

DEVELOPMENT AND EVALUATION OF REPORTS ON SEASONAL CONDITIONS IN QUEENSLAND

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**Project sponsored by, and conducted on behalf of, Rural
Risk Strategies Unit, Department of Primary Industries
Queensland**

QO01006
ISSN 0727-6281
Agdex 020/940
February 2001

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Strategies Unit, Department of Primary Industries
Queensland**

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ACKNOWLEDGEMENTS

Contributions by the following officers are gratefully acknowledged:

Survey Design

Diane Keogh (NRM), Neil Cliffe (QDPI) and Greg McKeon (NRM-CINRS).

Survey Administration and Summary

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Report Cover

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Funding

Funding support by the Rural Risk Strategies Unit of the Department of Primary Industries, Queensland, is also gratefully acknowledged.

EXECUTIVE SUMMARY

Introduction

Over the last decade, a monthly Drought Report was prepared by the Queensland Department of Primary Industries (QDPI) at the end of each month, from field reports, and distributed widely by mail. For most of this time, the latest coloured NOAA satellite image of Queensland (A4-sized) was included in the report as an aid to assessing seasonal conditions.

In 1997, the Climate Impacts and Natural Resources group, in the Queensland Department of Natural Resources, commenced the production of a coloured monthly report entitled 'Summary of Seasonal Conditions in Queensland' which was mailed to clients early each month. This report subsequently replaced the NOAA satellite image in the QDPI Drought Report, and complemented the information in that report.

It became obvious that it might be more effective and efficient for the two Departments to produce a single monthly report on seasonal conditions in Queensland, combining the information from field reports, seasonal climate forecasts, satellite imagery, and spatial mapping products from running pasture-growth and crop models. While this seemed like a good idea, a number of questions arose which needed to be considered, for example:

- Who are the clients for such information?
- What information products are valuable to particular groups of clients in running their businesses?
- How do clients want particular types of information presented?
- What are the most suitable methods for delivering such information to clients?
- What priorities do QDPI and QDNR place on the production of such information?
- Who should pay the costs of producing and delivering such a report – QDPI, QDNR or clients?

Subsequently, Rural Risk Strategies (QDPI) funded the CINRS Group to produce a prototype product. An important part of the project was to evaluate the current products and the prototype report, and to provide objective input into consideration of the above questions.

This publication documents feedback from clients on the QDPI report, the QDNR report and the combined prototype report. Conclusions from this feedback are also discussed.

Survey Method

Recipients of the QDNR and QDPI Seasonal Conditions Reports were invited to evaluate the usefulness of these reports, and to comment on a proposed new report format. Out of approximately one thousand recipients of either or both reports, thirty people indicated their willingness to participate in the survey, and subsequently completed a survey form.

The survey revealed that the majority of respondents were government officers (62%), of whom half were extension officers and the remainder involved in either policy or research. Some 26% of respondents were primary producers, of whom all were involved with grazing, and half were involved with either cropping and/or horticulture. Twenty-five percent of respondents were members of Local Drought Committees. Age groups were all reasonably represented. However, 85% of respondents were male.

The aims of the survey were to evaluate the usefulness of the current reports, and to obtain input into the development of an improved product. A survey form and a covering letter were developed and mailed to those willing to give feedback. Respondents were also given a prototype of the proposed new report to evaluate. Based on feedback from the survey, and in consultation with QDPI (Rural Risk Strategies Unit), further prototypes were developed. The final prototype is included in this report.

Survey Results

Usefulness and Accessibility of Seasonal Conditions Information

Most respondents (85%) considered assessment of seasonal conditions very important or fairly important in their planning or decision-making. Most respondents (84%) found probability-based information fairly useful or very useful in the management of their business. All respondents found the information presented in existing QDPI/QDNR reports useful to some degree, with 83% regarding the information 'moderately useful' or 'very useful'.

Some 44% of respondents found newsletters a very convenient way to receive 'big-picture' information on seasonal conditions information, and 74% of respondents considered email/internet a very convenient way to receive such information. The preference for electronic media may reflect the high proportion of government respondents; this bias is also shown in the number of respondents who had access to a computer with CD-ROM and access to the Internet (96% and 89% respectively).

Ratings of Current Reports

Respondents were asked to evaluate only reports they received on a regular (monthly) basis. Most (67%) of the respondents received both reports, while 33% received only the DNR report. Most respondents considered the information in the reports to be accurate (71% 'fairly accurate' and 25% 'very accurate') and most respondents found the information in the reports useful (46% 'moderately useful' and 37% 'very useful').

Overall the individual sections of both the DNR and DPI Seasonal Conditions Reports were considered quite useful (Tables 1 and 2). With respect to the DNR report (Table 1), the written comments and coloured maps were considered particularly useful (45% 'moderately useful' and 45% 'very useful'). Of the specific types of information, the climate outlook was considered most useful (42% 'moderately useful' and 54% 'very useful') and the satellite imagery was rated as least useful (42% 'slightly useful' and 12% 'not useful'). Although the majority of respondents considered the satellite imagery least useful, some 15% of respondents considered this information 'very useful'.

With respect to the DPI report, all sections were regarded as quite useful (Table 2). The regional summaries rated most highly (75% 'very useful' and 17% 'moderately useful'), while the cropping and horticulture section was rated as least useful (50% 'moderately useful' and 33% 'very useful').

Table 1. Usefulness of Sections in DNR Seasonal Conditions Report (Report A)

Type of Information	% of Respondents			
	Not Useful	Slightly Useful	Moderately Useful	Very Useful
a. Written Comments	0	11	48	41
b. Coloured Maps	0	11	41	48
c. Rainfall Information	0	19	37	44
d. Pasture Growth Info	7	11	52	30
e. NDVI Information	12	42	31	15
f. Drought Declarations Info	4	26	37	33
g. Climate Outlook	4	0	42	54
Summary	4%	20%	41%	35%

Table 2. Usefulness of Sections in DPI Seasonal Conditions Report (Report B)

Type of Information	% of Respondents			
	Not Useful	Slightly Useful	Moderately Useful	Very Useful
h. Outlook	8	0	23	69
i. State Overview	0	15	23	62
j. Regional Summaries	0	8	17	75
k. Livestock & Pastures	0	8	54	38
l. Cropping & Horticulture	0	17	50	33
m. Rainfall	0	23	15	62
n. Water Storage/Supplies	7	15	21	57
o. Queensland Drought Situation	0	22	14	64
Summary	2%	14%	27%	57%

Table 3. Ratings of Prototype Seasonal Conditions Report (Report C)

Type of Information	% of Respondents				
	Very Poor	Poor	OK	Fairly Good	Very Good
State Overview	1	4	11	41	43
Rainfall	1	3	10	39	47
Pastures and Livestock	0	1	13	45	41
Crops and Horticulture	1	2	19	46	32
Water Supplies	1	4	13	31	51
Drought Situation	1	1	7	33	58
Outlook and Alerts	1	1	14	36	48
Summary	1%	2%	12%	39%	46%

Ratings of Prototype Report

The new prototype report was generally viewed as an improvement on existing reports. However, some respondents considered the document extravagant, too colourful, of insufficient detail to be useful, too costly and of questionable relevance. On the other hand, others considered the proposed new format 'a very good start', a 'great booklet', 'very impressive', 'easy to read and useful' with 'plenty of information, graphs and explanations'. Table 3 shows the ratings of the prototype seasonal conditions report. Of the individual sections in this report, the 'Drought Situation' was rated most highly (58% 'very good' and 33% 'fairly good'). The 'Crops and Horticulture' section received the lowest ratings (46% 'fairly good' and 32% 'very good'), possibly because only 4% of the respondents were involved in horticultural enterprises.

