

BSES Limited



**FINAL REPORT — SRDC PROJECT BSS294
WHOLE-FARM PLANNING FOR MANAGEMENT OF VARIETIES TO MAXIMISE
PRODUCTIVITY AND REDUCE LOSSES FROM DISEASES**

by

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SUMMARY

The appropriate selection of sugarcane varieties is critical for maximising profitability and sustainability for both growers and millers in the Australian sugarcane industry. Growers are faced with many complex decisions when selecting varieties such as yield potential, suitability to soil type, optimum mix of varieties to maximize sugar content throughout the season, resistance to diseases and pests, ratooning ability and tolerance to stresses such as drought, frost and flooding. This project has developed a web-based variety decision support tool and information resource for the Australian sugarcane industry named QCANESelect™ to help growers make the best variety choices.

There is a link to QCANESelect™ from the BSES home page, or it can be accessed directly at <http://www.bses.org.au/QCANESelect>.

QCANESelect™ provides growers, advisory staff and millers with a wide range of information and advice on varieties which is sourced from the BSES-CSIRO Variety Improvement database, SPIDNet. The information is instantly updated whenever new information is added to the plant breeding database. Access to QCANESelect™ is free to all users. Information and recommendations provided by QCANESelect™ are stored for future use by growers who register with the system.

The first step in the development of QCANESelect™ was to establish focus groups in all regions to ask growers and other industry staff what they would like to see in QCANESelect™ and at each stage of the development of the system these groups were asked to review the prototypes and suggest changes and improvements. QCANESelect™ will continue to evolve as we obtain more feedback from users of the system.

There are six functions in QCANESelect™. They are:

1. *Variety Information*

This section contains links to variety information sheets, variety guides, recommended planting lists, tables of ratings for disease resistance and charts with recommendations for variety by soil class, seasonal sugar, and harvest periods.

2. *Block Recommendations*

This is an interactive function where growers enter information about a specific block such as soil class, diseases of concern, seasonal sugar and other management issues. QCANESelect™ then provides a ranked list of varieties based on the specifications entered by the grower and shows the grower relevant information on the characteristics of each of these varieties.

3. *Whole Farm Planning*

Whole farm planning is another of the interactive functions and perhaps the most powerful farm management component in QCANESelect™. Growers enter their existing farm block details, define rules for variety selection and QCANESelect™ provides recommendations for each block the grower wants to plant over a number of years. The system highlights to the grower variety selections that would conflict with the rules they have established. For example:

- A grower sets a rule for his farm that he wants to limit the percentage of pachymetra root rot susceptible varieties to 40% of the area planted
- He obtains a list of recommended varieties for a block
- The highest ranked variety is susceptible to pachymetra root rot
- If the grower was to plant this variety in this block it would take the percentage of pachymetra root rot susceptible varieties planted on the farm to 50%

- QCANESelect will warn him that this choice would exceed his rule.

This function in QCANESelect™ is designed to help growers maximise profits while managing risk on their farms. When the plan is complete, there are a range of reports providing information on variety composition, crop class, and resistance to diseases, recommended harvest periods and the proportion of the crop planted to varieties with optimum sugar content at different times during the season. These detailed reports on the makeup of their farm(s) assist growers by showing different representations of their current situation. This information allows growers to plan for future years in greater detail.

4. *Regional Reporting*

The regional reporting function provides growers, advisory staff and mills with graphs showing current and past variety composition, productivity and disease resistance on a mill, regional or state basis. In most cases, the user can define the region, years and varieties they are interested in when creating the graphs.

5. *Online Resources*

Online resources provide links to other sources of information on varieties, variety reports, and a variety photo gallery to aid variety identification.

6. *Feedback*

The feedback feature in QCANESelect™ allows users to send comments or observations on varieties to BSES that will help improve future recommendations. Users can also suggest improvements to QCANESelect™.

QCANESelect™ was officially launched by Mr Paul Sgarbossa, BSES Director and Chairman of Burdekin Productivity Services in Ayr on 18 May 2009.

In the first three months after the launch, there were over 300 users of QCANESelect™ and there were more than 700 visits to the web site. One hundred and ninety of the users have registered as growers and the system has also been used by BSES staff, Productivity Service companies, mills and other industry groups. Many visitors have used the guest login option.

A number of growers with large mixed cropping enterprises in the Bundaberg/Isis region have used QCANESelect™ to develop whole farm plans for the sugarcane component of their enterprises. QCANESelect™ has been used in conjunction with farm productivity assessments as part of the reef rescue package. The response from these growers has been very positive, with the farm charts being particularly useful for visualising the different situations on their farm.

QCANESelect™ will have an important role in the future of the Australian sugarcane industry by providing growers with accurate and up-to-date information on varieties and by assisting them to manage risks associated with varieties.

1.0 BACKGROUND

The development and management of sugarcane varieties play an important role in improving productivity and managing the risks of disease epidemics in all sugarcane industries. The Australian sugarcane industry has experienced regular disease epidemics that have been associated with the widespread planting of one variety. When one variety has significantly better productivity than alternative choices, growers make a decision to accept the risks associated with over reliance on this variety to reap the gains from the extra productivity. However, sugarcane is grown in many regions as a virtual monoculture and if this monoculture is planted to one genotype, then diseases and pests that can attack this almost pure stand of one variety are greatly advantaged. It has been the experience in the Australian sugarcane industry that endemic diseases reappear or change, or exotic disease incursions occur, to attack any variety that dominates the industry in a region or regions.

