not all, accepted the link between grazing management, fire and tree density but all agreed that the changes were highly undesirable. The main problems reported were reduced feed availability and difficulty in mustering.

The issue of increasing tree density and the interactions with grazing management and fire is clearly a high priority research area. Theories on the primary causes, the various interactions and solutions to the problem are plentiful. While a number of demonstrations have been initiated to look at practical strategies to address this issue, such as the Mt Garnet groups NHT funded fire project and the northern stocking rate demonstrations, there is a need for rigorous research to give some objective answers.

2. An extremely poor knowledge of native pastures and general pasture ecology.

The often, complete lack of knowledge of the pasture base that drives the northern beef industry was a source of constant amazement to the project team. While most producers were able to give common names for many of the trees and shrubs in their area, very few could name more than two or three key pasture species. Similarly the distinction between annuals and perennials, grasses and legumes and increaser and decreaser species was poorly understood.

Given the fundamental importance of being able to recognise the key native pastures, this lack of producer knowledge is a major concern. However, while plant identification highlights the symptoms of poor range condition, a better understanding of native pasture ecology allows producers to address the causes of any problems. The recent release of a number of pasture identification books, natural resource workshops in Future Profit and pasture ID and ecology field days have helped address this problem, but there is a definite need for ongoing producer education in this area.

The challenge for agency staff is to have producers realise that their livelihood is not derived from the cattle they turn-off but the pastures and natural resources those cattle graze on.

3. The reluctance of most graziers to adjust stocking rates to seasonal factors or feed availability.

Most properties use traditional set stocking rates and will only alter these rates under exceptional circumstances. When asked about how these rates were determined, most producers were vague or used subjective replies. A number of producers spoke of the "set stocking rate" actually increasing as death rates decreased in herds that had traditionally maintained a relatively static size. The reduction in death rates was due to the increasing Brahman content in herds and the widespread use of supplementation.

The drought years of the early 1990's led to widespread destocking and many properties are still undergoing herd build up. The opportunity for the industry is to match stocking rates to feed availability, on an annual basis, as properties become fully stocked.

Initiatives such as the stocking rate demonstrations and the project NAP 3.213 (Determining the productive capability of your land to develop sustainable management practices) are key projects currently addressing this issue.

4. Awareness of the need for sustainable production systems and the threat of the green lobby.

Two themes common to all groups were the affinity that producers have for their land and their desire to pass properties on to future generations in either comparable or improved condition.

Coupled with these themes was the perceived threat that the green lobby posed to their future livelihood. The feeling of being powerless against the waves of environmental issues that have surfaced in recent years was a common complaint. National park acquisitions, tree clearing guidelines, National rangelands and Natural resource management legislation have all made producers defensive on environmental issues.

The perceived threat is heightened by concerns over land tenure and the native title debate.

In the absence of government legislation enforcing sustainable land management, the industry needs to be pro-active or controls will be put in place. Once benchmarks of acceptable land condition have been agreed on, then the challenge for R,D&E agencies is to show producers how they can maintain or improve income with reduced stocking rates. If property size is identified as being too small for a sustainable, viable living then measures are needed to help producers out of the industry or into either larger holdings or diversification.

5. The loss of species, erosion and degradation of better land types.

A number of groups, but certainly not all, spoke of species loss, erosion and degradation. In some areas, valuable perennial grasses have been replaced by less desirable, perennial or annual species. Kangaroo grass has declined or disappeared in some areas and Indian couch has dramatically increased in others.

Noxious weeds and in particular woody weeds, have become serious problems primarily on the fertile alluvial and black soils. Several groups acknowledged the link between overgrazing and degradation of the better land types. A number of the Charters Towers groups have received 1.5 million dollars funding for fencing and strategic spelling of fragile land types. This initiative should be supported and if possible extended to other areas.

The challenge for funding bodies such as Landcare and NHT, is to ensure that funds are directed at the cause of environmental problems, and not, as is too often the case, the symptoms.

6. The significant gap between district average production and the production levels of innovators.

This point was brought home in the economic modelling workshop where district average production was compared with the production levels of innovators. The first surprise was how low the base production levels were in many districts and the second was the magnitude of the gap between the innovators and the average.

In many cases, the validated analysis of a typical district herd by the Breedcow model was the first time that many producers were able to see what is actually happening in their herds instead of the mistaken

perceptions they held. Invariably the herd production parameters that the group described in the first two meetings had to be modified in the economic modelling workshop to reflect reality.

Several LBP groups described typical district average production where branding rates averaged 50% and death rates were 10% or higher in breeders. Innovative producers in the same areas reported branding rates of at least 75% and death rates of 1-2%. Breedcow analysis revealed gross margin improvements of up to 100% with innovative management practices. Improvements in gross margin of 30-50% were common.

The obvious conclusion is that the northern beef industry is operating well below its productive potential. R,D&E agencies clearly have an enormous challenge to close the gap between the average producers and the innovators.

7. Increasing problems associated with the cost price squeeze.

Not surprisingly, this problem was universal. Groups spoke of receiving 1970 prices for cattle, but paying 1990 costs. The Mt Garnet LBP group stated that a 1,000 breeder herd was sufficient to provide a viable living 10 years ago but today up to 1,500 breeders are necessary. This in turn has exacerbated land condition problems as producers try to run more cattle to remain viable. The common producer lament was their inability to pass on increasing costs.

Given the large potential improvements in productivity available in the north, many producers can manage the cost/price squeeze with improved efficiency. The challenge is to overcome the perception that running more cattle, with traditional management, is the solution to economic salvation.

8. Reduction in the size of the workforce.

The cost/price squeeze has seen labour become relatively more expensive in recent times. The result has been a significant reduction in the number of employees on cattle properties. A number of producers spoke of having to make do without any additional labour. Family labour resources are being increasingly relied on and neighbours are often used to help with musters at a daily rate of pay.

Additional costs, (such as superannuation, FBT, workers compensation) and the paperwork involved, acted as further disincentives to employ workers.

Other issues highlighted by a number of the groups were

- The need for quality assurance
- Increased government regulation of the industry
- Marketing pressure to improve quality and reduce age of turn-off
- The rise of the live export market and its importance to northern producers
- The need for better record keeping
- Producers need for improved management expertise
- The general challenge of marketing to ensure long term viability

Main Project Report:

i. Introduction

The industry issue addressed by the project:

In the years prior to the commencement of the LBP project much attention had been focussed on the need for sustainable use of our agricultural resources. In a press release in October 1990, the Chairman of the then AMLRDC, Dr Nigel Monteith, gave a dire warning that “graziers in northern Australia will have to do something now about sustainability or someone else will do it for them”. There had been numerous forums for discussions on sustainability among grazier groups, as well as Government and industry funded research.

There was an awareness that a problem existed and there was also a body of information and opinions on how this problem could be resolved. What was missing was a co-ordinated approach towards taking effective action in meeting the demands that the problem presented. Without this consensus the grazing industry was receiving a confused message on sustainability, resulting in a lack of action. This was leading to a continued run down in its productive resources.

The LBP process was considered to be the best method of providing short and long term solutions to the development of sustainable production systems. The project aimed to co-ordinate action to identify the costs and benefits of strategic management strategies for sustainable land use. The driving force in the process was to be the gathering and sharing of grazier recommendations and the harnessing of landholders as a force in the process of change.

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Economic significance to the industry

Numerous estimates have been made about the percentage decrease in productivity from over utilisation of primary resources. Given that Queensland has approximately 43% of Australia’s cattle, with an estimated 1.4 billion dollars in annual beef production, any rundown in productive potential is economically significant to the industry and the nation.

In their 1992 situation statement on the condition and productivity of the grazing lands of northern Australia, Tothill and Gillies estimated that 70% of the northern speargrass was degraded to some extent, with 55% (6.7 million hectares) amenable to rehabilitation through management. A further 1 million hectares of the *Bothriochloa/Chloris/Aristida* land type was in the same category.

It is essential that the beef industry consistently supplies a uniform high quality product to the increasingly discerning export markets which purchase the majority of Queensland’s total beef production. Sustainable land use offers the potential to meet these requirements by avoiding the fluctuations in supply and quality, endemic in an industry that is over utilising its resources.

Project Objectives:

The primary objective of the project was to meet the demand from the producer, the beef industry, and the community at large for recommendations and actions to improve the management of the regions' grazing lands for efficient production and for a balanced environment.

The project targeted the tallgrass component of the NAP2 objective "To have 20% of degradation prone grazing land in Northern Australia operating by the year 2000 under land use production systems which are, at the same time, environmentally sustainable and commercially viable".

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The specific project objectives for the LBP project were

By December 97 to

1. Document best practice, whole farm management practices and strategies recommended by experienced producers for 24 groups in five regions in North Queensland and to share this knowledge between producers.
2. Identify and publish management strategies that improve productivity and profitability and are environmentally sustainable.
3. Identify and document knowledge deficiencies in sustainable production systems and identify high priority research and development needs.
4. Prepare and detail activities to promote changes in land management towards long term profitable and sustainable whole property management.

ii. Methodology

The Local Best Practice project was process driven and as such, methodology was the backbone of the project. The three workshop series was divided into two stages.

First stage of the LBP process

The first stage of the LBP process is the documentation of experienced grazier's recommendations for managing their country for optimal production with minimal degradation of natural resources.