Conclusions

The following conclusions can be made from the feedback obtained:

- The survey highlighted the usefulness of seasonal conditions information in general, and the usefulness of existing QDNR/QDPI reports in supplying such information;
- The complementary nature of both reports was recognised, and it was considered worthwhile to merge them;
- Both spatial mapping products and the associated interpretive comments provide important information;
- The provision of seasonal conditions information on a monthly basis was regarded as appropriate;
- Seasonal climate forecasts and spatial mapping products are currently regarded as being sufficiently accurate to provide valuable information;

- Further interactive consultation with potential end-users is required to improve the presentation of individual products;
- There is potential for developing valuable new information products through interactive consultation with groups of clients in different industries, in spite of the perceived complexity of some prototype products (for example drought alerts and land condition alerts); and
- Alternative means of producing and distributing such information should be evaluated, as a limited selection of products delivered in a mailed monthly newsletter does not satisfy the needs of all stakeholders or conform with ‘best-practice’ information management.

Project Outcomes

The following outcomes have resulted from the Project:

- Many comments supported the new prototype report - an attempt to combine the content of existing reports and include additional new information. The final version of the report emphasised proven technologies (for example, well-tested pasture and crop models), and incorporated some new developments (for example, new drought indices). Many products were featured for the first time; in some cases they were ‘world’s best’ and the result of many years of research and development. While such products (for example, the crop and drought sections) were well received by those surveyed, constructive comments were provided to enhance the presentation of the information.
- Respondents to the survey provided valuable comments and, where possible, these comments were acted upon by the development team, especially in revising the initial prototype report. Of course there were limits to the degree to which suggestions could be acted upon. For example, one major limiting factor was the level of current information available in near ‘real-time’. Space was also a constraint.
- QDPI provided a final list of recommended improvements; these were acted upon - as far as possible. However, by definition, a ‘prototype’ is not a ‘final product’. There may be points overlooked, or new ways found to better address respondents’ recommendations. If seasonal conditions reports continue to be operationally produced, the comments made in this survey (together with any new feedback), will continue to provide a guide for improving the usefulness of these reports.

INTRODUCTION

Over the last decade, a monthly Drought Report was prepared by the Queensland Department of Primary Industries (QDPI) at the end of each month, from field reports, and distributed widely by mail. For most of this time, the latest coloured NOAA satellite image of Queensland (A4-sized) was included in the report as an aid to assessing seasonal conditions.

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This publication documents feedback from clients on the QDPI report, the QDNR report and the combined prototype report. Conclusions from this feedback are also discussed.

SURVEY METHOD

Recipients of the QDNR and QDPI Seasonal Conditions Reports (Appendix 1 and 2 respectively) were invited to evaluate the usefulness of these reports and comment on a proposed new report format (see the initial prototype report in Appendix 3). Of the approximately one thousand recipients of either or both reports, thirty recipients indicated their willingness to participate in the survey, and completed a survey form.

The aims of the survey were to evaluate the usefulness of the current reports, and to obtain input into the development of an improved product. A survey form (see Appendix 5) and a covering letter (see Appendix 4) were developed and mailed to those willing to give feedback. Respondents were also given a prototype of the proposed new report to evaluate (Appendix 3). Based on feedback from the survey, and in consultation with QDPI (Rural Risk Strategies Unit), further prototypes were developed. The final prototype is included in this report (Appendix 6).

The data from the completed survey forms was entered into a Microsoft Access database, and the responses to individual questions subsequently analysed. The number of respondents in each response category, for a particular question, was then converted to a percentage of the total number of people who answered that question; these are the figures quoted in the sections below that show survey results.

RESPONDENTS' BACKGROUNDS AND VIEWS ON SEASONAL CONDITIONS INFORMATION

Backgrounds of Respondents

Q1: Location of respondent?

All respondents lived in Queensland.

Q3a: Your gender?

Male	85%
Female	15%

Q3b: Age group category (in years)

18-24	4%
25-29	7%
30-34	4%
35-39	14%
40-44	11%
45-49	14%
50-54	18%
55-59	7%
60-64	14%
Over 65	7%

Q4a: What industry/business are you involved with?

Government policy	15%
Government Extension	31%
Government Research	16%
Water management	4%
Graziers	13%
Grazing & Crops	9%
Grazing & Horticulture	4%
Agribusiness	4%
Consultant	4%

Q4b: Are you a member of a Local Drought Committee?

Yes	25%
No	75%

Current Access to General Seasonal Conditions Information

Q14: Do you have access to a computer with CD-ROM?

Yes	96%
No	4%

Q15: Do you currently have access to the Internet?

Yes	89%
No	11%

Q16: Do you have a facsimile machine?

Yes	93%
No	7%

Q17: What would be the most convenient way(s) for you to assess ‘big-picture’ information on seasonal conditions?

TV	30%
Radio	19%
Telephone recordings	0%
Daily news papers	11%
Local newspapers	7%
Rural newspapers	26%
Farm Journals/Magazines	11%
Newsletter	44%
Computer packages	22%
Internet/Email	74%
Personal conversations/neighbours	0%
Faxed directly	19%
Government Extension Officers	7%
Consultants	0%
Others	0%

Q18: Do you need additional reference material explaining how each ‘big-picture’ information product is produced, and how to interpret it?

Yes	36%
No	64%

Usefulness of General Seasonal Conditions Information

Q5: How important are your assessments of current and future seasonal conditions (over the next 3 to 12 months) in your planning or decision-making?

Not at all important	4%
Slightly important	11%
Fairly important	25%
Very important	60%

Q6: How useful is probability-based information in the management of your business?

I don't use it	4%
Not at all useful	0%
Slightly useful	12%
Fairly useful	50%
Very useful	34%

Usefulness of QDPI/QDNR Seasonal Conditions Reports

Q7: Which report(s) have you been receiving monthly?

Report A (DNR): 'A Summary of Seasonal Conditions in Qld'	33%
Report B (DPI): 'Seasonal Conditions Report'	0%
Both Reports	67%

Q8: Overall, how well has the information in the report(s) correlated with your knowledge of seasonal conditions?

Poor accuracy	0%
Variable accuracy	4%
Fairly accurate	71%
Very Accurate	25%

Q9: Overall, to what extent has the information in the report(s) been useful to you?

Not useful	0%
Slightly useful	15%
Moderately useful	46%
Very Useful	37%

FEEDBACK ON CURRENT REPORTS

Report A: 'Summary of Seasonal Conditions in Queensland'

Q10: To what extent has each of the following types of information in the report been useful to you?

See Table 1 for a summary of respondents' answers.