Past epidemics have included:

- Fiji leaf gall reappeared in the Bundaberg/Isis region in 1969 after it was thought to have been eradicated from Queensland and spread in NCo310 in Southern and Central districts when NCo310 comprised >70% of the crop.
- Brown rust was found in Australia for the first time in 1978, and the previously unrecognised disease, pachymetra root rot, was discovered in North Queensland in the late 1970s. These two diseases attacked Q90 in this region when it reached 90% of the crop.
- Orange rust, a disease thought to be of no economic importance, devastated Q124 in 2000 when that variety was 87% of the crop in the Central region, and 60% of the crop in the Herbert and Southern regions.
- Smut was found for the first time in Queensland in 2006 and has rapidly spread to all regions where it is attacking many widely grown varieties such as Q157, Q166[Ⓛ], Q174[Ⓛ], Q205[Ⓛ], Q207[Ⓛ] and Q209[Ⓛ]. In most regions, smut susceptible varieties contributed 70-80% of the crop in 2006 when smut was first found.

Varieties have played a major role in improving the productivity of the Australian sugarcane industry (Cox *et al.* 2000, Cox and Stringer 2005), however, the productive potential of a variety can only be realised if growers plant the varieties that are best suited for an individual block or farm. Growers need to consider a wide range of factors when making variety choices, including:

- cane yield;
- sugar content;
- suitability of the variety to soil type;
- disease resistance;
- germination and ratooning ability;
- reaction to environmental stresses, such as frost, water logging and drought.

When new varieties are released, information on many of these characteristics is limited. The new variety has been tested on limited soil types and may not have encountered all of the environmental stresses that it might face when it is grown more widely across a region. Gathering and disseminating information on new varieties after their release is critical for maximising the potential of the variety, both from an individual grower point of view, and from that of the overall region. Growers gather this information from a wide range of sources. Growers share experiences with other growers and with advisory staff, mill staff and service providers such as planting contractors. Mills provide valuable information on harvest data but these data are limited for a few years after a variety is released and needs careful interpretation because it can be biased by small sample sizes.

BSES provides growers with hardcopy variety information sheets when new varieties are released. These variety information sheets provide the best available information on the variety at the time and must be updated regularly as new information becomes available. The information in the sheets is based on BSES yield trial results, disease resistance tests, observations in trials and propagation plots and, where available, mill harvest data. Observations are provided by BSES variety officers, extension staff, Productivity Service staff, growers and other industry groups. Variety information meetings are held regularly to update growers on the latest information on varieties and despite being generally well attended, cannot by definition reach all growers.

In recent surveys conducted by BSES, growers identified variety information as their highest priority for development of web-based information systems. The objectives of this project were to develop a web-based variety information and decision support tool that would provide growers with up-to-date variety information and to assist them to make the complex decisions involved in optimising variety composition on their farm.

In recent years, a number of computer-based tools have been developed to help growers and advisory staff to record information and improve farm management, including:

- FEAT - for comparing the financial impact of farm decisions (Stewart and Cameron, 2006)
- Prodbase Plus - a spatial farm productivity data recording and reporting system (Markley et al., 2008)
- SugarMax - a tool to simulate different harvest schedules to maximise sugar content (Prestwidge et al., 2008).

When developing any new product, it is important to involve the end user. Lynch et al. (2000) suggested that the adoption of new products will be limited, and perhaps the product may ultimately fail, if end users are not consulted early in the development process.

An example of the limited success of a decision support tool is APSIM, which was developed by the Agricultural Production Systems Research Unit (APSRU), in Toowoomba, Queensland. The researchers and developers behind the system were aware of its complexity, and its ease of use was limited for the farming community, so they took the approach of 'co-operative learning', whereby the researchers ran seminars with growers running through various scenarios to help growers gain an understanding of the system. Lynch et al. (2000) explains that this was a terminal fault with the system, primarily because it was a complex application, and not user friendly. The co-operative learning being conducted after the development, and not during, combined with the complexity of use of the system led to reduced uptake.

Other adoption issues concerning decision support tools are the relevance of the system and its information. MY Canesim was a decision-support tool for irrigation for the South African sugar industry and was based on computer models and SMS communication with growers. MY Canesim faced technological challenges relating to the speed and relevance of the information supplied via the system. The supply of non-relevant information led to growers abandoning the system. Singels (2008) suggests that growers did not agree with all the information provided and were subsequently not going to use the system long term.

The lessons learnt from failures to gain widespread adoption of APSIM and MY Canesim are very relevant to QCANESelect™. The development of QCANESelect™ focused on direct input and consultation with growers at all stages of the project to ensure the system is easy for growers to use and contains information which is relevant and up-to-date.

2.0 OBJECTIVES

Appropriate variety selection and variety-specific management are key components in improved farming systems and in minimising biological constraints. This project aimed to develop a whole-farm decision-support tool for growers and advisory staff to assist them to select a balanced mix of varieties that maximises productivity while effectively managing risks from potential pest and disease outbreaks.