Our first step was to break up the north region into broad land type areas. In some cases there were clearly defined land type groupings such as basalt, granite or desert country but often groups encompassed a range of land types. This was unavoidable in some of the extensive areas such as Cape York, where property sizes range from 1,000 to 3,000 square kilometres. While it was preferable to keep the groups within a similar land type, those groups with multiple major land types proved to be equally successful.

Where possible, groups revolved around properties with a common social focus. Most groups had from 10 to 20 properties within the group boundary and all properties were invited to the meetings. This meant that we were targeting all properties, as opposed to the central Queensland LBP model where it was often a sample of the "better" producers within an area.

Typical group size was 6-12 properties. All members of the management team were encouraged to attend the meetings, namely owners/managers, their wives and children. The majority of meetings, however, were dominated by the owner/manager of the property. Unlike the CQ LBP project, there was no insistence on participating producers having 10 years experience. It was felt that this requirement would preclude some progressive land managers as well as younger graziers with the most to benefit from the process. Innovations in the north often result from newly arrived, experienced graziers from other regions who are prepared to try management options that differ from the established practice in the district.

A key producer was selected for each LBP group. This person was consulted on the appropriateness of the group boundary and group membership. Changes were made if necessary. The process was clearly explained to the key contact who then helped organise the initial meeting and encouraged neighbours to attend. Some groups had natural leaders who organised the process from start to finish while other groups needed considerable inputs from DPI staff. Groups where the key producer had a genuine commitment and passion for the project were invariably successful.

At the first meeting, graziers were asked to describe the land types within their area and then describe a sustainable management system for a typical property in the area. DPI input was strictly limited to facilitating the meeting and recording grazer comments. There was no technical input from DPI staff. Meetings would usually run for three hours. A report of the meeting was then drafted and sent to all members of the group. The reports all contained the following information

- An introduction
- A map showing the location of the study area
- Enterprise description
- Cattle management: Including breeds and breeding, description of bulls and cows, mating, reproduction rates, growth rates, mustering, weaning, marketing, deaths, health, supplementary feeding
- Grazing Land Management: Native and improved pastures, stocking rates and pasture management, fire, tree and woody weed management, fences and waters, fauna and flora conservation, trends, land tenure, current and recommended property sizes

- A list of tree and plant species in the area

Some reports also included information on

- Property development: Land types suitable for clearing, tree clearing, regrowth control
- Drought management experience
- Record keeping
- Human component: Labour, education, services, roads, property transfer

Consensus on the range of issues discussed was not always reached but when differences of opinion occurred the different views were recorded. A second meeting was held to review the report and make corrections and additions as necessary. In some cases a third meeting was required to fully satisfy all group members that the report was an accurate record of their views.

The reports address the first project objective, namely the documentation of best bet, whole property management practices and strategies recommended by experienced producers. While the project title refers to “Local Best Practice”, the reports in most cases detailed the range of practices currently being used in the district. The project team believed it was more important to document current practice and highlight innovative and sustainable management practices being used by producers within the group, rather than an idealised management regime that was not actually being used in the district. The reports therefore act as a benchmark of current practice allowing the impact of future industry practices to be assessed.

The reports have proven to be highly beneficial to local graziers and in particular to graziers who have recently moved to the district. The reports are also highly valuable to government agencies, both state and local, agribusiness and industry bodies.

The main benefit of developing the LBP reports however is the exchange of local experience and technology between graziers. This occurred both during the LBP meetings and with the wider grazing community in subsequent social gatherings and discussions. The project team is confident that this has led to a greater awareness and uptake of technology than has occurred through conventional extension.

Second Stage of the LBP process:

The original central Queensland LBP model then involves a workshop where “specialists” are challenged to improve the grazer recommended production systems. A subsequent meeting would then be held with graziers to discuss opportunities for improved management systems, to identify gaps in knowledge and constraints on production, and to prioritise these for further research and extension.

This approach was tried with our first LBP group but our project team felt that it was not the most appropriate way to proceed. The concept of a specialist workshop was seen as a problem. The LBP technique was being promoted as a producer driven process, which acknowledged that a great deal of collective wisdom resided within the group. It was also an attempt to break from conventional technology transfer extension methods based on the “we know what’s best for you, if you would only listen” approach. We considered the specialist workshop to be a return to conventional extension techniques and not appropriate for achieving the project outcomes.

During the initial LBP meetings it soon became apparent that within our groups there was a range of producers, from those operating under traditional management practices to innovative producers using the full spectrum of new technology. This broad range proved highly useful for comparative analysis and was critical to the success of the second stage of the LBP process.

The approach our project team developed was to hold a modelling workshop to determine the profitability of current management practices. The model was then used to look at a range of options for improving profitability and sustainability. The model used was the Breedcow herd budgeting model devised by Bill Holmes. Breedcow gives a gross margin for a stable herd on a fully stocked property. It can be used to compare gross margins for different management strategies while running the same number of adult equivalents.

The analysis was conducted using a computer projection panel that allowed the group to see all the computer operations on a large screen. The producers in the group were asked to describe a typical property in their district running an agreed number of adult equivalents, using current management. All figures for calving and death rates, sale prices, female and male herd structure, and variable costs were given by the group. In many cases these figures were the subject of spirited debate within the group. Once the final figures were entered, the task of verifying the model would begin. The Breedcow model works by adjusting the number of weaner heifers that must be retained to maintain a stable herd. All surplus females are sold to keep the herd numbers stable. The group would be asked if the figure for female turn off was comparable to what they were selling. Invariably the figure would be too high, indicating that either death rates were higher than stated or calving rates lower.

The process then began of trying to model what was actually happening in the herd rather than the incorrect perceptions that were initially used in the analysis. This involved matching the branding and death rates to the known figures for the number of breeders on the property and the number of males and females sold.

This was a pivotal stage in the LBP process. Producers for the first time were able to accurately evaluate their herd performance on extensive properties. The typical outcome was that death rates were invariably greater and branding rates lower than what was thought. In some cases producers could see that significant herd build up was occurring and several acknowledged that overstocking was becoming a problem. The model enabled the group to see the importance of female turn off in profitability and the number of females that needed to be sold to maintain a stable herd.

The strength of the process was that every figure in the analysis came from a producer in the area. Every figure was debated until the group was satisfied that it was a true reflection of their area. The final validated result was a gross margin that the producers had confidence in, and ownership of.

The next step was to ask the group what alternative management strategies they wanted to look at. Most groups initially examined the effect of age of turn-off. This analysis highlighted the important link between branding rate and age of turn off. Bullock turn-off is often more profitable than store turn-off in herds with a low branding rate while the reverse is the case in well managed herds with a high branding rate.

The Breedcow model can be used for break even analyses. This allowed groups to look at a range of "what if" scenario's, such as "what price is required for live trade steers to be as profitable as bullocks?" The economics of early weaning, phosphorus supplementation and production feeding were also commonly examined.

This procedure allowed the group to quantify the benefits of different management strategies in their area. It was at this stage that the importance of having a range of producers in the group, from traditional managers to innovators, was highlighted. The power of this part of the process was that a producer would be describing to his peers the benefits he was actually achieving from improved management on his property, and the associated costs involved. The group could then see the resulting bottom line profitability and compare it to their own management. The analysis could also be carried out using projected figures if no group members were actually carrying out the improved management practices, but the impact on the group was reduced.

The analysis was also used to look at the implications of stocking rate on land condition and profitability. The Georgetown granite group found that by using an improved management package they could reduce their number of breeders by half and still generate the same gross margin achieved using traditional management. This analysis was carried out without allowing for the improved individual animal performance that could be expected from a halving of the stocking rate. This outcome led to the establishment of a stocking rate demonstration project on four properties in North Queensland. The project compared two adjacent paddocks running 200 breeders, with one stocked at district average stocking rates and the other at a safe, long term stocking rate.

The analysis of the economics of the current management system and the opportunities for improvement has been included in the LBP reports. In many cases the herd parameters resulting from the validated typical herd analysis are significantly different to what the group had initially stated. The tables detailing property management data for each region contain the parameters given by the group in the first 2 meetings. This was not changed to reflect the validated outcomes resulting from the economic analyses to avoid confusion.

In summary, the LBP process provided a structured framework for graziers to share knowledge and experience, to self critique existing knowledge, to explore options for change and to develop confidence in new management ideas.

iii Results

The North Queensland LBP project area was bound by Bowen Shire in the south, the Norman River in the west and extended to the tip of Cape York Peninsula. Four regional project teams were formed namely Bowen/Ayr, Charters Towers, Mareeba and Cape York/Mitchell River.

The outputs of the regional teams were

Bowen/Ayr: (2 groups)	Leichhardt Range, Mt Coolon
Charters Towers: (8 groups)	Greenvale, South-East Flinders Shire, Basalt Tablelands, Lake Buchanan, Mingela/Ravenswood, Lower Cape River, Belyando Crossing, Cape Campaspe
Mareeba: (8 groups)	Georgetown Granite, Gilbert River, Upper Einasleigh, Croydon, Southern McBride, Mt Garnet, Chillagoe/Almaden, Atherton Tablelands
Cape York/Mitchell River: (4 groups)	Kimba, Coen, Lower Mitchell, Palmer/Mitchell Junction.

The majority of the groups were formed in either the Northern black spear grass pasture community (8 groups) or the *Aristida/Bothriochloa* community (8 groups). Two groups lay in the *Schizachyrium* community of Cape York, one in the Gidgee, one in the Spinifex and the Atherton Tableland group in the pasture sparse or absent community due to its rainforest origins.