Table 1. Usefulness of Sections in DNR Seasonal Conditions Report (Report A)

Type of Information	% of Respondents			
	Not Useful	Slightly Useful	Moderately Useful	Very Useful
a. Written Comments	0	11	48	41
b. Coloured Maps	0	11	41	48
c. Rainfall Information	0	19	37	44
d. Pasture Growth Info	7	11	52	30
e. NDVI Information	12	42	31	15
f. Drought Declarations Info	4	26	37	33
g. Climate Outlook	4	0	42	54
Summary	4%	20%	41%	35%

Comments in Support of Existing Information

- Current information quickly and easily assessed
- Useful Information for prediction
- Very useful especially for drought committee
- Confirms own observations
- Written comments, coloured maps, NDVI, drought declaration and climate outlook information of particular use

- Information is useful in gaining overall picture especially when used in conjunction with each component
- Useful as a basis for planning e.g. stocking rates; gaining an idea of trends and likely conditions; and estimating possible crop yields etc.
- Together the information provides an overview of the situation with regards to climate in Queensland
- Written comments aid interpretation of maps
- Colour contrasts on maps allow differences to be easily seen around the State
- Current and localised knowledge
- Aids in management decisions
- Useful in the context that the information can be applied to a regional situation
- Useful guide to planning when received 3-4 months ahead
- Coloured maps are good and easy to understand – find visual elements easier to understand than text
- Critical for purpose of planning the demand for support funds (concessional loans) and providing information to those areas about support available to either minimise the economic consequences or to take the advantage of the circumstances
- Comments on known information but combined with maps, rainfall, pasture growth and NDVI information gives good data for assessing agistment prospects, likely drought feed sources, livestock volumes into/out of ‘finished’ and markets, likely breeding outcomes in different areas etc.
- Climate outlooks are valuable for decision making
- Rainfall is interesting (but not as useful in an irrigated cropping situation – horticulture, as in broad acre agriculture). Temperature is more important
- With the coloured maps it can be seen in a glance whether areas are in good or bad condition
- Rainfall information is useful for assessing conditions now and in the future
- Pasture growth information is useful for feed shortage supplies

Recommended Changes to Existing Information

- Climate outlook component of interest but not practically useful for one respondent
- Rainfall and pasture growth information was difficult to interpret for one respondent
- NDVI information not really necessary and meaning unclear
- Written comments: delete contributions on contents page, information pertaining to how products are produced and sources of info, minimise repetition of information so reader not overwhelmed by amount of information and will be encouraged to read interpretive comments
- Coloured maps size needs to be increased with key maps larger, better colour contrasts
- Drought declaration information tends to indicate government attitude to drought at any given time as much as climate status.
- Does not need to be in colour
- The maps are not of sufficient detail to be very useful

Report B: Seasonal Conditions Report (QDPI)

Q10: To what extent has each of the following types of information in the report been useful to you?

See Table 2 for a summary of respondents’ answers.

Table 2. Usefulness of Sections in DPI Seasonal Conditions Report (Report B)

Type of Information	% of Respondents			
	Not Useful	Slightly Useful	Moderately Useful	Very Useful
h. Outlook	8	0	23	69
i. State Overview	0	15	23	62
j. Regional Summaries	0	8	17	75
k. Livestock & Pastures	0	8	54	38
l. Cropping & Horticulture	0	17	50	33
m. Rainfall	0	23	15	62
n. Water Storage/Supplies	7	15	21	57
o. Queensland Drought Situation	0	22	14	64
Summary	2%	14%	27%	57%

Comments in Support of Existing Information

- Very useful especially if on drought committee
- Useful if information gives a clearer picture of the situation in the region and the current trend in regard to the agricultural situation
- Information of growing importance with regards to management
- Information is useful in gaining overall picture especially when used in conjunction with each component
- Data interesting

Recommended changes to existing information

- Omits information pertaining to useful flow of water for those producers who depend on bores
- Need bigger and better coloured maps
- Focus on overview of the whole state to a lesser degree
- For rainfall: It is not just the amount but also timing for impact on the dominant industry in a region
- Re: Water Storage, see water storage report 26/4/00: useable storage in Callide, Three Moon Creek, Upper Burnett, Central Lockyer and Warrill Valley Regions are giving very important additional information about conditions and output
- Re: Drought Situation - allocations at particular points in time are important

Additional Information Required

Q11: What additional related 'big-picture' information would help you to make better management decisions, and when and how often is it required?

- Sufficient information to gain a picture of what is happening or likely to happen within Queensland
- Information already adequately covered
- Probability based information and forecasting is a great management tool, monthly is adequate
- More on probabilities of attaining cumulative totals at various points in time
- More on cumulative deficits and surpluses
- More information for Spring and Autumn seasons as they are critical times for cattle
- Overseas trends could be useful
- Accuracy of forecast questionable
- Sugar cane, peanuts and maize grow in the north but wheat doesn't-relevance of information??
- Include a fire risk map monthly for July-December
- Need to include crucial time of years (April/May and Aug/Sept/Oct/Nov)

- It is best to keep to monthly and be reasonably broad. If you try to do it more often on a too small a scale, the volume of information and paper becomes overwhelming and none of it is used.
- Publish the office phone numbers of regional extension officers so they can have a better idea of rainfall in their areas
- Accuracy in forecasting is main objective
- Requirement ideally would be monthly
- Include Temperature Outlook as maximum and minimum temperatures have a greater influence on production and quality of vegetables than rainfall, (out of season rainfall events are important though). A potential HDRC project is being discussed
- Information is useful on a monthly basis – new products based on soil types, pasture communities or land types would be useful

Changes to Presentation

Q12: How can the presentation format/quality of Reports A and B be improved to make them better for business decision-making?

Comments in Support of Existing Information

- General format okay
- Can extract information with minimal difficulty – used to format
- Good presentation

Recommended Changes to Existing Information

- Bigger maps
- Adequate
- Timeliness of information is important but difficult to achieve
- Expand applications approach-how will it affect individuals?
- Drought maps in report A too small
- Would like to have detailed rainfall data and soil moisture trends included in report A
- Combine to report C
- Okay as is – if it ain't broke why fix it?
- The reports referred to, do a good job in providing the necessary information-don't see that significant changes are necessary
- Each report at present complements each other
- Reports A and B are adequate. We can forecast our own vegetation growth providing you forecast the rainfall
- All of the Queensland maps are on too large a scale. Most horticultural districts are quite small and the Queensland maps make it difficult to determine what area (districts) are being referred to
- Focus on districts a little more rather than State focus

FEEDBACK ON PROTOTYPE REPORT

Feedback on the full-colour prototype booklet 'Seasonal Conditions and Outlook – in Queensland, June 2000' (see Appendix 3) is given below. This is called Report C in the survey form.

Overall Ratings

Q13a: Overall, to what extent do you think this prototype product would satisfy your need for 'big-picture' information on current and forecast seasonal conditions in Queensland?

- | | |
|----------------------------|-----|
| • Need not satisfied | 0% |
| • Need slightly satisfied | 0% |
| • Need partially satisfied | 40% |
| • Need fully satisfied | 60% |

Overall Comments

- Like the new format
- Useful information and a good overview for extension officers to relate back to clients
- Content of existing report fulfills QRAA requirements – any additional information needed can be easily accessed
- New colour prototype is a major improvement on the last product
- User friendly
- New booklet an improvement in clarity and ease of reading and decision making
- Booklet much easier approach rather than tediously flicking sheets of paper backwards and forwards
- Present format is a very good start
- Product looks good
- Plenty of info, graphs and explanations
- Very impressed with prototype
- Additional information and maps are a step in the right direction
- The upgrade and size makes the maps easier to read and understand
- A great booklet
- Found easy to read and useful
- The Prototype is easy to read, very accessible, concise and “good-eyed” production
- Costly exercise for a monthly publication which is quickly out of date
- Questionable relevancy
- More efficient ways to get this information to more people e.g. internet sites, smaller booklets – more specific to particular locations/industries to reach key people
- A lot of the information is of interest rather than being essential (i.e. “nice to know” not “need to know” basis)
- The earlier in the month this information arrives, the better
- Have covered the subject in sufficient detail for the primary producer-except for information on underground water reservoirs, particularly in view of WAMP reports
- Costly product to produce and clients would only use selected information however it satisfies the needs of a range of clients
- It would be better to make this information available on fax and internet systems and allow individual clients to access and select the products that they think they can profitably use
- Inconsistent mix of history and forecasts
- Clarification on whether the report is to be used as a marketing tool by DPI and DNR for their various reporting services or is it a source of information on which decisions can be made
- Need to ensure that distribution on a wide scale is done promptly so that information is not outdated
- More research on the audience – who uses the information, how used and how much of the information is used

Recommended Changes to Existing Information

- The booklet requires description of purpose to assist interpretation
- Range of information should be enhanced by referring to subregions/general localities
- Information should be more timely - 3-4 months ahead of present time
- Put section headings on rods at the bottom of each page
- Less dense with information

- Reference map on page 16 with shire names should be moved closer to the front of the booklet
- An A4-size report is more appropriate for filing as a future reference

Contents/Introduction

Recommended Changes to Existing Information

- Index headings need to be the same as those used inside the publication (regional summaries; rainfall outlook)
- Contents and introduction page over two pages?? - very busy
- Contents page-questions concept, and poor wording-instead of 'Drought' (first word in second sentence) use 'RR'; instead of 'we' use 'QCCA'; instead of 'are currently at risk of drought or overgrazing' use 'may be at risk'

State Overview

Q13b: To what extent does the content of this section satisfy the requirements listed below?