The project objectives were to be achieved by:

1. Working with grower groups in the Queensland and New South Wales regions to develop a decision-making framework for a whole-farm plan for varieties.
2. Building the whole-farm model for variety selection into a web-based decision-support tool linked to the BSES-CSIRO SPIDNet plant-breeding database so that growers and advisory staff can access the most up-to-date recommendations for a whole-farm plan for varieties.
3. Evaluating the web-based decision-support system with grower groups and refining the program as required.
4. Promoting the web-based decision-support program in all regions.

3.0 ACHIEVEMENT OF OBJECTIVE 1

Working with grower groups in the Queensland and New South Wales regions to develop a decision-making framework for a whole-farm plan for varieties.

3.1 Focus Groups and Surveys

Surveys and focus groups were used to understand how growers and advisory staff currently gather information and make decisions on what variety to plant or recommend.

Focus groups

Grower focus groups were conducted in most regions to obtain detailed information on how growers approach variety selection. At these meetings, growers were provided with a workbook that provided a background to variety selection and were then asked to complete a number of exercises. A summary of the level of focus group attendance is shown in Figure 1, with more detail available in *Appendix 1 – Focus Groups*.

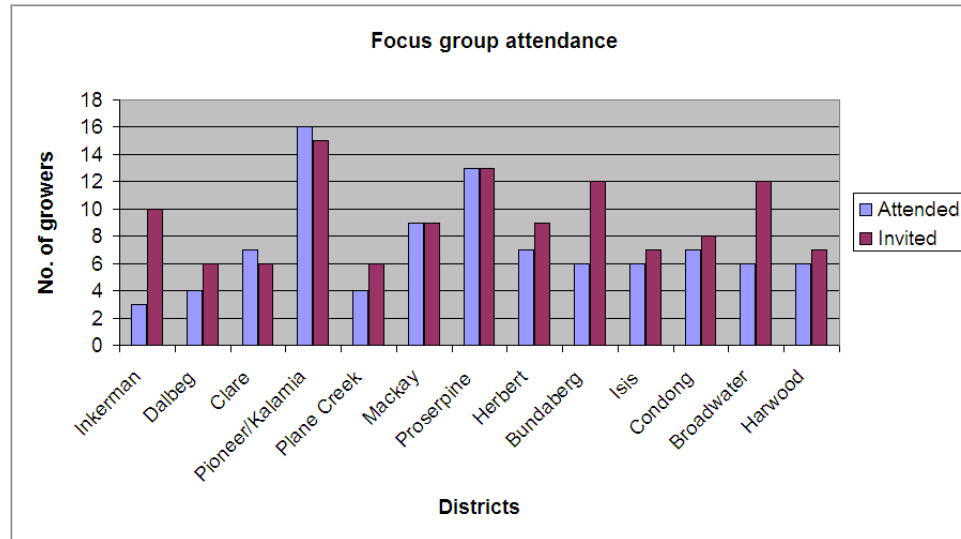


Figure 1 - Focus group district and attendance

The workbook used within the focus groups is available as BSES Technical Manual MN07001 from the BSES library and is attached to this report as *Appendix 2 – Project Workbook for focus groups*, together with a summary of regions in which the focus groups met and the number of attendees. The workbook was developed along the lines of the Ian Plowman concept of *think, write, speak* that encourages feedback from all group members, not just the loud and extroverted participants.

The exercises explored what growers considered the most important variety characteristics when they selected varieties, what they liked and disliked about existing variety information sheets, how they would approach selecting a variety for a block on their farm and their individual attitude to risk and how this may affect their subsequent variety choices.

Surveys

Individual growers, advisory staff and other industry groups were surveyed about where they obtain information on varieties, how they make variety choices and what information would help them in making decisions about varieties. Industry surveys are discussed in more detail in *Appendix 3*, grower surveys in *Appendix 4* and extension surveys in *Appendix 5*. Key points from the surveys, and responses from 2009 surveys, are compared to the original survey results and are discussed in detail in *Section 5.0 Achievement of Objective 3* which deals with the evaluation of the tool. Growers and other industry staff were surveyed from a number of regions to obtain a good cross section of opinions.

3.2 The Development Team

The outputs from the focus groups and the grower and industry surveys were presented to the development team together with a model that would form the basis of QCANESelect™. The development team consisted of all members of the project team, including programming staff, key extension officers, and growers in the regions that the meeting was held, along with SRDC, Productivity Board, sugar mill personnel and a Futurecane economist. The development team meetings, including meeting

programs and key results are discussed in *Appendix 6 – Development team meetings*.

Using the results of the surveys and focus groups, the project team designed a draft model of the tool with the following key functions:

- variety information;
- individual block recommendations;
- whole-farm plans;
- regional reports on varieties;
- feedback.

At all stages of development, the design and subsequent prototype components of the system were reviewed by the development team. In the later stages of development, the focus groups reviewed advanced prototypes of the system. All feedback from the development team and focus groups was used to modify and improve the prototypes throughout the development process to produce the final version.