Table1: Property Management Data from properties in the Northern black spear grass pasture community

	Upper Einasleigh	Mt Garnet	Chillagoe /Almaden	Southern McBride	Greenvale	Basalt Tableland	Mingela/ Ravenswood	Leichhardt Range
Average property size	170 km ²	180-390 km ²	780-1300 km ²	260 km ²	260 km ²	260-520 km ²	Ming 9,000 ha Rwd 26,000 ha	20,000 ha
Property size Range	90-390 km ²	25-780 km ²	170-2850 km ²	78-520 km ²	210-1040 km ²	Up to 1680 km ²	5,000-45,000 hectares	7,700-25,000 hectares
Min living area	170 km ²			390 km ²		390 km ²		19,500 ha
Viable herd size	2,200 a.e.	2,000-3,000	3,000		2,500-3,500	2,500-3,500	2,500	1,500-2,000
Breed	Predom Brahman	Brahman cross	Brahman cross	Predom Brahman	Predom Brahman	Brahman cross	Brahman cross	¾ to full Brahman
Mating	Continuous	Continuous	Continuous	Continuous	Continuous	Mainly cont.	Mainly cont.	Continuous
Bull %	3-6%	4-5%	2-5%	3-5%	4%	4-5%	4%	4-5%
Av Branding rate	65%	70%		75%		65%		65%
Branding rate Range		60-80%	30-60%			65-85%	65-75%	60-70%
Weaning age	5-6 months	3-6 months	6-8 months	3-6 months	By July	To 3 months	To 4 months	4-6 months
Turn-off	4 yr old US Bullocks DW 260-300 kg	2 yr old LW 270-300kg, Bullocks 8T@ 500 kg	2 yr old @ 270-300 kg, Bullocks 5y DW 280-300	2 yr old stores, 3-4 yr old bullocks	80% 4 y old Bullocks, 15% Korean 5% Jap Ox	3 y old fats, 2 y old stores, Spay cows & heifers	4 y old bullocks, 2 y old steers & heifers live ex.	20 mth stores av 320 kg, Bullocks 3-4 yr, av 600 kg
Death rates	3-5%	5%	3% paddocks 5%+ bush	4%	1-2%	Cows 5-7% Others 1-2%	Breeders 3-5% Others 1-2%	5% Range 2-5%
Cull cow age	8-10	10 years	10-12	Variable	8-10	9-10	9-10	8
Cull bull age	8-10	8 years	7-10	8-10	6-7	6-8	6-8	7
Health	Botulism	Botulism, Vibrio, lice, Buff fly, ticks	Botulism, lice, ticks	Botulism, blackleg, tick vibrio, flies	Botulism	Botulism, worms, lepto, vibrio,ticks	Botulism, worms, vibrio, lepto, 5 in 1	Botulism, calves 5 in 1
Supplements	Urea in dry	Urea in dry Wet season P	Urea in dry Wet season P	Urea in dry Salt&S in wet	Phosphorus	Urea, M&U, salt, S, P	Urea, salt, S, P, protein, molass	Licks in dry Wet season P

Table 2: Property Management Data from properties in the Aristida/Bothriochloa pasture community

	Georgetown Granite	Gilbert River	Croydon	Lower Mitchell	Palmer/Mitchell	Lower Cape River	Cape Campaspe
Average property size	260 km ²	235 km ²	780 km ²	3,625 km ²	1,300 km ²	260 km ²	
Property size Range	100-780 km ²	155-340 km ²	115-1555 km ²	2,300-7,000 km ²	830-1950 km ²	155-520 km ²	
Min living area	260 km ²	235 km ²	235 km ²	2,600 km ²	1,000-1300 km ²		
Viable herd size	2,500		1000 breeders	12,000 a.e.	5,000-10,000		3,000
Breed	Predominantly Brahman	Predominantly Brahman	Predominantly Brahman	Predominantly Brahman	Brahman cross	Brahman cross	Predominantly Brahman
Mating	Continuous	Continuous	Continuous	Continuous	Continuous	Mainly cont.	Some controlled
Bull %	4-5%	3-5%	5-10%	4-8%	4-5%	5%	3-5%
Av Branding rate	50%	65%				65%	
Branding rate Range	35-75%	50-75%	40-45% un supp 65-70% suppmt	50-70%	50-70%	60-80%	60-70%
Weaning age	6-7 months	3-6 months	4½-6 months	5-6 months	120-150 kg, 2 nd round less	150 kg	Up to 8 months
Turn-off	4 y old U.S. bullocks DW 230-260 kg	4 year old U.S. bullocks DW 250-260 kg	Store cattle Live export	Weaner steers Spay heifers & cull cows	Weaners, live export, some ox	Steers 1½-2 yr, Bullocks 3½-4½ years old	Live export Bullocks-domestic & Jap
Death rates	8-10%	3-6%	10-15% un supp 2-3% suppmt	10%	7-8%	5%	2-6% breeders 1% males
Cull cow age	10-12	10	10	10+	8-12	6-10	7-10
Cull bull age	7-8	7-10	7-8	8-10	7-10	7-10	6-8
Health	Botulism	Botulism, vibrio	Botulism, vibrio	Botulism, ticks	Botulism, tick, buffalo fly	Botulism Some tick, lice	Botulism, leptos, worms, ticks
Supplements	Urea in dry Some P in wet	Urea in dry Some P in wet	Urea in dry Some P in wet	Some urea based in dry	Urea in dry Some P in wet	Some P all year Urea, protein, S	P all year Urea in dry

Table 3: Property Management Data from properties in the remaining pasture communities

	SCHIZACHYRIUM		GIDGEE	SPINIFEX	SPARSE/ABSENT
	Kimba	Coen	Belyando Crossing	Lake Buchanan	Atherton Tableland
Average property size	780-1,040 km ²	1040 km ²	155-260 km ²	7 props av 350 km ² , 3 props>1040 km ²	
Property size: Range	340-2,070 km ²	560-8030 km ²	155-310 km ²	230-3,000 km ²	Up to 180 hectares
Min living area	780 km ² , 520 km ² improved management		360 km ² with 30-50% able to be developed		180 hectares
Viable herd size		3,000 a.e.	3,500		300
Breed	Brahman cross	60-90% Brahman	Brahman cross	Brahman cross	25-50% Brahman
Mating	Continuous	Continuous	Mainly cont.	Mostly cont.	Some controlled
Bull %	3-5%	4% paddocks 25% unfenced	3-5%	4-5%	1-2%
Av Branding rate	50-55%		65-70%		80-85%
Branding rate Range		<40% unfenced 60-70% paddocks	60-85%	65-80%	
Weaning age	6 mths 1 st round, 3 mths 2 nd round	6 months	5-8 months	5-9 months Dry years 3-4 mths	6-9 months
Turn-off	18 mth stores, 5-6 year old ox	2-3 yr stores 300- 380 kg LW, Bullocks 5 yr old 400-450 kg LW	3-3½ yr old fats, 1½-2 yr old live export	Mostly fats, some live export and stores	Local trade, live export, some ox
Death rates	2-5% good years, Up to 25% in bad yr	Not available	Herd av. 3-5% Males 1%	2-5%	0.5-2%
Cull cow age	8-9	No age culling	6-9	7-10	10+
Cull bull age	8	7-8		9-10	5-9
Health	Botulism, tick, fly and lice	Botulism	Botulism, ticks Lice, blackleg	Botulism, worms, lepto, vibrio	Ticks, fly, worms Foot rot, 3 day, vibrio
Supplements	Some urea in dry Some P in wet	Urea in dry Some P in wet	Urea, some P, Protein meals	P except black soil, Dry lick	Range of wet & dry season supp. molasses

Relative Grazing Value of Land types

Northern Black Spear Grass Pasture Communities

Chillagoe/Almaden

Land types	Relative value
River frontage	100
Red stony ridges	90
Limestone	85
Black soil	80
Better granite	70
Granite sand ridge	55
Hard/poor granite	55
Mongrel stony ridge	55
Sand ridge	40
Clay Tea tree ridges	35
Clay Tea tree flats	30
Granite wattle	20
Conglomerate	0

Southern McBride

Land types	Relative value
Black basalt	100
Brown basalt	50
Black soil in Lava wall	50
Red basalt	25
Sand ridge	25
Sand flat	25
Granite	20

Aristida/Bothriochloa Pasture Communities

Gilbert River

Land types	Relative value
Frontage	100
Black soil plains	100
Flat lightly timbered	65
Granite	65
Red sand ridge	35
Box	35
Quinine ridges	10
Slatey spinifex ridges	7
Wattle	5
Tea tree	<5
Lancewood ridges	<5
Scalded flats	<5

Upper Einasleigh

Land types	Relative value
River frontage	100
Black soil	95
Black basalt	95
Box flats	80
Red basalt	70
Gravel ridges	50
Hilly country	40
Rocky ridges	30
Tableland country	30
Lancewood	10

Mt Garnet

Land types	Relative value
Alluvials	100
Black basalt	90
Red sandy	70 down to 10
Grey sandy	70 down to 50
Red basalt	50
White sandy	10

Cape Campaspe

Land types	Carrying Capacity
Frontage	High
Black soil	High
Box hollows	Medium
Narrow leaf ironbark	Medium
Blackwood/Gidgee/ Brigalow	Medium
Sandalwood	Medium
Silver leaf ironbark	Medium
Quinine	Medium
Wattle	Low
Lancewood	Low
Hard spinifex	Low