See Table 4 for a summary of respondents' answers.

Table 4. Report C – Summary of Ratings of 'State Overview' Section

Category	% of Respondents				
	Very Poor	Poor	OK	Fairly Good	Very Good
<i>Range of information</i> satisfies my needs	0	0	15	41	44
Information is sufficiently <i>timely</i> to be of value	0	3	12	44	41
<i>Presentation</i> makes products easy to understand	0	4	11	33	52
<i>Layout and map sizes</i> make the information easy to use	4	4	15	44	33
<i>Written material</i> is brief and easy to understand	0	7	5	44	44
Technical <i>jargon</i> is kept to a minimum	0	4	11	41	44
Section Summary	1%	4%	11%	41%	43%

Rainfall

Q13c: To what extent does the content of this section satisfy the requirements listed below?

See Table 5 for a summary of respondents' answers.

Table 5. Report C – Summary of Ratings of 'Rainfall' Section

Category	% of Respondents				
	Very Poor	Poor	OK	Fairly Good	Very Good
<i>Range of information</i> satisfies my needs	0	4	15	31	50
Information is sufficiently <i>timely</i> to be of value	0	0	15	37	48
<i>Presentation</i> makes products easy to understand	4	4	4	37	51
<i>Layout and map sizes</i> make the information easy to use	0	7	19	33	41
<i>Written material</i> is brief and easy to understand	0	0	4	56	40
Technical <i>jargon</i> is kept to a minimum	0	0	7	37	56
Section Summary	1%	3%	10%	39%	47%

Additional Comments

- Pretty good
- West-region comments missing making it difficult to evaluate, but could make sense of information provided
- Information should be more timely-3-4 months ahead of present time
- The earlier in the month this information arrives, the better
- Gaps in data (e.g. n/a)
- Key on rainfall map should indicate dry and wet rather than low and high (page 3)
- Heading of map on page 5 should include “probability of exceeding median rainfall etc”
- Maps need to be larger on page 3
- Covers information well
- A two year percentile rainfall map would be useful
- Incomplete headings on individual maps may be problematic if people are going to download them from the internet and use them in other documents
- Page 2 – no explanation of figures
- State source for rainfall
- Page 5 map good (size and content)
- It may be useful to clarify trends with relative historical records over a number of years
- Page 4-use Seasonal Climate Indicators as a heading instead of ENSO

Pastures and Livestock

Q13d: To what extent does the content of this section satisfy the requirements listed below?

See Table 6 for a summary of respondents’ answers.

Table 6. Report C – Summary of Ratings of ‘Pastures and Livestock’ Section

Category	% of Respondents				
	Very Poor	Poor	OK	Fairly Good	Very Good
<i>Range of information</i> satisfies my needs	0	0	27	35	38
Information is sufficiently timely to be of value	0	4	12	42	42
<i>Presentation</i> makes products easy to understand	0	0	8	50	42
<i>Layout and map sizes</i> make the information easy to use	0	0	19	39	42
<i>Written material</i> is brief and easy to understand	0	0	4	58	38
<i>Technical jargon</i> is kept to a minimum	0	0	8	46	46
Section Summary	0%	1%	13%	45%	41%

Additional Comments

Comments in Support of Existing Information

- Very important area

Recommended Changes to Existing Information

- West-region comments missing making it difficult to evaluate, but could make sense of information provided
- Need to incorporate more ground ‘truthing’ of pasture quality e.g. using NIRS
- Need to know when pastures are going to decline in the long term
- No quantitative information about livestock
- Much of the descriptive text is not useful for planning

- Page 7 - increase map size
- Page 6 ‘the use of protein lick blocks will assist to maintain animal production’-not an appropriate place to give advice (sounds like gratuitous advice)
- The earlier in the month this information arrives, the better
- Heading of map on page 9 should include ‘probability of exceeding median pasture growth etc’
- Remove state overview
- Useful information to have
- Need region specific reports in this section
- Ability to focus in on specific districts would be an advantage

Crops and Horticulture

Q13e: To what extent does the content of this section satisfy the requirements listed below?

See Table 7 for a summary of respondents’ answers.

Table 7. Report C – Summary of Ratings of ‘Crops and Horticulture’ Section

Category	% of Respondents				
	Very Poor	Poor	OK	Fairly Good	Very Good
<i>Range of information</i> satisfies my needs	5	5	15	40	35
Information is sufficiently <i>timely</i> to be of value	0	0	20	50	30
<i>Presentation</i> of products easy to understand	0	5	25	40	30
Layout and map sizes make the information easy to use	0	5	21	48	26
<i>Written material</i> is brief and easy to understand	0	0	26	42	32
Technical <i>jargon</i> is kept to a minimum	0	0	11	53	36
Section Summary	1%	2%	19%	46%	32%

Additional Comments

Comments in Support of Existing Information

- Interesting information
- Concentration on wheat seems sensible as this product probably occupies the largest crop area in Queensland (excluding native pastures etc)

Recommended Changes to Existing Information

- Of little interest to two respondents
- Need to expand frost information to other areas
- Nothing on cane
- The earlier in the month this information arrives, the better
- Page 10-much of the descriptive text is not useful in a planning sense
- Graziers have tended not to focus on this section but have become more interested since joint DNR and DPI ventures have commenced
- Didn’t read in detail
- Maps on page 12 too small
- Graph A on page 13 is confusing
- Graph B on page 13 not very useful
- Include other centers on graph on page 11 and maybe % probability
- Text needs to be simplified and lessened
- Remove state outlook of crops

- The frost risk is good but is needed earlier as sowing starts in April
- Need region specific reports in this section for more sound management decisions (e.g. frost outlook)
- Not as relevant as could be
- Frost issue is very good, but no horticultural districts are covered
- Poor wording: ‘20-30% probability of falling in the worst 10% of years for projected wheat yield’
- Better wording on wheat yield page 22 ‘probability of falling in the worst 10% of years for the 2000 season
- Felt that wheat was over used as an example-why? Is there any good information for other crops that could be included?

Water Supplies

Q13f: To what extent does the content of this section satisfy the requirements listed below?

See Table 8 for a summary of respondents’ answers.