4.0 ACHIEVEMENT OF OBJECTIVE 2

Building the whole-farm model for variety selection into a web-based decision-support tool linked to the BSES-CSIRO SPIDNet plant-breeding database so that growers and advisory staff can access the most up-to-date recommendations for a whole-farm plan for varieties.

4.1 Programming and data management

The data that QCANESelect™ uses to provide variety information and recommendations is stored in SPIDNet, the BSES-CSIRO Variety Improvement database. SPIDNet contains all data collected by BSES on individual varieties including pedigree, yield data from trials, disease resistance ratings, quality characteristics, growth and management characteristics and mill statistics, but is a scientific database unsuitable for grower enquiries. QCANESelect™ provides growers and advisors with access to the relevant parts of this extensive database in a grower-friendly format.

After discussions within the development team, specifications were written for the different components of QCANESelect™. Microsoft Visual Studio 2005 was used by the project team to create prototype pages and functions and specifications were written as Use Cases. A Use Case indicates a user interface with a computer on a step by step basis and allows for complex functionality to be broken down into a series of individual steps followed by the assumed system response. *Appendix 7* shows the Whole Farm Plan Use Case. The prototype pages and Use Cases were provided to the computer programmers to design and write the computer programs. The programmers used the toolset listed in Table 1 to produce QCANESelect™.

There is a link to QCANESelect™ from the BSES home page, or it can be accessed directly at <http://www.bses.org.au/QCANESelect>.

Table 1 – Technical Specifications for QCANESelect™

Toolset	Product/Version
<i>Development Environment</i>	Microsoft Visual Studio 2005 Microsoft .NET Framework Version 2.0
<i>Development Language</i>	Microsoft Visual C# 2005
<i>Database</i>	Microsoft SQL Server 2005
<i>Reporting Software</i>	Data Dynamics ActiveReports for .NET 2.0
<i>Interface Controls & Charting Software</i>	Infragistics NetAdvantage 2006 Volume 2 CLR 2.0

4.2 Variety Information Page

The first of the functions to be developed was the Variety Information page shown in Figure 2 in its completed form, and is a typical example of the QCANESelect™ user interface. From this page, growers can obtain:

- Variety Guides: an entire, up-to-date variety guide which is identical to the paper versions previously distributed by BSES;
- Variety information sheets: used to obtain information on a single variety, particularly useful with the release of a new variety(s);
- Variety links: providing further information on varieties, including variety photographs for identification purposes;
- Variety comparison reports: by using the tick boxes, QCANESelect™ can produce variety information in an easy-to-follow format to compare different varieties. This information is the same as given in the Variety Information sheets and the comparison report is similar to the fold-out variety guides that were popular in some regions;
- Suggested harvest periods for varieties : this allows growers to see at a glance the best time to harvest a variety and to compare the recommended harvest times for different varieties;
- Soil recommendation tables : providing lists of varieties ranked in order of performance for each of the soil classes in a region;
- Rating reports: providing users with the ability to select diseases, management issues or seasonal sugar and download a table with the ratings for the selected feature for all varieties in a region.

Variety Information

Select a Region

Burdekin

Variety Information Sheet	Include in Comparison Report Select All <input type="checkbox"/>
Q232	<input type="checkbox"/>
KQ228	<input type="checkbox"/>
Q208	<input type="checkbox"/>
Q200	<input type="checkbox"/>
Q183	<input type="checkbox"/>
Q177	<input type="checkbox"/>
Q171	<input type="checkbox"/>
Q133	<input type="checkbox"/>
Q96	<input type="checkbox"/>

Variety Guide

[Comparison Report for Selected Varieties](#)

[Suggested Harvest Periods](#)

[Soil Recommendations](#)

Ratings Reports

Disease

Include varieties not recommended

Management Issue

Seasonal Sugar

Figure 2 – The QCANESelect™ Variety Information page

4.3 Yield Scores

To make recommendations, QCANESelect™ uses a term called a yield score. A yield score allows the ranking of variety performance by soil classification and is a key element of the system. Specific data on the performance of varieties on different soil types are not available from many mills and BSES trials can only be conducted on a limited range of soil types. Even where mill data are available, they often require careful interpretation because the results for a variety may be heavily biased due to a small sample of fields, disproportionate representation of plant and young ratoons, or older ratoons, and many other environmental factors.

To overcome this problem, the project team developed the concept of a yield score, and defined it as *the best estimate of the performance of a variety in both plant and ratoon crops, over a normal crop cycle, on a \$/ha return basis*. Expert knowledge from extension officers, plant breeders and Productivity Service staff together with the analysis of BSES trial and local mill data, were used to estimate yield scores for each variety for each of the soil classes within a region.

An example of yield scores in the Bundaberg/Isis region is shown in Table 2. A yield score of 10 indicates that this variety is the first-choice variety for that particular soil class. Yield scores will be reviewed annually and updated as necessary, taking into consideration new data and the relative performance of varieties.

If growers plant the best yielding variety for a particular soil class and also manages an appropriate mixture of varieties to manage risk, real improvements in region yield and sustainability should be possible.