Aristida/Bothriochloa Pasture Communities (continued)**Palmer/Mitchell**

Land types	Relative value
Black soil	100
River frontage	90
Broad leaf tea tree	10 to 40
Narrow leaf tea tree	10 to 40
Sand ridge	50
Ironbark ridge	50

Lower Mitchell

Land types	Relative value
River frontage & flood plains	100
Marine plains	90
Open eucalypt forest	80
Melon hole box	50
High forest	40
Low tea tree forest	20

Schizachyrium Pasture Community**Coen**

Land types	Relative value
Black soil melon hole	100
Clay tea tree flats	100
River flats	90
Sandy tableland	90
Open forest	80
Sand ridge	60
Granite	60
Red tableland	40 to 75

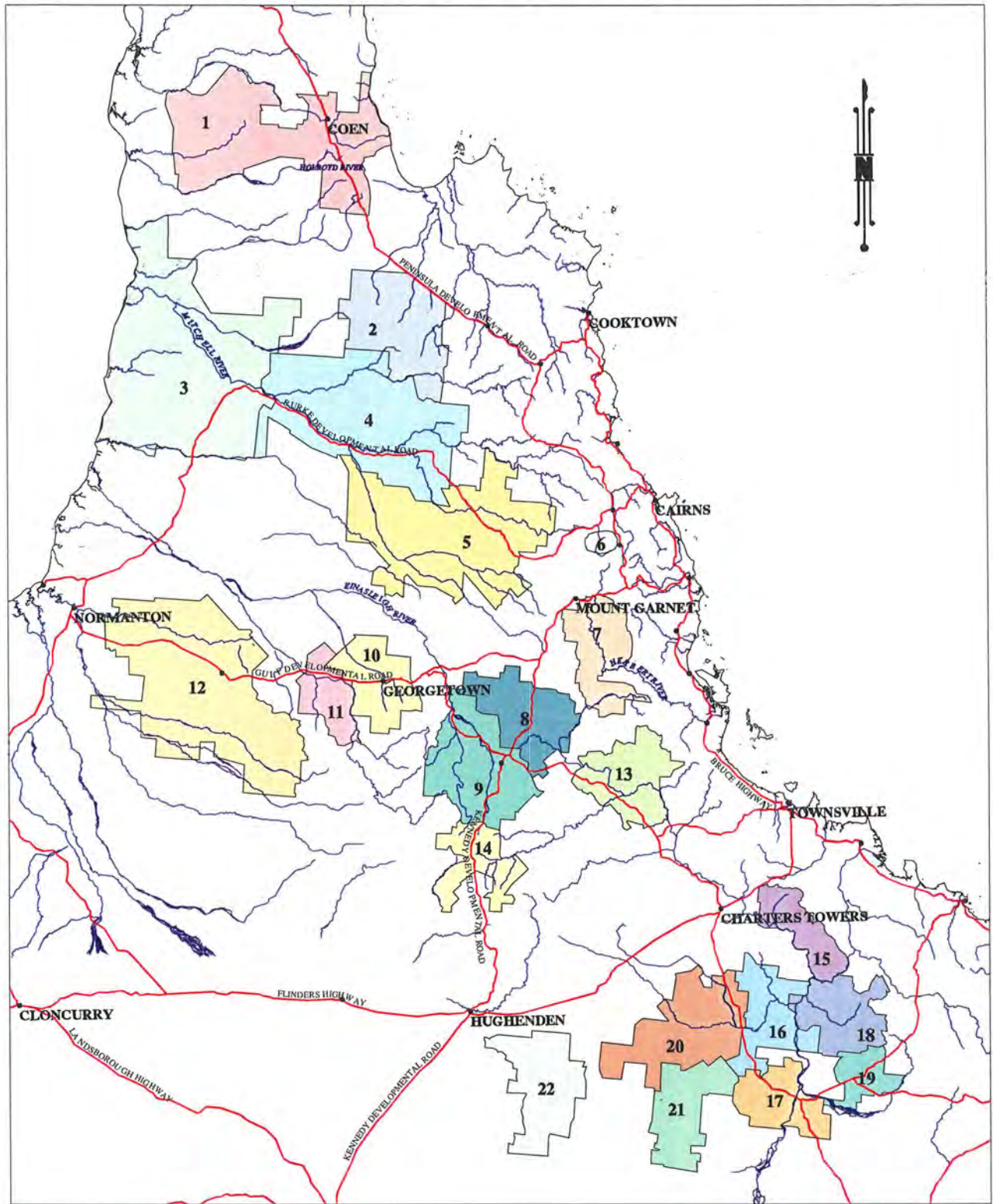
Kimba

Land types	Relative value
Box flats	100
Red iron bark	100
Tea tree flats	100
Tableland	70
Sand ridge	50
Range country	20 to 50
Granite	20 to 40

Gidgee Pasture Community**Belyando Crossing**

Land types	Carrying Capacity
Frontage (Coolibah/Gidgee undeveloped)	1:30-40 acres (1:12-15 hectares)
Flooded country (undeveloped)	1:20 acres (1:8 hectares)
Scrub (undeveloped)	1:40-60 acres (1:15-24 hectares)
Box (Molloy & Normanton) undeveloped	1:50-60 acres (1:20-24 hectares)
Box (Reid River) undeveloped	1:25 acres (1:10 hectares)
Box (Reid River) with buffel	1:15 acres (1:6 hectares)
Yellow Jack	1:60 acres (1:24 hectares)
Gidgee pulled (not flooded)	1:15-18 acres (1:6-7 hectares)
Blackwood pulled (salty with gidgee burr)	1:25 acres (1:10 hectares)
Blackwood (better pulled country)	1:15 acres (1:6 hectares)
Brigalow (pulled)	1:15 acres (1:6 hectares)
Creek flats (bluegrass and buffel)	1:15 acres (1:6 hectares)
Creek flats (bluegrass only)	1:20 acres (1:8 hectares)
Ironbark (broadleaf and narrow leaf)	1:35-40 acres (1:14-16 hectares)

Location of North Queensland Local Best Practice Groups



LEGEND

1 Coen District	11 Gilbert River	21 Lake Buchanan
2 Kimba District	12 Croydon	22 South East of Flinders Shire
3 Lower Mitchell	13 Greenvale	Roads
4 Palmer / Mitchell Junction	14 Basalt Tableland	Rivers
5 Chillagoe / Almaden	15 Mingala / Ravenswood District	
6 Atherton Tableland	16 Lower Cape River	
7 Mount Garnet	17 Belyando Crossing District	
8 Southern McBride Basalt	18 Leichhardt Range	
9 Upper Einasleigh	19 Mount Coolon	
10 Georgetown Granite	20 Cape Campaspe	

kilometres **SCALE 1 : 5,000,000** kilometres



QUEENSLAND
DEPARTMENT OF NATURAL RESOURCES
 RESOURCE MANAGEMENT

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 Department of Natural Resources
 Resource Management
 GIS & Cartography Unit, Mareeba.
 Cartography by Mandy Price
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Individual Group Reports by Region

MAREEBA

The project team was led by Jim Kernot and included Kev Shaw, Rob Webber, John Boorman, Dan Hogarth, Dan Healy, Greg McDougall, Regina Holden, Gaye Mayne and Joe Miller.

Georgetown Granite

This was the first Local Best Practice group conducted in the north. A key producer was selected who determined the boundary of the group and invited producers to the first meeting. A covering letter was also sent to all participants explaining the basics of the project. The first meeting was facilitated by Richard Clark who had also been responsible for training the project team in the LBP process. Three meetings were required to finalise the best practice report.

We were impressed with the high level of grazier interest throughout the meetings and the interaction between graziers. The LBP process had been described by some outsiders as an information gathering exercise, but the continual exchange of local experience and technology by graziers within the Georgetown group convinced the project team that the benefits went well beyond information gathering.

The project was closely following the Central Queensland LBP methodology at this time. The next step in the CQ model was a specialist workshop. Local DPI staff examined the report and looked at ways that the Georgetown granite management system could be improved. While district average management and productivity were sub-optimal, there were graziers within the group who had adopted all of the improved technology that was on offer. Even those producers who were still operating along more traditional lines were well aware of early weaning, wet season phosphorus supplementation and improved breeder herd management technologies. The issue was more one of : what are the barriers to the adoption of this technology? It was primarily for this reason that we decided to drop specialist workshops from our project.

We considered the best way to tackle the barriers to the adoption of new technology at Georgetown was by using the Breedcow herd model. The model allowed the group to determine the gross margin for a herd using traditional management. Graziers within the group then provided the figures to determine the gross margin for a range of alternative management strategies. These figures were vigorously debated throughout the process. The bottom line figures for the various options represented the first time the benefits had been quantified to the group. Several producers said they were surprised to see just how great the potential benefits were. The critical factor in the process was that the message came from within the peer group.

In their report, the Georgetown granite graziers spoke of land condition declining in recent years. They also stated that overgrazing was related to property viability and the need to carry more cattle to make a living. Sustainability and commercial viability were the key project objectives of DAQ 092. To address this important issue, the Breedcow model was used to look at how much the herd size could be reduced using an improved management system and still break even with traditional management. The analysis, determined by figures provided by graziers using the different management practices, revealed that herd size could be reduced from 2500 head to 1600 head or 1000 breeders down to 520 without affecting profitability.