Table 8. Report C – Summary of Ratings of ‘Water Supplies’ Section

Category	% of Respondents				
	Very Poor	Poor	OK	Fairly Good	Very Good
<i>Range of information</i> satisfies my needs	4	14	14	18	50
Information is sufficiently timely to be of value	0	5	25	25	45
<i>Presentation</i> of products easy to understand	0	0	5	45	50
<i>Layout and map sizes</i> make the information easy to use	0	5	5	45	45
Written material is brief and easy to understand	0	0	15	30	55
Technical <i>jargon</i> is kept to a minimum	0	0	15	25	60
Section Summary	1%	4%	13%	31%	51%

Additional Comments

Comments in Support of Existing Information:

- Interesting information

Recommended Changes to Existing Information:

- Information of little use to two respondents
- This section does not produce information which allows decisions to be made
- The earlier in the month this information arrives, the better
- Regional water storage only of limited use
- Descriptive text not very useful for planning
- Water storage data needs to be further explained (e.g. where information comes from and what it is a measure of) - title of graph on page 15 ‘percent of total capacity’ of what? Soil? Dams?
- Page 15 graph-put % of total capacity for a few selected major storages under peaks in each of the four graphs or use a bar graph or better
- Information on useable storage and available allocations is needed
- Useable storage – lead indicators of conditions – it is possible to have good rain for pasture and no runoff for storage thus irrigators are possibly at risk where livestock producers may not be at risk
- Allocations are needed by QRAA at various times to determine applicant eligibility for drought assistance

- As we use on-form ‘gully-dam’ water, the information is of interest but limited direct use. However indicative of water supplies in possible agistment/breeding/fattening areas away from home
- No maps as in the DNR report
- The information is too general to be of much use
- Details of specific shortages would be useful

Drought Situation

Q13g: To what extent does the content of this section satisfy the requirements listed below?

See Table 9 for a summary of respondents’ answers.

Table 9: Report C – Summary of Ratings of ‘Drought Situation’ Section

Category	% of Respondents				
	Very Poor	Poor	OK	Fairly Good	Very Good
<i>Range of information</i> satisfies my needs	0	0	4	42	54
Information is sufficiently <i>timely</i> to be of value	0	0	16	38	46
<i>Presentation</i> of products easy to understand	0	0	4	29	67
<i>Layout and map</i> sizes make the information easy to use	4	4	4	27	61
<i>Written material</i> is brief and easy to understand	0	0	8	29	63
<i>Technical jargon</i> is kept to a minimum	0	0	4	38	58
Section Summary	1%	1%	7%	33%	58%

Additional Comments

Comments in Support of Existing Information

- Sometimes it is possible to observe drought creeping into other areas from maps etc so the more information available the better
- Interesting info

Recommended Changes to Existing Information

- Need to include EC areas and ND relief declared areas (or at least commentary that they differ from state declarations)
- Table on page 17 difficult to read - e.g. needs lines to make it easier to read
- Maps on page 16 and 19 need greater colour contrast in scale
- The earlier in the month this information arrives, the better
- Page 18 map - need to specify for what period (i.e. when?)
- Why have a drought watch when there is no drought?
- A droughtwatch is not only about pasture
- Why not use USDA approach
- Need something new and different e.g. ‘effective rainfall’
- Define ‘chance of extremely low 12 month pasture growth’
- Of minor interest to one respondent
- Meets present requirements
- The ‘drought analyses’ (GRASP) model is not ideally suited to all areas equally when determining a ‘drought’
- The Marlborough area stretching from Yaamba to St Lawrence is absent from the report. Last year and early this year much of this area was in severe drought. This was not evident in your reports and stock water is still critical.
- Map on page 19 is difficult to read especially for small shires

Outlook and Alerts

Q13h: To what extent does the content of this section satisfy the requirements listed below?

See Table 10 for a summary of respondents' answers.

Table 10: Report C – Summary of Ratings of ‘Outlooks and Alerts’ Section

Category	% of Respondents				
	Very Poor	Poor	OK	Fairly Good	Very Good
<i>Range of information</i> satisfies my needs	4	0	22	37	37
Information is sufficiently timely to be of value	0	0	27	27	46
<i>Presentation</i> of products easy to understand	0	0	14	27	59
<i>Layout and map</i> sizes make the information easy to use	0	5	13	27	55
<i>Written material</i> is brief and easy to understand	0	0	5	54	41
Technical <i>jargon</i> is kept to a minimum	0	0	5	45	50
Section Summary	1%	1%	14%	36%	48%

Additional Comments

Comments in Support of Existing Information

- This section is part of the whole picture and presently meets current needs

Recommended Changes to Existing Information:

- Include alerts when probabilities of reaching key cumulative totals are very low
- Would like to see more information on pasture types in relation to seasonal growth
- Unclear of what map on page 20 is illustrating - colour code for map on page 21 same as map on page 20?
- Fraser Island coloured indicating grazing pressure- isn't it World Heritage listed??
- The earlier in the month this information arrives, the better
- Need larger maps-can't view them without magnifying glass or enlarging on computer
- Wording of title on page 20 'shires with low pasture growth AND high grazing pressure' or 'shires with poor pasture growth and high utilization'
- Page 18 & 19-change heading to 'outlooks and alerts-drought watch'
- Change page 18 map heading from 'past' to 'last'
- Page 19 map needs greater colour contrast
- Change page 19 map heading to 'probability of 12 month pasture growth being extremely poor'
- Page 20 & 21-change page headings to 'outlooks and alerts-pasture condition alert'
- Change page 21 map heading to 'probability of poor pasture growth and high utilization'
- Change basis of page 22 wheat yield map to 'probability of obtaining wheat yield in the poorest 30% of years'
- Grey colour scale on map (page 19 & 21) is difficult to see
- Remove pasture condition alert (page 20 and 21)
- Have always felt that the NDVI products enhanced the accuracy of the Drought Situations and the Outlook and alerts is far too general and NOT a reasonable indicator of this area's actual status
- Frost outlook is good but no horticultural regions
- Rainfall is good although need some coastal and sub-coastal areas in greater detail
- For the pasture condition map (page 20) – if part of a shire fell into the low growth/high grazing pressure category but not the whole shire, could this be differentiated?
- Include shire names for maps from page 18 to 21

FURTHER COMMENTS ON VALUE OF SEASONAL CLIMATE FORECASTS

Q19a: In terms of predicting summer rainfall, our best current skill using Southern Oscillation Index (SOI) occurs in October/November, which may be too late in the year for some business decisions, for example stocking rates in grazing areas. Are such forecasts useful to you?

Yes	100%
No	0%

Q19e: What is your most important requirement for improving forecasting of summer conditions?

Forecasts of summer conditions are significantly more accurate	48%
Forecasts of summer conditions have a significantly longer 'Lead-time'	39%
Both	13%

Q19f: What would be the ideal month for issuing a reasonably accurate forecast of November-March rainfall?

March	5%
April	14%
June	14%
July	5%
August	19%
September	38%
October	5%

Q19d: If we could achieve the same skill (in forecasting summer conditions) in March/April, as we currently so in October/November, what difference would that make in your business (that is, a significant increase in 'lead-time')?