Table 2 – Sample yield scores for Bundaberg/Isis

QCANESelect Variety Selection Ratings - Bundaberg/Isis						
Variety	Yield Score by Variety					
	Alluvials	Black Clay	Grey Forest	Poor Grey Forest & Sands	Red Forest	Red Volcanic
KQ228	8.0	8.5	8.5	9.0	8.5	8.0
Q135	9.0	9.5	6.5	7.0	9.0	9.0
Q146	8.0	9.0	7.5	7.5	8.5	8.0
Q151	9.0	9.0	8.5	8.5	9.0	9.0
Q155	8.5	10.0	7.5	7.5	9.5	9.5
Q177	8.5	9.0	8.5	8.0	9.0	8.5
Q190	8.0	8.5	8.5	8.5	8.5	8.0
Q200	9.5	9.0	8.5	8.0	9.0	9.0
Q208	10.0	10.0	10.0	10.0	10.0	9.5
Q232	10.0	10.0	10.0	10.0	10.0	10.0

4.4 Disease Ratings

Disease resistance ratings for varieties are obtained by BSES from screening trials conducted each year. BSES pathologists have estimated the average yield loss, on the same scale as the yield score, over a crop cycle for varieties with different disease resistance ratings, for each of the important diseases in a region (Table 3). The ISSCT disease rating scale of 1-9 is used, where 1 is highly resistant and 9 is highly susceptible. The yield score is adjusted by applying the disease penalties to the yield scores *if the grower nominates that disease as being of concern to him*. In a small number of cases, a bonus was applied for varieties that were resistant to diseases such as striate mosaic. This was done to promote a variety that was resistant to the disease but would otherwise not be considered purely on its yield score.

Table 3 – Disease penalties for Bundaberg/Isis

QCANESelect Variety Characteristics Algorithm Ratings												
Bundaberg / Isis Region			PQA 5									
Diseases	Relevant to Bioregion (Y or N)	Importance (1 or 2)	Disease resistance rating									
			1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	
Brown Rust	Y	2	0.00	0.00	0.00	0.00	-0.10	-0.20	-0.50	-1.00	-2.00	
Orange Rust	Y	1	0.00	0.00	0.00	0.00	-0.10	-0.50	-1.00	-2.00	-3.00	
Fiji Leaf Gall	Y	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Leaf Scald	Y	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Mosaic	Y	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Pachymetra	Y	1	0.00	0.00	0.00	-0.10	-0.20	-0.50	-1.00	-3.00	-4.00	
Smut	Y	1	0.00	0.00	0.00	-0.10	-0.50	-1.00	-10.00	-10.00	-10.00	
Red Rot	Y	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Yellow Spot	N											
Chlorotic Streak	N											
RSD	N											
Striate Mosaic	N											

4.5 Management Issues

Growers and advisory staff identified key plant and management issues for each region. Only issues for which meaningful ratings for varieties could be assigned were included. The panel of experts for each region that assisted in setting the yield scores also classified varieties as poor, average or good for each management issue. For some issues such as suitability for standover or 2-year cane in New South Wales, the varieties were rated only as yes/no for suitability. If a grower indicates that a

management issue is of concern, then the system will check to see if the characteristic is marked as a filter and, if it is, any variety rated as “poor” will be dropped from the recommendation. Some characteristics such as canegrub tolerance are not marked as a filter. In this case, it was decided after discussion with BSES entomologists, that the rating will be highlighted but varieties rated as poor will not be excluded. This is because BSES entomologists recommend that growers, wherever possible, control canegrubs with integrated pest management techniques. Table 4 shows a sample of ratings for plant and management characteristics for the Bundaberg/Isis area.

Table 4 – Management issues ratings table for Bundaberg/Isis

QCANESelect Variety Selection Ratings - Bundaberg										
Yield Score by Variety										
Ratooning										
Seasonal Sugar			Grub	Fast and	Ratooning	Ratooning	Susceptible to	Frost	Drought	
Early	Mid	Late	Tolerant	Reliable	under good	under	Waterlogging	Tolerance	Tolerance	
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Filter	N/A	N/A	N/A	No	Yes	Yes	Yes	Yes	Yes	
Variety										
Q135	Poor	Average	Good	Poor	Good	Average	Poor	Poor	Average	Poor
Q146	Good	Good	Average	Poor	Good	Good	Poor	Average	Poor	Poor
Q151	Good	Good	Poor	Poor	Good	Good	Poor	Average	Average	Poor
Q155	Good	Good	Average	Poor	Good	Average	Poor	Average	Good	Poor
Q177	Poor	Average	Good	Unk	Average	Good	Average	Unk	Average	Unk
Q190	Average	Average	Average	Average	Good	Good	Average	Unk	Average	Average
Q200	Average	Good	Good	Unk	Good	Good	Poor	Poor	Poor	Poor
Q208	Average	Good	Good	Unk	Good	Good	Good	Average	Average	Average
KQ228	Good	Average	Poor	Unk	Good	Good	Average	Average	Unk	Average
Q232	Poor	Average	Good	Unk	Average	Average	Average	Average	Good	Average

4.6 Seasonal sugar

Optimising the mix of varieties that have the best relative sugar content at different times of the season is a key management practice. QCANESelect™ applies a penalty or a bonus depending on a variety’s rating for relative sugar content for early, mid and late season harvest (Table 4).