The LBP meetings had probably achieved more progress in overcoming the cultural paradigms that determine land management practices, than decades of conventional extension.

The project, “Managing stocking rates for sustainable productivity”, was developed in response to these findings. Sites were set up at Georgetown and three other locations in the north to compare the profitability and the impact on the environment, of the district average stocking rate and a reduced stocking rate based on feed availability.

Several members of the Georgetown group recently completed the Future Profit workshop series. The same group is planning to commence the Smart Manager benchmarking process in October 1998.

Gilbert River

This group of eight properties proceeded smoothly through two meetings to record grazier recommendations and an economic modelling workshop. The project team was again pleased with the interaction that occurred between producers and the development of a genuine partnership between the producers and departmental staff.

In hindsight, our project team was too intent on moving on to the next LBP group at this time. We did not assist this group, and the subsequent Einasleigh group, to explore the opportunities they had identified during the meetings. The area did not have a natural leader to initiate group learning activities. The need for a coordinator to maintain the momentum of the group was to be a recurring problem.

Members of the Gilbert River LBP joined in with the Georgetown granite group in property planning mapping exercises that were subsequently carried out in Georgetown and in the Future Profit workshop series.

Upper Einasleigh

This group also progressed through two best practices meetings and an economic modelling workshop. Eight properties attended the meetings. Copies of the final report were forwarded to all graziers in the district regardless of whether they had attended the meetings or not. Permission was always sought from the group before the reports were circulated beyond those who had actually attended the meetings. Most groups were happy to see their reports distributed and, contrary to the fears expressed by some groups, felt the reports could be used to champion their cause with the environmental lobby.

The project team found that once the group was satisfied that the LBP process was a genuine attempt to capture and share both knowledge and experience then producers were totally open. This willingness to share management expertise is in marked contrast to other rural industries where neighbours are seen as competitors and knowledge and experience is guarded.

Croydon

This area had not received much attention from government agencies in recent years so the LBP process was embraced with enthusiasm. Two meetings were held to document grazier recommendations. The modelling workshop was held twice, as several producers were unavailable for the first meeting.

Due to the area’s proximity to the port of Karumba, the live export trade is now the major focus for Croydon graziers. The economic benefits of the live trade were verified by the modelling exercise and options for reducing the age of export steers were examined. The group discussed establishing a PDS to investigate the economics of production feeding to reduce the age of turn off from 2½ years old to 18 months. One of the members of the group however, had already commenced a production feeding trial on his property. The group decided that rather than duplicate an existing trial they would closely monitor the grazier’s attempt to produce export steers at 18 months.

The positive response to the LBP process and the obvious benefits from working as a group led to the formation of a Croydon Shire Landcare group.

Southern McBride Basalt

This area was severely affected by the drought. The first meeting was held in April 93 and the second in January 94. Attendance was limited at both meetings as drought feeding and stock watering understandably took precedence over best practice meetings. A third meeting was held to finalise the report in November 95. This meeting was well attended. A modelling workshop was finally held in February 97.

While the process was beneficial to those involved, the prolonged period between the first and last meeting was far from desirable. As the project progressed it became increasingly obvious that those groups that completed the 3 core meetings in 6 months or less received the greatest benefit from the LBP process. These groups were also more likely to continue working together as a group after the LBP process.

Mt Garnet

This group proved to be one of our more successful LBP groups. The first meeting was held in Mt Garnet in November 95. The report was drafted and sent to the group in time for the second meeting at Yourka station 4 weeks later. The meeting was held in the morning and in the afternoon the group had a property inspection and attempted to reach consensus on land types that had been discussed during the meeting.

The project team was surprised to find that several graziers, although having lived in the area for a number of years, had not previously met some of their neighbours. Although the town of Mt Garnet was a common social and business centre there was virtually no social cohesion in the group prior to the LBP meetings. The group came together extremely well and were enthusiastic to continue as a group.

The modelling workshop was held at Sugarbag station in March 96. The depressed cattle prices at the time did not create a very positive mood however a range of management options were examined. The approach most graziers took was to determine how to survive financially until the return of better beef prices. A landcare group was formed from the LBP group in the afternoon. This was seen as the best way to tackle some of the environmental problems in the area and was also necessary to access Natural Heritage Trust funding. A property inspection of Sugarbag was carried out after the meeting.

The Mt Garnet group subsequently completed the Future Profit workshop series and two separate Smart Manager benchmarking workshops have been held. The group also organised computer training workshops, a pregnancy testing field day, a pasture ID day, a bull selection and fertility workshop and a day discussing supplementary feeding with experts from Swan's Lagoon. The landcare group was also successful in receiving funding for a fire management demonstration.

The post LBP activities undertaken by the Mt Garnet group were a result of the partnership between the producers and departmental staff. The producers identified their problems and the issues they wanted to investigate and DPI staff helped plan, organise and facilitate the meetings and field days.

Chillagoe

The first meeting of this group was held in May 96. The Chillagoe area has been poorly serviced by government agencies and is still largely operating under traditional management. We were fortunate in finding an extremely enthusiastic key producer who organised the date, venue and phoned every grazer in the district.

The second meeting followed shortly afterwards and the modelling workshop was held at Bolwarra Station in August 96. The choice of Bolwarra as the venue was of particular significance to the Chillagoe group. The majority of properties in the group were family owned and operated, and were managed using traditional management. Bolwarra however had recently changed hands and was now owned by a wealthy absentee owner. The new owner employed a previous owner as his manager. The new manager had used traditional management when he owned the property but was now using a range of improved management practices. There was a perception among the locals that while the results at Bolwarra were impressive, they were not economically viable and were being funded by the wealthy owner from off property income.

The economic analysis of a typical Chillagoe herd using traditional management gave a gross margin of \$62,000 for a herd of 2,500 head. This gross margin indicated that with operating costs ranging from \$50,000 to \$100,000, properties in the Chillagoe area using traditional management were either just breaking even or running at a loss.

The improved management practices at Bolwarra included the use of year round supplementation and early weaning and had the benefit of lifting branding rates from 45% to 80% and reducing death rates from up to 15% for old cows to 3%. The improvements however came at a cost. Variable costs increased from \$8,000, using traditional unsupplemented management, to \$107,000 on Bolwarra. This \$100,000 increase was primarily due to spending \$40 per head on fodder and supplements. The gross margin using improved management on Bolwarra was \$23,000 less than for the herd using traditional management. At this stage many of the locals felt their long held views had been vindicated.

The local DPI beef adviser pointed out that the supplementary feeding costs on Bolwarra could be reduced from \$40 to \$25 per head without significantly reducing productivity. When these costs were analysed, the gross margin was \$15,000 greater than for the herd using traditional management.

This meeting, coupled with the property inspection that followed, gave the local graziers a powerful demonstration of the potential improvement that was available to them. The dynamics of the meeting gave us a valuable insight into the importance of local issues and perceptions in the process of changing traditional management practices.

The Chillagoe group subsequently formed a local action group. The group carried out a needs analysis and identified a number of key issues they wanted to address. The need for a local marketing group and rural power were two key issues identified. The group went on to successfully lobby for rural power for the area.

The group members initiated a WIGS workshop and have recently completed the Future Profit workshop series.

Atherton Tableland

The 13 properties who attended the LBP meetings were all members of the Tableland Beef Co-operative, an active marketing group on the Atherton Tableland. The group have been seeking premium domestic markets for their quality beef. The group provided an interesting contrast to all other LBP groups. Property size on the Atherton Tablelands ranges from 150-450 acres (60 180 hectares) and a viable turn-off is seen as 300 head. Virtually all graziers rely on off farm income.

The LBP process was valuable for this group because the success of their marketing depends on reliably producing a consistently high quality product. Discussions indicated a range of views on breeds, stocking rates and the use of nitrogenous fertiliser.

The group was also split on the merits of breeding versus fattening. While it was acknowledged that the Atherton tablelands is prime fattening country, a number of the group complained that they were unable to obtain store cattle suitable for fattening. These producers therefore breed and fatten their own animals. Some producers also just enjoy breeding cattle. The economic analysis indicated that there is only a small margin between breeding/fattening and fattening only operations, with gross margins being highly sensitive to buying and selling prices, costs and productivity.

Since the completion of the LBP process the group has continued to actively seek marketing outlets. A number of field days have been held including a recent meeting looking at live assessment to ensure group members are conforming with market requirements.

BOWEN/AYR

The Bowen/Ayr LBP team was led by Marnie McCullough and included Debbie Atkins, Alan Laing and Warren Hunt.

Mt Coolon

The first group tackled by the team was Mt Coolon. Major problems were experienced with this group. The Mt Coolon LBP meeting was held just after the contentious community consultation on National Rangelands and Natural Resource Management legislation. The revised tree clearing legislation had also just surfaced. The end result was an understandable level of concern about government intervention in property management. The LBP project was unfortunately seen as being linked to these various government initiatives and producers had concerns that land management information from the reports may have been used against them in the future. Coupled with this were contentious recent dealings with the Department of Lands (DOL) on the control of *Harrisia cactus*, rentals and land values. The LBP meeting was part of a rubbervine control field day conducted by the Lands Department. The presence of an officer from DOL clearly influenced what people were prepared to say.

The end result was a meeting where there was no producer trust in either the process or the outcomes. The subsequent report was not a true representation of their situation. The group decided not to continue the process and withheld the report from publication.