- It would make a significant difference in decision making
- Valuable to winter cropping- April/May crucial time holds little skill currently
- Assessing for drought application
- Would allow better planning
- Allow earlier stock number changes for sales etc
- Earlier adjustment of cattle numbers
- Information would be more timely and of more value to my clients
- Lead-time assists graziers who plant winter forage crops-most are aware of predictions for South eastern region particularly in relation to the SOI
- Would give more certainty to planning and allow better decisions to be made
- Would need to be confident of the products before it would be a lot of use
- It would greatly influence winter stocking rates, feeding strategies, stock sales and horticultural practice timing to enhance ecological and economic sustainability
- It would be better providing it was just as accurate as the Oct-Nov forecast
- Assist in extension activity through Autumn period
- Need to improve longer lead-time forecast methods that have application in inland areas
- Would increase confidence in making difficult decisions to reduce numbers greatly for likely drought conditions and alternatively increase numbers in probable La Nina years
- Would allow producers to be a step ahead of the competition
- If a reasonably accurate forecast could be made in May, in regard to the months of September, October and November, would be a great benefit to the Marlborough area and central

Queensland as they are the driest months. It is also the time when breeders have the most stress e.g. calving

Q20: Additional Comments

- Future studies of Indian Ocean and other areas which is predominantly where our weather influences come from, will greatly assist with weather forecasting accuracy and lead in time

DISCUSSION

Respondents' Backgrounds

The survey revealed that the majority of respondents were government officers (62%), of whom half were extension officers and the remainder involved in either policy or research. Some 26% of respondents were primary producers, of whom all were involved with grazing and half were involved with either cropping and/or horticulture. Many respondents (25%) were members of Local Drought Committees. The various age groups were reasonably well represented. However, 85% of respondents were male.

Usefulness and Accessibility of Seasonal Conditions Information

Most respondents (85%) considered assessment of seasonal conditions very important or fairly important in their planning or decision-making. Most respondents (84%) found probability-based information fairly useful or very useful in the management of their business. All respondents found the information presented in existing QDPI/QDNR reports useful to some degree, with 83% regarding the information 'moderately useful' or 'very useful'.

Some 44% of respondents found newsletters a very convenient way to receive 'big-picture' information on seasonal conditions information, and 74% of respondents considered email/internet a very convenient way to receive such information. The preference for electronic media may reflect the high proportion of government respondents; this bias is also shown in the number of respondents who had access to a computer with CD-ROM and access to the Internet (96% and 89% respectively).

Ratings of Current Reports

Respondents were asked to evaluate only reports they received on a regular (monthly) basis. Most (67%) of the respondents received both reports although 33% received only the DNR report. Most respondents considered the information in the reports to be accurate (71% 'fairly accurate' and 25% 'very accurate') and most respondents found the information in the reports useful (46% 'moderately useful' and 37% 'very useful').

Overall the individual sections of both the DNR and DPI Seasonal Conditions Reports were considered quite useful (Tables 1 and 2). With respect to the DNR report (Table 1), the written comments and coloured maps were considered particularly useful (45% 'moderately useful' and 45% 'very useful'). Of the specific types of information, the climate outlook was considered most useful (42% 'moderately useful' and 54% 'very useful') and the satellite imagery was rated as least useful (42% 'slightly useful' and 12% 'not useful'). Although the majority of respondents considered the satellite imagery least useful, some 15% of respondents considered this information 'very useful'.

See Table 1 for a summary of respondents' answers.

Table 1. Usefulness of Sections in DNR Seasonal Conditions Report (Report A)

Type of Information	% of Participants			
	Not Useful	Slightly Useful	Moderately Useful	Very Useful
a. Written Comments	0	11	48	41
b. Coloured Maps	0	11	41	48
c. Rainfall Information	0	19	37	44
d. Pasture Growth Info	7	11	52	30
e. NDVI Information	12	42	31	15
f. Drought Declarations Info	4	26	37	33
g. Climate Outlook	4	0	42	54
Summary	4%	20%	41%	35%

Table 2. Usefulness of Sections in DPI Seasonal Conditions Report (Report B)

Type of Information	% of Participants			
	Not Useful	Slightly Useful	Moderately Useful	Very Useful
h. Outlook	8	0	23	69
i. State Overview	0	15	23	62
j. Regional Summaries	0	8	17	75
k. Livestock & Pastures	0	8	54	38
l. Cropping & Horticulture	0	17	50	33
m. Rainfall	0	23	15	62
n. Water Storage/Supplies	7	15	21	57
o. Queensland Drought Situation	0	22	14	64
Summary	2%	14%	27%	57%

With respect to the DPI report, all sections were regarded as quite useful (Table 2). The regional summaries rated most highly (75% 'very useful' and 17% 'moderately useful'), while the horticulture section was rated as least useful (60% 'moderately useful' and 33% 'very useful').

The following common themes emerged in the written comments on both reports:

- importance of map products, but preference for relatively large maps;
- importance of written comments, but preference for simplicity and avoidance of repetition;
- complementary nature of both reports recognised;
- reports considered worth merging;
- importance of timely reports, and the appropriateness of reporting monthly;
- call for more detailed 'regional' reports/maps, but recognition of the additional difficulty/size this may entail;
- too much emphasis on pasture growth/rainfall in assessing drought with other suggestions offered;
- mapped information was generally considered to be accurate, but examples of inaccuracy were cited;
- forecasts were considered useful at current level of accuracy/timing, but increased lead-time and accuracy would be of value;
- many examples of additional useful information/products were cited, for example fire-hazard, temperature forecasts, and more crop information.

Ratings of Prototype Report

The new prototype report was generally viewed as an improvement on existing reports. However, some respondents considered the document extravagant, too colourful, of insufficient detail to be useful, too costly and of questionable relevance. On the other hand, others considered the proposed

Table 3. Rating of Prototype Seasonal Conditions Report (Report C)

Type of Information	% of Respondents				
	Very Poor	Poor	OK	Fairly Good	Very Good
State Overview	1	4	11	41	43
Rainfall	1	3	10	39	47
Pastures and Livestock	0	1	13	45	41
Crops and Horticulture	1	2	19	46	32
Water Supplies	1	4	13	31	51
Drought Situation	1	1	7	33	58
Outlook and Alerts	1	1	14	36	48
Summary	1%	2%	12%	39%	46%

new format ‘a very good start’, a ‘great booklet’, ‘very impressive’, ‘easy to read and useful’ with ‘plenty of information, graphs and explanations’. Of the individual sections in this report, the ‘Drought Situation’ was rated most highly (58% ‘very good’ and 33% ‘fairly good’. The ‘Crops and Horticulture’ section received the lowest ratings (46% ‘fairly good’ and 32% ‘very good’), possibly because only 4% of the respondents were involved in horticultural enterprises (see Table 3).

CONCLUSIONS

The following conclusions can be made from the feedback obtained:

- The survey highlighted the usefulness of seasonal conditions information in general, and the usefulness of existing QDNR/QDPI reports in supplying such information;
- The complementary nature of both reports was recognised, and it was considered worthwhile to merge them;
- Both spatial mapping products and the associated interpretive comments provide important information;
- The provision of seasonal conditions information on a monthly basis was regarded as appropriate;
- Seasonal climate forecasts and spatial mapping products are currently regarded as being sufficiently accurate to provide valuable information;
- Further interactive consultation with potential end-users is required to improve the presentation of individual products;
- There is potential for developing valuable new information products through interactive consultation with groups of clients in different industries, in spite of the perceived complexity of some prototype products (for example drought alerts and land condition alerts); and
- Alternative means of producing and distributing such information should be evaluated, as a limited selection of products delivered in a mailed monthly newsletter does not satisfy the needs of all stakeholders or conform with ‘best-practice’ information management.

PROJECT OUTCOMES

The following outcomes have resulted from the Project:

- Many comments supported the new prototype report - an attempt to combine the content of existing reports and include additional new information. The final version of the report emphasised proven technologies (for example, well-tested pasture and crop models), and incorporated some new developments (for example, new drought indices). Many products were featured for the first time; in some cases they were ‘world’s best’ and the result of many years of research and development. While such products (for example, the crop and drought sections) were well received by those surveyed, constructive comments were provided to enhance the presentation of the information.