4.7 Block Recommendations

The block recommendations section of QCANESelect™ provides growers with a specific recommendation for an individual block based on characteristics of the block that are defined by the grower. The minimum requirement is for the grower to nominate a soil type for the block. However, the grower can nominate other key issues associated with that block and QCANESelect™ will combine the yield score, disease penalties and scores for plant and management issues to provide the best variety that meets the requirements specified by the grower. Figure 3 shows an example of the block recommendation page.

BSES QCANESelect
variety selection made easy

New Block Recommendation David Millard

Home | Variety Information | **Block Recommendation** | Regional Reporting | My QCANESelect | Admin | Logout

New Block Recommendation

Region: Southern Bundaberg-Isis

Soil Class *

- Black Clay
- Grey Forest
- Heavy Alluvials
- Poor Grey Forest & Sands
- Red Forest
- Red Volcanic

Diseases of Concern

- Smut
- Brown Rust
- Fiji Leaf Gall
- Leaf Scald
- Mosaic
- Orange Rust
- Pachymetra
- Red Rot

Management Issues

Seasonal Sugar

- Best All Round CCS
- Early
- Mid
- Late

- Cane Grub Tolerance
- Fast and Reliable Germination
- Fast and Reliable Ratooning in Good Conditions
- Fast and Reliable Ratooning in Harsh Conditions
- Drought Tolerance
- Waterlogging Tolerance
- Frost Tolerance

* Required Field

Figure 3 – Block Recommendation selection criteria for Bundaberg/Isis region

If the grower selects Grey Forest soil in this example, and clicks on the “Get Recommendation” button, QCANESelect™ will use the soil class and find the recommended varieties for the region that match (Figure 4). The varieties will be displayed to the grower in order of their yield score.

Region	Soil Class	Date	Time	User
Southern Bundaberg-Isis	Grey Forest	05/12/2008	10:16 AM	David Millard
Recommendations	1st	1st	3rd	3rd
Variety	Q232	Q208	Q235	KQ228
Smut	Resistant	Intermediate - Resistant	Resistant	Resistant
Include In Comparison Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Variety Links				Links

Figure 4 - Soil class as only selection criteria

If the grower nominates smut and pachymetra as diseases of concern and ticks “Early Sugar”, indicating they are interested in varieties that have better-than-average CCS early in the season, the variety recommendation changes (Figure 5). In both recommendations, the smut resistance of the varieties is shown. This feature is to highlight to growers the importance of smut resistance during the next few years. The penalty for smut is only applied if the grower ticks smut as a disease of concern.

If a grower wants more information on the first two choices, they can go directly to a variety information sheet or comparison report.

Region	Soil Class	Date	Time	User
Southern Bundaberg-Isis	Grey Forest	05/12/2008	10:20 AM	David Millard

Recommendations	1st	2nd	3rd	4th
Variety	Q208 [Ⓛ]	Q235 [Ⓛ]	KQ228 [Ⓛ]	Q232 [Ⓛ]
Smut	Intermediate - Resistant	Resistant	Resistant	Resistant
Pachymetra	Intermediate	Resistant	Intermediate	Intermediate
Early Sugar	Average	Good	Good	Poor
Include In Comparison Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Variety Links			Links	

Figure 5 - Soil class, smut and pachymetra root rot resistance and early sugar used as selection criteria.

4.8 Whole farm plans

The whole farm plan function allows growers to set rules or targets for specific risk-management issues that are of concern to them. BSES recommends that growers limit the percentage of any one variety on their farm to 30-40% in order to spread their risk in the same way that investors look at a managed portfolio of stocks rather than investing in a single stock. In the whole farm plan, the grower can set a target limit on the proportion of one variety and can also set limits for the percentage of varieties on the farm that are susceptible to particular diseases or set a target for the proportion of varieties ranked good for early, mid or late season harvest. The system looks at data on all the current varieties on the farm when making recommendations for the blocks the grower nominates for planting. Any variety selection that violates the grower's own rules will be highlighted on the recommendation page and the rules that have been broken will be explained. The grower can accept the recommendation made by the system or override the outcomes and accept a variety that has been excluded. Alternatively, a grower can run the system again with modified rules until he is happy with the recommendations. The variety selections are displayed in a page similar to that used for the individual block recommendations (Figure 6), so growers can see how the selection was made.

Region Burdekin **Mill Area** Inkerman **Plan** Dave Test again
Farm 2251 **Block** 5 **Area** 53.93 **Soil Class** Cracking Clay

Select a variety that exceeds a rule

Recommendations	1st	2nd	3rd	4th
Variety	Q183[Ⓛ]	KQ228[Ⓛ]	Q208[Ⓛ]	Q200[Ⓛ]
Select for Planting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smut	Intermediate	Resistant	Intermediate - Resistant	Resistant
Early Sugar	Average	Good	Average	Average
Mid Sugar	Good	Good	Good	Average
Late Sugar	Good	Average	Good	Average
One Variety Maximum 35%	29% ✓	46% ✗	83% ✗	29% ✓
Include In Comparison Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Variety Links	Links	Links	Links	Links

Figure 6 - A typical recommendation page from a whole farm plan. The arrows highlight choices that would exceed the “One Variety Maximum” rule.