The Mt Coolon problems, which fortunately were not repeated, did provide some valuable lessons. The first was that the LBP process relies totally on mutual trust between producers and DPI. The raft of unpopular legislation was beyond the control of the project team but the timing of the meeting and the presence of DOL staff were factors that should have been avoided. While the group chose not to continue with the LBP process they did continue as a group. One outcome was a successful funding application for a rubbervine control exercise under the Drought Landcare project.

Leichhardt Range

The Leichhardt Range group had already formed a progress association. The key producer listed and contacted participants as well as providing the meeting venue. The group found the meetings a good opportunity to socialise with neighbours they had not seen for many months due to drought.

All properties in the area had been hit hard by drought and producers regularly stated that many of the things they “knew” and were relating to the group had been challenged by the dry conditions. The result being that they were no longer sure that they “knew”. An example was the number of “permanent” waters that had gone dry.

Two meetings were held to document producer best bet recommendations and a third meeting was held to look at the economics of current production and explore the profitability of different options. The group also detailed some of the social factors affecting their lives. Issues discussed included labour, roads, services, education and the transfer of family properties.

Marnie McCullough felt that the process had lifted morale in the area by allowing people to get together and talk through a whole range of issues. In the 12 months after the LBP meetings the following observations were made. A number of people had made major changes to their property management. One property had decided to individually identify all their breeders, to pregnancy test and cull on infertility. Several properties had developed skills in pregnancy testing. A couple of the ladies in the group had bought computers to use in the business and one attended a Breedcow workshop. The group also held a highly successful breeder management workshop.

CHARTERS TOWERS

The Charters Towers LBP team was headed by Joe Rolfe. Other project members included Bob Shepherd, Peter Smith, Robyn Walters, Tania Dahl, Ted Vinson, Bill Holmes, Mark Lewis and Don Cowan. John Fry was actively involved in the project prior to his untimely death in a helicopter accident.

Camel Creek (Greenvale)

This was the original group formed in the Charters Towers area. The six properties in the group held three meetings. The first two focussed on the best management report. The third meeting was a joint DPI, CSIRO and grazier gathering to look at improved management options. At the meeting it was apparent that members of the group had varying views on the value of wet season phosphorus supplementation. This led to the Kangaroo Hills phosphorus supplementation of breeders Producer Demonstration Site. Results to date have been influenced more by rainfall distribution across paddocks than P feeding. The PDS was funded by MRC.

The LBP group was also instrumental in the "Three Rivers Landcare group" obtaining \$33,000 for woody weed control work from the Drought Landcare Program. This group has also received funding from Drought Regional Initiative for fencing and strategic spelling programs and has applied for follow up funding from NHT this year. The Three Rivers group is currently undertaking the Future Profit program with the intention of improving their businesses. The group is also looking at developing a plan for their catchment. A demonstration site looking at pasture reclamation techniques was set up last year and was funded entirely by the group.

Prairie (South-East Flinders Shire)

This group shared some of the concerns of the Mt Coolon group about producing a typical LBP report. An initial meeting was held to explain the process and to overcome fears about where such a document would end up and what it would be used for. Coupled with this was the difficulty in reaching a consensus on a typical Prairie property due to major variations in land type and property size across the district. The result after 3 meetings was a compilation of property details and management practices from the 11 properties in the group. Properties were identified by a number to ensure confidentiality.

The group held an information field day at Jireena to discuss issues of concern from the LBP meetings. Major issues discussed were supplementary feeding (in particular P), production feeding and lice control. As a result of the meeting the group submitted a PDS application looking at water medication for supplement delivery and to conduct a P screen of ten beef herds. The application was unsuccessful. Future interests identified by the group were pasture identification and pasture management.

The group submitted a PDS proposal for 96/97 to look at mineral screening of saliva, blood and faeces from a number of breeder herds in the district. Some sample collection and testing has already taken place.

This group started the Smart Manager project in February 1998. Most of the participants in this group are now part of the recently formed Torrens Creek and Towerhill Creek Catchment Landcare Group and they have initiated woody weed control in the catchment through the SWEEP program. This group is also involved in the Desert Uplands Strategy.

Lake Buchanan

The 7 properties in the Lake Buchanan group were organised by an officer from the Department of Environment and Heritage (DEH) without the use of a key landholder. A previous attempt by DPI using a key landholder was not successful. There is a good working relationship between DEH and graziers in the district however the need for graziers to set the agenda and decide on future activities was stressed.

Future activities and issues identified by the group were

- a pasture identification and management workshop
- supplementary feeding (types, composition and timing)
- claypan reclamation, including a soil pit field day
- herd modelling
- soil erosion (loss of groundcover from grazing)
- pests (currant bush, dogs and the threat from parthenium and rubbervine)

The Dalrymple Landcare Committee is planning a field day in 1999 to focus on the management of desert country (as it is referred to locally) and the issues listed above.

Many of the producers in this group are now involved in the Desert Uplands strategy.

Mingela / Ravenswood

The group held its first meeting in November 94 and a draft report was produced. There were then two unsuccessful attempts to convene a second meeting. The tragic loss of John Fry left this group without their DPI contact. The Charters Towers project team was able to restart this group and subsequently complete the LBP process.

The LBP group highlighted dingo control as a major problem at their initial meeting. An application for a coordinated dingo control program was submitted through the Drought Landcare Fund at a subsequent meeting with Lands Department staff. The application was not successful.

This group has since established a heifer management PDS on Mt Ravenswood and has rallied the support of the local vet and DPI. There have been 2 field days at the site over the last 18 months. Members of this group have indicated that they would like to start the Future Profit workshop series in early to mid 1999.

Basalt (Chudleigh Province)

This group lies in the junction of the Flinders, Etheridge and Dalrymple shires. Since Charters Towers is the social and commercial focus of this group it was handled by the Charters Towers project team. Two best practice meetings were held with this group in April and May 96. Comments on the first draft from producers who attended the first meeting, but were unable to attend the second, were incorporated into the report. A modelling workshop was held in November 96.

This was the first Charters Towers group where external factors did not impact on the LBP process. The result was the ideal situation where group interest and energy is maintained and gathers momentum through the process.

Issues raised by the basalt group include

- the unique management required on basalts, due to factors such as frost
- the need for a pasture identification workshop
- the need for a Breedcow/Dynama workshop
- genetics/breeds
- supplementation, in particular urea
- weaning and weaner management
- culling
- sucker regrowth
- water problems: location and supply
- the option of controlled mating
- marketing access and turnoff requirements
- property size and viability

Belyando Crossing

The Belyando Crossing group has been very active in recent years. In 1995 the group received national landcare funding for weed control under the Drought Landcare Project (DLP). In the following two years the group completed the LBP process and successfully applied for Drought Regional Initiative (DRI) funding for fencing and pasture seed for reclamation. This year the group received follow up funding for fencing to enable pasture spelling. The group has also just completed the Future Profit workshop series and are planning to commence Smart Manager in September.

The group is highly motivated and cohesive. They are willing to share information and support each other. One member of the group plays a key role in organising the group. This person ensures everyone attends the meetings and circulates any relevant information. This same person however is careful not to dominate the group and plays a low key role during group activities.

The LBP process and the subsequent Future Profit and Smart Manager meetings, coupled with Landcare activities, have played a major role in the development of a strong group achieving meaningful outcomes. The group has established team roles and they have developed trust and confidence both with each other and with DPI staff. The group now has the skills, tools and confidence to both continue on and develop. The core of the group also belong to the Belyando Progress Association.

Lower Cape

This group has also been very active in recent years. In past years they have received funding for three projects, namely woody weed control, pasture reclamation and strategic spelling from DRI and DLP. The group completed LBP in 1997 and in June this year finished Future Profit.

The Lower Cape, in conjunction with four other groups, have received 1.5 million dollars from NHT over the next three years for a riparian zone project. The aim of the project is to improve the management of frontage country by supplying the fencing materials needed to control stocking pressure.

Members of the group are also involved in the desert Uplands strategy and in the MLA Beefplan project.

The group is very keen to review their Future Profit business plans in 6 months time. They have expressed an interest in carrying out the Smart manager benchmarking process at this time.

The LBP process again played a pivotal role in establishing the group and fostering and developing an ongoing adult learning process.

Cape Campaspe

This group received DLP funding for weed control and herbicides in 1995. The Cape Campaspe group is one of the five groups involved in the 1.5 million dollar NHT Riparian management project. The group has cooperated closely with the other four groups to ensure a coordinated approach to this massive project.

The group have only recently completed the LBP process. At this stage the group is content to focus solely on the NHT project and have no immediate plans for Future Profit or Smart Manager. The group does not have the maturity or cohesion of some of the other groups in the area and will need to be encouraged to carry out group projects/activities in the future to ensure they remain energised.

CAPE YORK / MITCHELL RIVER

The Cape York team was led by Jim Turnour. Other team members included John Boorman, Jim Kernot, Kev Shaw, Regina Holden, Gaye Mayne, Dan Healy, Roderick O'Connor and Dan Hogarth.

Coen

This group had the advantage of having a highly motivated key producer. Two meetings were held to document best management practices. The group proved to be one of the most enthusiastic we encountered in the north. The subsequent economic modelling meeting proved to be a watershed for the graziers involved. When the current management system was modelled it soon became apparent that profitability was so low that without a radical change the industry in the Coen area had no future. The gross margin analysis was only reached after vigorous and passionate debate but once arrived at, there was consensus that it was an accurate representation of the true situation. Most graziers were surviving by supplementing their income with work off property.