- Respondents to the survey provided valuable comments and, where possible, these comments were acted upon by the development team, especially in revising the initial prototype report. Of course there were limits to the degree to which suggestions could be acted upon. For example, one major limiting factor was the level of current information available in near 'real-time'. Space was also a constraint.
- QDPI provided a final list of recommended improvements; these were acted upon - as far as possible. However, by definition, a 'prototype' is not a 'final product'. There may be points overlooked, or new ways found to better address respondents' recommendations. If seasonal conditions reports continue to be operationally produced, the comments made in this survey (together with any new feedback), will continue to provide a guide for improving the usefulness of these reports.

APPENDICES

Appendix 1: Example of QDNR Seasonal Conditions Report *(referred to in this document as Report A)*

Appendix 2: Example of QDPI Seasonal Conditions Report
(referred to in this document as Report B)

**Appendix 3: Proposed New Seasonal Conditions Report - Initial
Prototype**
(referred to in this document as Report C)

Appendix 4: Covering Letter for Survey

Queensland Centre for Climate Applications

80 Meiers Road
Indooroopilly Qld 4068
Phone: (07) 3896 9587; Fax: (07) 3896 9843
Email: paulle@dnr.qld.gov.au
13June 2000

What do you think of the enclosed prototype booklet, containing ‘big-picture’ information, entitled ‘Seasonal Conditions and Outlook in Qld – June 2000’?

Dear Sir/Madam,

Many thanks for agreeing to provide some feedback on the above prototype product, which will provide monthly information on current seasonal conditions in Queensland to a wide range of clients. As only a limited number of people have volunteered to help, your ideas will be particularly valuable in assisting us to develop a product that is useful to you for making business decisions, and to other clients.

I am enclosing the following documents for you to refer to:

- REPORT A. ‘A summary of seasonal conditions in Queensland’ (colour);
- REPORT B. ‘Seasonal conditions report’ (black and white); and
- REPORT C. The prototype of a monthly coloured product which combines the above two reports and expands the range of information – entitled ‘Seasonal Conditions and Outlook in Queensland – June 2000’.

The information in the prototype product is complete except for a few items of text, so the booklet should provide you with a good sample of the full package of information. We need your help in developing this up-to-date product, including identifying which items of information are of value to you in making business decisions. Your completion of the following questionnaire will contribute significantly to this goal.

At the risk of exhausting your patience, I have included a few questions (at the end of the feedback sheet) on your needs regarding seasonal climate forecasting.

Confidentiality of individual responses is assured. Responses will be amalgamated and studied as a group, and there is no need to supply your name. Participation is, of course, voluntary - but I encourage you to take part.

If possible, we would like to commence distribution of the improved product in early July. Therefore I would be grateful if you could complete the feedback sheet, and **return it via the pre-addressed and paid envelope within two weeks**. Any responses, even if incomplete, would be greatly appreciated.

Yours sincerely,

Col Paull
Senior Extension Officer

Appendix 5: Survey Form

SURVEY OF POLICYMAKERS, PRIMARY PRODUCERS AND BUSINESS TO IMPROVE QUEENSLAND SEASONAL CONDITIONS REPORTS ISSUED BY QDPI AND QDNR

1. What is your nearest **town**? _____ In what **State**? _____
2. What is the name of your **local government area**/district? _____
3. A bit of information about **yourself** (please tick appropriate boxes)
- 3a. Your gender? Male Female
- 3b. What age group do you belong to?
- | | | | |
|---|---|---|--|
| <input type="checkbox"/> 18 - 24 years <input type="checkbox"/> | <input type="checkbox"/> 35 - 39 years <input type="checkbox"/> | <input type="checkbox"/> 50 - 54 years <input type="checkbox"/> | <input type="checkbox"/> Over 65 years |
| <input type="checkbox"/> 25 - 29 years <input type="checkbox"/> | <input type="checkbox"/> 40 - 44 years <input type="checkbox"/> | <input type="checkbox"/> 55 - 59 years <input type="checkbox"/> | |
| <input type="checkbox"/> 30 - 34 years <input type="checkbox"/> | <input type="checkbox"/> 45 - 49 years <input type="checkbox"/> | <input type="checkbox"/> 60 - 64 years <input type="checkbox"/> | |
- 4a. What **industry/business** are you involved with? (Tick one or more appropriate boxes).
- | | |
|---|--|
| Government - policy <input type="checkbox"/> | Sheep <input type="checkbox"/> |
| Government - extension <input type="checkbox"/> | Graingrowing <input type="checkbox"/> |
| Government - research <input type="checkbox"/> | Irrigation <input type="checkbox"/> |
| Government - management <input type="checkbox"/> | Agribusiness <input type="checkbox"/> |
| Primary industry organizations <input type="checkbox"/> | Other (specify) _____ <input type="checkbox"/> |
| Cattle <input type="checkbox"/> | |
- 4b. Are you a member of a Local Drought Committee? (Tick one box)
- Yes No
5. How important are your **assessments** of current and future **seasonal conditions** (over the next three to 12 months) in your planning or decision-making? (Tick one box).
- | | | | |
|--|--|--|--|
| not at all <input type="checkbox"/>
important | slightly <input type="checkbox"/>
important | fairly <input type="checkbox"/>
important | very <input type="checkbox"/>
important |
|--|--|--|--|
6. How useful is **probability-based information** (see 'Definitions' on last page) in the management of your business? (Tick one box).
- | | | | | |
|--|---|---|---|---|
| I don't
use it <input type="checkbox"/> | not at all
useful <input type="checkbox"/> | slightly
useful <input type="checkbox"/> | fairly
useful <input type="checkbox"/> | very
useful <input type="checkbox"/> |
|--|---|---|---|---|
7. Which report(s) have you been receiving monthly? (Tick one box).
- | | | |
|--|---|---|
| REPORT A
'A summary of
seasonal conditions
in Qld' (in colour) <input type="checkbox"/> | REPORT B
'Seasonal conditions
report' (in black and white) <input type="checkbox"/> | Both reports
stapelled together <input type="checkbox"/> |
|--|---|---|

NOTE: The following questions refer to the report(s) which you receive.

8. Overall, how well has the information in the report(s) correlated with your knowledge of seasonal conditions? (Tick one box).

To what extent does the content of this section satisfy the requirements listed below. Circle one number for each factor to indicate your response on the scale, where: 1=very poor; 2=poor; 3=OK; 4=fairly good; 5=very good.			
Range of information satisfies my needs.	1 2 3 4 5	Layout and map sizes make the information easy to use.	1 2 3 4 5
Information is sufficiently timely to be of value.	1 2 3 4 5	Written material is brief and easy to understand.	1 2 3 4 5
Presentation of individual products makes them easy to understand.	1 2 3 4 5	Technical jargon is kept to a minimum.	1 2 3 4 5

Additional Comments (refer to page numbers; for more space, use the blank back of this page)

.....

.....

.....

.....

.....

.....