Whole farm reports are available in table and graphical format of the variety composition, crop age composition (Figure 7), disease resistance, and plant and management characteristics of the varieties on his farm today and in future years.

Varieties that exceed a rule are greyed out and the rule that was violated and the actual percentage of the crop for that character for each variety that violates the rule is shown in red. Users can jump around in the whole farm plan by using a Progress bar that gives easy one click links to all components in the plan (Figure 8).

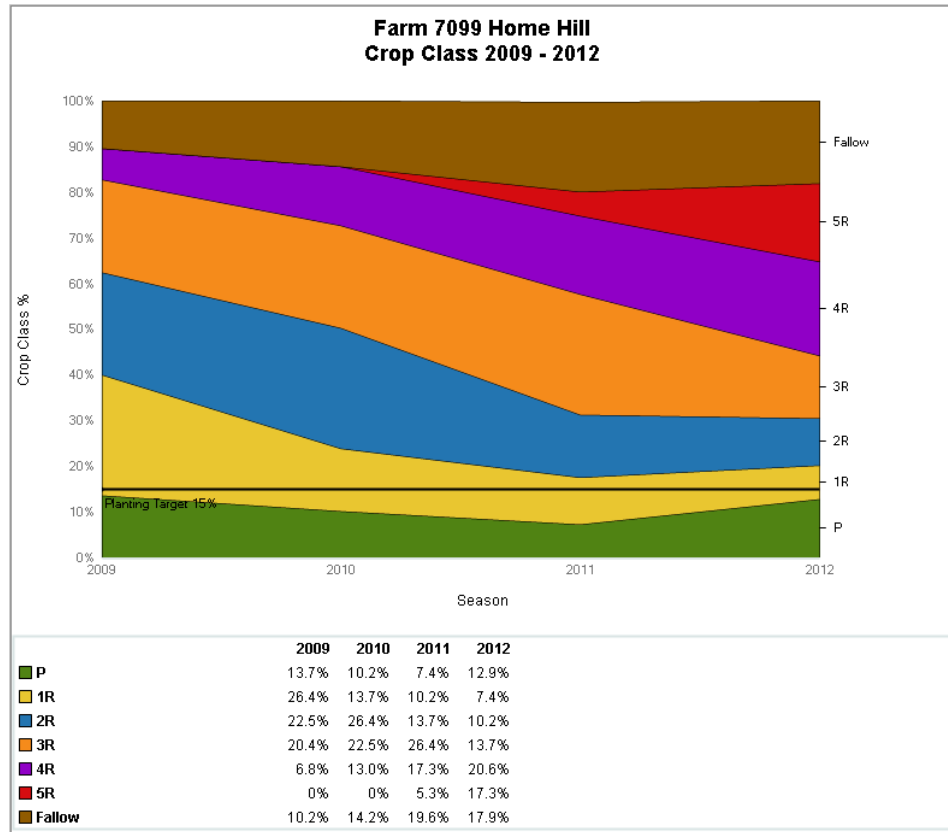


Figure 7 - Crop age composition of a farm

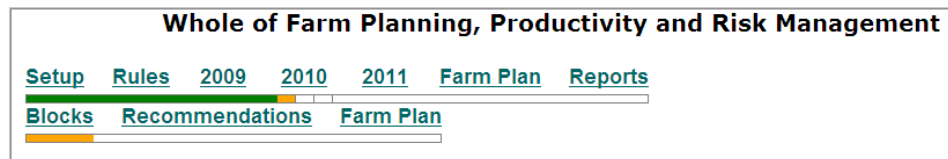


Figure 8 – Whole farm plan Progress Bar

4.9 Regional Reporting

The regional report function provides growers, advisory staff and mills with graphs showing current and past variety composition, productivity and disease resistance on a mill, regional or state basis. In most cases, the user can define the region, years and varieties that they are interested in when creating the graph. This should be a very useful tool for advisory staff in tracking changes in varieties over time. It will also give an instant update of how, for example, the shift to smut-resistant varieties is progressing in a region.

Reports can be generated across a region for:

- Crop size including area under cane and tonnes of cane;
- Tonnes of sugar per hectare (TSH);
- Tonnes of cane per hectare (TCH);

- Variety composition;
- Sugar content (CCS and other sugar content measures);
- Proportion of the crop resistant to major diseases.

Alternatively reports can be produced for a range of user specified varieties within a region for a similar list of production statistics. An example of a regional report on the proportion of the crop contributed by varieties susceptible, intermediate or resistant to smut from 2002 to 2008 in the Herbert region is shown in Figure 9.