The group identified live export, coupled with improved management, as their best opportunity for economic salvation. The proximity of the group to the port at Weipa offered the potential for a high priced market with minimal transport costs, thus overcoming the two major problems facing the area namely distance from traditional markets and low prices.

The group held a series of meetings and workshops to determine the viability of exporting live cattle from Weipa. Investigations included the number of cattle available in the region, the quality of the cattle and the establishment of cattle holding and loading facilities at the Weipa wharf.

A Weipa LBP group was formed and held their first meeting in November 95. Shortly after that meeting the Coen and Weipa LBP groups joined forces to form a live cattle export network. The network involved producers from throughout the peninsula, the Cape York Land Council and an export company. The Weipa LBP group did not continue with the LBP process after their first meeting as the development of live export through Weipa became their number one priority.

In 1996 the group succeeded in organising their first live export shipment from Weipa. A further two boat loads were exported the following year. The importance of a successful, local live export outlet for Cape York producers can not be understated.

Kimba

The group held two meetings to record best practice followed by an economic modelling meeting. The group expressed interest in carrying out Breedcow and Dynama analyses of their own herd. It is intended to incorporate this request into a series of business planning workshops under the Future Profit project.

Lower Mitchell River

This group completed the standard, two best practice and one herd modelling, series of meetings. The report again highlighted the large potential benefits available to producers on the extensive properties in the north by the adoption of improved management practices.

Producers in the area have been active, holding a major regional field day at Koolatah station every two years.

Palmer/Mitchell Junction

As with a number of other northern LBP groups, the Palmer/Mitchell group included both privately owned and large pastoral company properties. There were a number of interesting comparisons in attitudes and practices between the two. While privately owned properties in the region had moved towards the live export market the pastoral companies were still using the area for breeding. The large pastoral company had carried out extensive developments and general property improvements. The financial resources of the private properties compared to the company properties was a significant factor in management.

The setting for the meetings, the banks of the Mitchell River at Gamboola crossing, was idyllic and contributed to a very relaxed and enjoyable series of meetings.

It is planned to reconvene the group in the near future to discuss future activities.

iv. Discussion

The project had a target of completing 24 LBP groups by December 97. Twenty-two groups completed the LBP process. Two groups commenced the process, (Weipa and Proserpine), but did not proceed beyond the first meeting. The Mt Coolon group had two meetings but requested that their report not be released for publication. The original project objective of documenting current, whole farm management strategies recommended by experienced producers and sharing this knowledge between producers was therefore achieved.

While in most cases the producer reports documented current practice rather than best practice, the third workshop addressed this issue by comparing and discussing the productivity and sustainability of the innovative producers in an area relative to the district average.

While the LBP reports are highly beneficial to local graziers, industry bodies, government agencies and agribusiness the primary benefit of the meetings was the exchange of local experience, knowledge and technology by graziers within the group. The facilitation of peer group discussions on best management practices resulted in a greater awareness, acceptance and uptake of new technology than was achieved through many years of conventional extension.

A further benefit of the LBP reports is that they act as benchmarks of current practice and can therefore be used to measure the adoption of new technology in the future and its impact on the beef industry.

The group meetings have enabled a true picture of current industry practices and views to be documented. In many cases these practices and views have been significantly different to preconceived ideas and beliefs held by both graziers and DPI staff. The reports indicate that the northern beef industry is operating well below its productive potential. In many cases, improved technology is known to the industry but adoption levels remain low. There is clearly scope for a major increase in the productivity and profitability of the industry and in the use of more sustainable management practices.

The LBP reports satisfy project objectives 2 and 3 namely:

To identify and publish management strategies that improve productivity and profitability and are environmentally sustainable, and

To identify and document knowledge deficiencies in sustainable production systems and identify high priority research and development needs.

The first 3 project objectives were relatively easy to achieve. The real challenge for the project team, and for the industry, is to achieve actual changes in management that lead to long term profitable and sustainable whole property management. The fourth project objective was the preparation and detailing of activities to promote these changes.

The key ingredient in achieving change is the formation and maintenance of strong producer groups that have an ongoing commitment to learning, change and improvement. To be successful, these groups must have an ongoing learning framework and a dedicated group coordinator.

LBP has proven to be an ideal starting point for producer groups in the ongoing process of change. The relationship between producers and government agencies changes fundamentally with LBP. The traditional extension role of being "all seeing and all knowing" is replaced by a genuine partnership that values local knowledge and lays the foundation from which group members may self direct both learning and eventual change. The adult learning relationship developed in LBP is essential to the success of subsequent group activities. The LBP process was fundamental in the development of trust and confidence both within the group and between group members and department staff.

The LBP project was also responsible for introducing DPI project staff to a much wider producer audience than they had previously been in contact with.

In summary, LBP provided a structured framework for graziers to

- develop trust and confidence between group members
- share knowledge and experience
- explore options for change
- develop confidence in new management ideas

The ongoing learning framework: post LBP

The challenge for the project team was to provide a process framework that would enable the LBP groups to continue the process of group learning and development, resulting in group members actually changing current practices and adopting improved management technology.

The group itself must decide which activity, if any, they undertake after the LBP process is completed. Some groups identified high priority issues that demanded immediate action. An example was the Coen and Weipa LBP groups who joined together to develop live cattle export from Weipa. Similarly a number of groups in the Dalrymple Shire have taken advantage of the NHT funding to develop group projects addressing issues of sustainability.

However the ability of groups to develop and encourage on going learning requires a process framework. The framework used in north Queensland has been to encourage groups to proceed from LBP into the eight workshop Future Profit workshop series where whole property business plans are developed. Participants in Future Profit analyse their current position, set target goals of where they would like to be in the future and look at ways of reaching their goals. Future Profit looks at the business in terms of its natural resources, the financial position, the people and the herd performance.

The next step in the group framework used in the north is the Smart Manager process. Smart manager involves groups using benchmarking to continue the ongoing learning initiated with LBP and continued in Future Profit. Groups are encouraged to wait 3-6 months after completing Future Profit before starting Smart Manager.

Smart Manager uses the Breedcow herd model to enable producers to accurately determine their current production parameters and profitability. They then compare their figures with the rest of the group to determine their relative strengths and weaknesses. Improved management options are identified and evaluated using the herd model. The production and financial pathways involved for producers moving from their current situation to an improved position in the future are then determined.

Smart Manager groups revisit their benchmarks on at least an annual basis. This allows group members to measure the benefits of change and to ensure they are moving in the right direction. Future goals and production and financial targets can be renegotiated at this meeting. The annual meeting is essential to ensure the group is committed to ongoing improvement and learning.

While LBP, Future Profit and Smart Manager provide the overall group framework it is important that groups concurrently address the key issues and problems they have identified. These issues can be addressed using a range of options including field days, group visits, producer demonstration sites (PDS), producer initiated research and development (PIRD), inviting experts to address local meetings as well as ongoing local group meetings.

The role of the group coordinator

The other key factor essential for ongoing group success is the presence of a coordinator. Without this person, the momentum and group energy developed by LBP is lost. Clearly it is preferable that the group coordinator be a producer, but our experience in North Queensland is that very few producers have the time, skill or inclination to take on this role. Whether it be a producer, consultant or DPI extension officer it is crucial that a coordinator be available to every group. The role is purely to assist and facilitate the group. The group itself must determine the direction they wish to proceed in.

There are a number of excellent group processes and activities available to groups but without a coordinator the ultimate goal of achieving change in practice will remain elusive. Project staff were frustrated by their inability to remain actively involved with groups after the third LBP workshop, due to the need to meet milestone requirements with other groups. There was a continual underestimation of the time required to continue the role of group coordinator. These activities were also in many cases not funded directly and relied on funds being redirected from other projects.

If the coordinator is not a producer group member then it is highly desirable that there be continuity in the role. While producer members can rotate the role without any loss of group momentum, the same is not the case with changing external coordinators.

The success of groups in the future is dependent on a coordinator being available for groups to take advantage of the opportunities that exist and to realise their potential. I believe that an individual DPI officer could manage at most 3 or 4 groups. Unless this role is formalised, funded and adequate time set aside for the role, then group extension will not bring about the changes in practices that are needed for the future success of the beef industry.

In summary, a key outcome of the project was the formation of strong producer groups that have continued the ongoing process of learning and improvement beyond the LBP process.

v. Industry Implications and Recommendations

The major issues and concerns highlighted by the groups

1. *The increase in tree density associated with increased stocking rates, the lack of fires and below average rainfall.*

Virtually all the LBP groups reported significant increases in tree density. Most groups spoke of the impact of Brahman cattle, supplementary feeding strategies that reduced death rates, increased stocking rates and reduced fuel loads preventing hot fires as the main causes. Other groups took the more short term view and blamed the drought of the early 1990's.

Most groups, but not all, accepted the link between grazing management, fire and tree density but all agreed that the changes were highly undesirable. The main problems reported were reduced feed availability and difficulty in mustering.

The issue of increasing tree density and the interactions with grazing management and fire is clearly a high priority research area. Theories on the primary causes, the various interactions and solutions to the problem are plentiful. While a number of demonstrations have been initiated to look at practical strategies to address this issue, such as the Mt Garnet groups NHT funded fire project and the northern stocking rate demonstrations, there is a need for rigorous research to give some objective answers.