13c. Rainfall

To what extent does the content of this section satisfy the requirements listed below. Circle one number for each factor to indicate your response on the scale, where: 1=very poor; 2=poor; 3=OK; 4=fairly good; 5=very good.			
Range of information satisfies my needs.	1 2 3 4 5	Layout and map sizes make the information easy to use.	1 2 3 4 5
Information is sufficiently timely to be of value.	1 2 3 4 5	Written material is brief and easy to understand.	1 2 3 4 5
Presentation of individual products makes them easy to understand.	1 2 3 4 5	Technical jargon is kept to a minimum.	1 2 3 4 5

Additional Comments (refer to page numbers; for more space, use the blank back of a following page)

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13d. Pastures and Livestock

To what extent does the content of this section satisfy the requirements listed below. Circle one number for each factor to indicate your response on the scale, where: 1=very poor; 2=poor; 3=OK; 4=fairly good; 5=very good.			
Range of information satisfies my needs.	1 2 3 4 5	Layout and map sizes make the information easy to use.	1 2 3 4 5
Information is sufficiently timely to be of value.	1 2 3 4 5	Written material is brief and easy to understand.	1 2 3 4 5
Presentation of individual products makes them easy to understand.	1 2 3 4 5	Technical jargon is kept to a minimum.	1 2 3 4 5

Additional Comments (refer to page numbers; for more space, use the blank back of a following page)

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13e. Crops and Horticulture

To what extent does the content of this section satisfy the requirements listed below. Circle one number for each factor to indicate your response on the scale, where: 1=very poor; 2=poor; 3=OK; 4=fairly good; 5=very good.			
Range of information satisfies my needs.	1 2 3 4 5	Layout and map sizes make the information easy to use.	1 2 3 4 5
Information is sufficiently timely to be of value.	1 2 3 4 5	Written material is brief and easy to understand.	1 2 3 4 5
Presentation of individual products makes them easy to understand.	1 2 3 4 5	Technical jargon is kept to a minimum.	1 2 3 4 5

Additional Comments (refer to page numbers; for more space, use the blank back of a following page)

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13f. Water Supplies

To what extent does the content of this section satisfy the requirements listed below. Circle one number for each factor to indicate your response on the scale, where: 1=very poor; 2=poor; 3=OK; 4=fairly good; 5=very good.			
Range of information satisfies my needs.	1 2 3 4 5	Layout and map sizes make the information easy to use.	1 2 3 4 5
Information is sufficiently timely to be of value.	1 2 3 4 5	Written material is brief and easy to understand.	1 2 3 4 5
Presentation of individual products makes them easy to understand.	1 2 3 4 5	Technical jargon is kept to a minimum.	1 2 3 4 5

Additional Comments (refer to page numbers; for more space, use the blank back of the following page)

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13g. Drought Situation

To what extent does the content of this section satisfy the requirements listed below. Circle one number for each factor to indicate your response on the scale, where: 1=very poor; 2=poor; 3=OK; 4=fairly good; 5=very good.			
Range of information satisfies my needs.	1 2 3 4 5	Layout and map sizes make the information easy to use.	1 2 3 4 5
Information is sufficiently timely to be of value.	1 2 3 4 5	Written material is brief and easy to understand.	1 2 3 4 5
Presentation of individual products makes them easy to understand.	1 2 3 4 5	Technical jargon is kept to a minimum.	1 2 3 4 5

Additional Comments (refer to page numbers; for more space, use the blank back of the following page)

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13h. Outlook and Alerts

To what extent does the content of this section satisfy the requirements listed below. Circle one number for each factor to indicate your response on the scale, where: 1=very poor; 2=poor; 3=OK; 4=fairly good; 5=very good.			
Range of information satisfies my needs.	1 2 3 4 5	Layout and map sizes make the information easy to use.	1 2 3 4 5
Information is sufficiently timely to be of value.	1 2 3 4 5	Written material is brief and easy to understand.	1 2 3 4 5
Presentation of individual products makes them easy to understand.	1 2 3 4 5	Technical jargon is kept to a minimum.	1 2 3 4 5

Additional Comments (refer to page numbers; for more space, use the blank back of the following page)

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13i. Do you have any comments on the omission of **NDVI products** from the prototype booklet (due to space difficulties and problems with interpretation of them)?

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14. Do you have access to a **computer with CD-ROM**? (*Tick one box*) Yes No

15. Do you currently have access to the **Internet**? (*Tick one box*) Yes No

16. Do you have a **facsimile machine**? (*Tick one box*) Yes No

17. What would be the most convenient way(s) for you to **access 'big-picture' information** on seasonal conditions? (*Tick appropriate boxes*).

- | | |
|--|--|
| TV <input type="checkbox"/> | Computer packages <input type="checkbox"/> |
| Radio <input type="checkbox"/> | Internet/Email <input type="checkbox"/> |
| Telephone recordings <input type="checkbox"/> | Personal conversations/neighbours <input type="checkbox"/> |
| Daily newspapers <input type="checkbox"/> | Faxed directly <input type="checkbox"/> |
| Local newspapers <input type="checkbox"/> | Government Extension officers <input type="checkbox"/> |
| Rural newspapers <input type="checkbox"/> | Consultants <input type="checkbox"/> |
| Farm Journals/Magazines <input type="checkbox"/> | Others (please name) <input type="checkbox"/> |
| Newsletter <input type="checkbox"/> | |

18. Do you need additional **reference material** explaining how each 'big-picture' information product is produced, and how to interpret it? (*Tick one box*)

Yes No

19. Seasonal Climate Forecasting

Climate scientists around Australia are currently working on exciting **new forecast systems** that will result in more accurate forecasts and forecasting further ahead (that is, a longer ‘lead-time’ – see Definitions of Jargon). For example, in Queensland researchers are aiming to produce improved forecasts for the summer growing season.

A new forecasting system cannot be responsibly released until it has proven skill, and has passed rigorous scientific testing. However, you can **assist researchers** by sharing your ideas on the usefulness of an improved seasonal climate forecast system (to you), through answering the following questions:

19a. In terms of **predicting summer rainfall**, our best current skill using the Southern Oscillation Index (SOI – see Definitions of Jargon) occurs in October/November, which may be too late in the year for some business decisions, for example stocking rates in grazing areas. Are such forecasts useful to you? (*Tick one box*)

Yes
(go to Question 19c)

No
(go to Question 19b)

19b. If you answered ‘No’ to Question 19a, please indicate your reason. (*Tick one box*)

Forecasts of summer conditions
are **not accurate** enough

Forecasts of summer conditions
are **too late** for use in
management decisions

19c. If we could achieve much **greater accuracy** (in forecasting summer conditions) than we currently do in October/November, what differences would that make in your business?

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19d. If we could achieve the same skill (in forecasting summer conditions) in March/April, as we currently do in October/November, what differences would that make in your business? (that is, a significant **increase in ‘lead-time’**)

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19e. In the light of your responses to Questions 19c and 19d, what is your **most important requirement** for improving forecasting of summer conditions? (*Tick one box*)

Forecasts of summer conditions
are significantly **more accurate**

Forecasts of summer conditions
have a significantly **longer ‘lead-time’**

19f. In your opinion, what would be the ideal month for **issuing** a reasonably accurate **forecast** of November-March rainfall? Please name a month:

Definitions of Jargon

‘Big-picture’ seasonal information helps to describe the seasonal conditions ‘outside a particular property’ at a district, state or national scale (usually down to areas covering approximately 100-250 sq kms). It provides part of the context in which individual property management decisions are made.

Probability-based information/forecasts are obtained by analysis of historical records. For example, ‘a 70% probability of below average winter rainfall’, or ‘the chances are that winter rainfall will be below average in seven years out of 10 years’.

The **Southern Oscillation** is a see-saw of air pressure between the eastern equatorial Pacific Ocean and the Indonesian region. When the surface atmospheric pressure is abnormally high over one region, it is usually abnormally low over the other. The Southern Oscillation explains up to 40% of the year-to-year variability in eastern Australian rainfall.

The strength of the Southern Oscillation is measured by the **Southern Oscillation Index (SOI)**, which is the difference in air pressure between Tahiti and Darwin. The SOI usually ranges from -30 to +30.

In a seasonal climate forecast, the **‘lead-time’** is the length of time between issuing of the forecast and the commencement of the period of time that is the subject of the forecast (usually expressed as a number of months).

**Appendix 6: Proposed New Seasonal Conditions Report - Final
Prototype**