2. *An extremely poor knowledge of native pastures and general pasture ecology.*

The often, complete lack of knowledge of the pasture base that drives the northern beef industry was a source of constant amazement to the project team. While most producers were able to give common names for many of the trees and shrubs in their area, very few could name more than two or three key pasture species. Similarly the distinction between annuals and perennials, grasses and legumes and increaser and decreaser species was poorly understood.

Given the fundamental importance of being able to recognise the key native pastures, this lack of producer knowledge is a major concern. However, while plant identification highlights the symptoms of poor range condition, a better understanding of native pasture ecology allows producers to address the causes of any problems. The recent release of a number of pasture identification books, natural resource workshops in Future Profit and pasture ID and ecology field days have helped address this problem, but there is a definite need for ongoing producer education in this area.

The challenge for agency staff is to have producers realise that their livelihood is not derived from the cattle they turn-off but the pastures and natural resources those cattle graze on.

3. *The reluctance of most graziers to adjust stocking rates to seasonal factors or feed availability.*

Most properties use traditional set stocking rates and will only alter these rates under exceptional circumstances. When asked about how these rates were determined, most producers were vague or used subjective replies. A number of producers spoke of the "set stocking rate" actually increasing as death rates decreased in herds that had traditionally maintained a relatively static size. The reduction in death rates was due to the increasing Brahman content in herds and the widespread use of supplementation.

The drought years of the early 1990's led to widespread destocking and many properties are still undergoing herd build up. The opportunity for the industry is to match stocking rates to feed availability, on an annual basis, as properties become fully stocked.

Initiatives such as the stocking rate demonstrations and the project NAP 3.213 (Determining the productive capability of your land to develop sustainable management practices) are key projects currently addressing this issue.

4. Awareness of the need for sustainable production systems and the threat of the green lobby.

Two themes common to all groups were the affinity that producers have for their land and their desire to pass properties on to future generations in either comparable or improved condition.

Coupled with these themes was the perceived threat that the green lobby posed to their future livelihood. The feeling of being powerless against the waves of environmental issues that have surfaced in recent years was a common complaint. National park acquisitions, tree clearing guidelines, National rangelands and Natural resource management legislation have all made producers defensive on environmental issues.

The perceived threat is heightened by concerns over land tenure and the native title debate.

In the absence of government legislation enforcing sustainable land management, the industry needs to be pro-active or controls will be put in place. Once benchmarks of acceptable land condition have been agreed on, then the challenge for R,D&E agencies is to show producers how they can maintain or improve income with reduced stocking rates. If property size is identified as being too small for a sustainable, viable living then measures are needed to help producers out of the industry or into either larger holdings or diversification.

5. The loss of species, erosion and degradation of better land types.

A number of groups, but certainly not all, spoke of species loss, erosion and degradation. In some areas, valuable perennial grasses have been replaced by less desirable, perennial or annual species. Kangaroo grass has declined or disappeared in some areas and Indian couch has dramatically increased in others.

Noxious weeds and in particular woody weeds, have become serious problems primarily on the fertile alluvial and black soils. Several groups acknowledged the link between overgrazing and degradation of the better land types. A number of the Charters Towers groups have received 1.5 million dollars funding for fencing and strategic spelling of fragile land types. This initiative should be supported and if possible extended to other areas.

The challenge for funding bodies such as Landcare and NHT, is to ensure that funds are directed at the cause of environmental problems, and not, as is too often the case, the symptoms.

6. The significant gap between district average production and the production levels of innovators.

This point was brought home in the economic modelling workshop where district average production was compared with the production levels of innovators. The first surprise was how low the base production levels were in many districts and the second was the magnitude of the gap between the innovators and the average.

In many cases, the validated analysis of a typical district herd by the Breedcow model was the first time that many producers were able to see what is actually happening in their herds instead of the mistaken perceptions they held. Invariably the herd production parameters that the group described in the first two meetings had to be modified in the economic modelling workshop to reflect reality.

Several LBP groups described typical district average production where branding rates averaged 50% and death rates were 10% or higher in breeders. Innovative producers in the same areas reported

branding rates of at least 75% and death rates of 1-2%. Breedcow analysis revealed gross margin improvements of up to 100% with innovative management practices. Improvements in gross margin of 30-50% were common.

The obvious conclusion is that the northern beef industry is operating well below its productive potential. R,D&E agencies clearly have an enormous challenge to close the gap between the average producers and the innovators.

7. *Increasing problems associated with the cost price squeeze.*

Not surprisingly, this problem was universal. Groups spoke of receiving 1970 prices for cattle, but paying 1990 costs. The Mt Garnet LBP group stated that a 1,000 breeder herd was sufficient to provide a viable living 10 years ago but today up to 1,500 breeders are necessary. This in turn has exacerbated land condition problems as producers try to run more cattle to remain viable. The common producer lament was their inability to pass on increasing costs.

Given the large potential improvements in productivity available in the north, many producers can manage the cost/price squeeze with improved efficiency. The challenge is to overcome the perception that running more cattle, with traditional management, is the solution to economic salvation.

8. *Reduction in the size of the workforce*

The cost/price squeeze has seen labour become relatively more expensive in recent times. The result has been a significant reduction in the number of employees on cattle properties. A number of producers spoke of having to make do without any additional labour. Family labour resources are being increasingly relied on and neighbours are often used to help with musters at a daily rate of pay.

Additional costs, (such as superannuation, FBT, workers compensation) and the paperwork involved, acted as further disincentives to employ workers.

Other issues highlighted by a number of the groups were

- The need for quality assurance
- Increased government regulation of the industry
- Marketing pressure to improve quality and reduce age of turn-off
- The rise of the live export market and its importance to northern producers
- The need for better record keeping
- Producers need for improved management expertise
- The general challenge of marketing to ensure long term viability

vi. Intellectual property:

The 21 Local Best Practice reports remain the intellectual property of the individual groups. Agencies wishing to use the reports should seek approval from the groups. Group contacts can be obtained from the LBP district coordinators.

vii. Data and information storage:

The master copies of the 12 LBP reports for the Mareeba and Cape York/Mitchell River regions are held by Jim Kernot at Mareeba DPI. Joe Rolfe holds the 8 reports for the Charters Towers region at the DPI office in Charters Towers and the 2 Bowen reports are held by Marnie McCullough at DPI Bowen.

The LBP maps are held by the GIS and cartography unit of DNR at the Centre for Tropical Agriculture Mareeba.

Each region holds multiple copies of their reports at their respective DPI offices. Regular requests are received for copies of the reports.

ix. Conclusions:

The LBP project was rewarding and challenging for both the project team and the producers involved. The process developed was effective in meeting the needs and specific circumstances of the extensive beef industry of north Queensland. The approach used in the third workshop was developed to objectively measure herd performance in areas where the only reliable records are the number of calves branded and the number of cattle sold.

The formation and development of a large number of producer groups with an ongoing commitment to learning, change and improvement was the most rewarding outcome of the project. The three workshops represented only a small proportion of the time that the project team spent with the groups. While extremely time consuming, these subsequent group activities were highly rewarding and indicated the success of the project in initiating an ongoing group learning culture.

The LBP reports represent a valuable record of producer experience and have been widely used by industry. They also provide a benchmark of industry practice that can be used to measure the adoption of new technology in the future.

Knowledge deficiencies and issues of concern have been identified. The challenge for R,D&E agencies is to help the industry achieve its considerable potential while maintaining the natural resources that it relies on.

x. Project Publications:

22 Local Best Practice Reports

1. Beef Property Management on the Georgetown Granite
2. Beef Property Management on the Gilbert River
3. Beef Property Management on Upper Einasleigh
4. Beef Property Management in the Croydon area
5. Beef Property Management on the Southern McBride Basalt
6. Beef Property Management in the Mt Garnet area
7. Beef Property Management in the Chillagoe/Almaden area
8. Beef Property Management on the Atherton Tableland
9. Beef Property Management in the Lower Mitchell
10. Beef Property Management on the Palmer/Mitchell Junction
11. Beef Property Management in the Kimba district
12. Beef Property Management in the Coen district
13. Sustainable Beef Production in the Greenvale area
14. Local Practices in the South-East of Flinders Shire
15. Cattle and Property Management on the Basalt Tableland
16. Beef Property Management in the Lake Buchanan area
17. Cattle and Property Management in the Mingela/Ravenswood district
18. Cattle and Property Management in the Lower Cape River catchment
19. Cattle and Property Management in the Belyando Crossing district
20. Cattle and Property Management in the Cape Campaspe District
21. Beef Property Management in the Leichhardt Range area
22. Beef Property Management in the Mt Coolon area (not released for publication)

xii. References:

Clark, R.A. (1996). Final report of The Sustainable Beef Production Systems Project.

Holmes, W.E. (1995). "Breedcow" Queensland Department of Primary Industries Saleable Software Series. No. QE90006

Tothill, J.C. and Gillies, C. (1992) The pasture lands of northern Australia: their condition, productivity and sustainability. Occasional Publication No. 5 Tropical Grassland Society of Australia.

Wicksteed, L.T., Webber, R.J., Kernot, J.C. and Shaw, K.A. (1996) Computer simulation in small group extension: Towards sustainable grazing systems in Australia's tropical Savanna. Proceedings of 6th International Congress for Computer Technology in Agriculture. Netherlands.