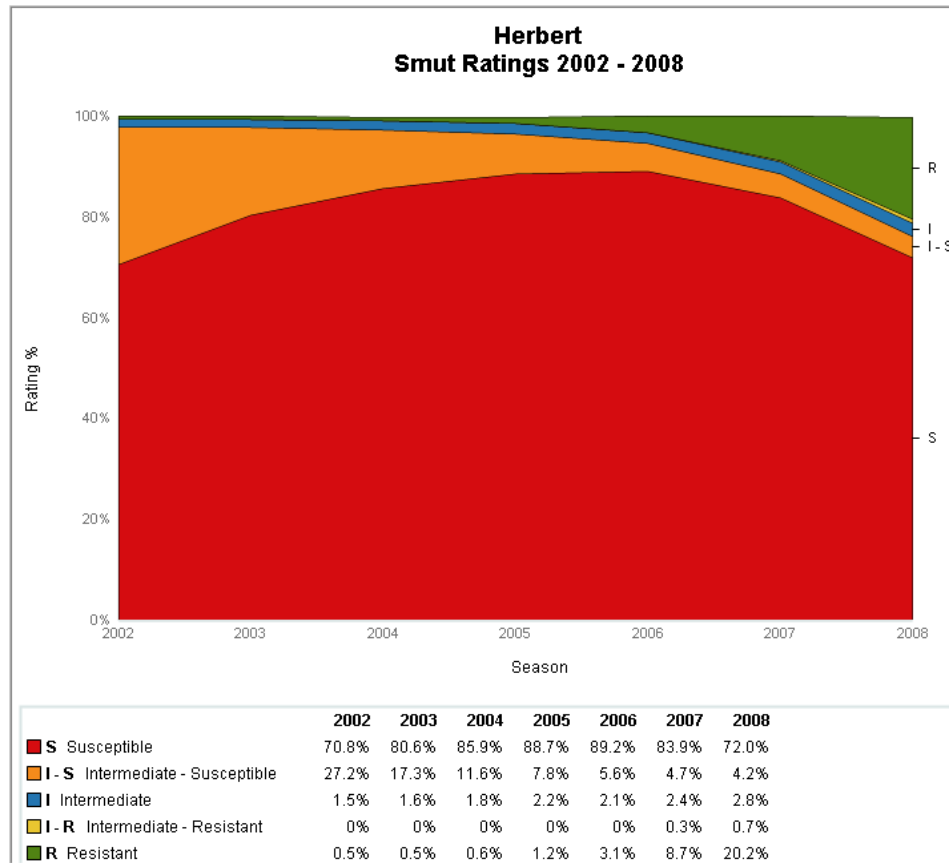


Figure 9 – Smut resistance of the crop in the Herbert from 2002-2008.

4.10 Feedback

One of the critical elements of the project has been to ensure that users of QCANESelect™ can provide feedback to BSES, so that their experience can be used to improve future recommendations. Feedback is emailed automatically to a local BSES staff member in each region so they can discuss a grower’s comments on a variety or suggestions for improvement of QCANESelect™. A range of improvements to QCANESelect™ have already been made as a result of feedback received from advisory staff and from growers. In the Central region, local focus groups known as “groups of passion” are using the feedback function (Figure 10) as a means of ensuring that variety feedback from their growers is delivered back to the project team.

Recommendation Feedback				
Region	Soil Class	Date	Time	User
Burdekin	Silty Loam	05/11/2009	3:07 PM	David Millard
Recommendation Criteria				
Smut				
Leaf Scald				
Best All Round CCS Sugar				
Fast and Reliable Germination				
Fast and Reliable Ratooning in Harsh Conditions				
Your comments will be emailed to BSES staff in you local region.				
Comments	When can I get some of the Q200?			
Do you wish to be contacted by BSES staff regarding these comments? <input checked="" type="checkbox"/>				

Figure 10 - Feedback sent from a Block Recommendation page

5.0 ACHIEVEMENT OF OBJECTIVE 3

Evaluating the web-based decision-support system with grower groups and refining the program as required.

5.1 Surveys

In the early stages of the project, it was important to gain an understanding of the industry's attitudes towards computer based decision-support tools to assist in developing a tool that would be useful for growers, and more importantly, would be used by growers. Surveys were conducted to find out whether growers, extension and other industry staff would like a web-based variety decision support tool and what they would like included. After the official launch, more surveys were conducted of growers and extension staff, to assess attitudes towards the finished product and to see if there had been any paradigm shift within each group, and also to see if there were major attitude differences between the groups.

Grower, industry and extension surveys are discussed in detail in *Appendices 3 to 5*, and the key points are repeated and expanded on here.

In 2007, 76% of growers surveyed had access to the internet, and 84% of respondents said that they would use a web-based system for variety selection. Examples of grower comments on using such a system were that the system must:

- Be well maintained and up-to-date;
- Allow quick and easy use to obtain information;

- Permit growers to make more informed decisions.

These statements reflect the common themes in many responses, with easy access to variety information, and having the most up-to-date information available being high on most growers' priorities. QCANESelect™ has been designed with these points in mind, and one of its main features is simple and easy access to the latest and most up-to-date data, as opposed to paper versions of variety guides which can quickly go out of date.

After the extension campaign and official launch of QCANESelect™, growers were surveyed again in September and October 2009. Growers who had logged onto QCANESelect™ were asked where they'd heard about it, why they'd logged on (Figure 11) and what functions they'd used in the system. Results suggested that growers were informed about QCANESelect™ via a wide range of sources including shed meetings, newsletters and BSES Bulletins. The main reason growers used QCANESelect™ was to get general variety information, while some growers were interested in specific disease ratings, especially resistance to smut. The 2009 survey also showed that a small number of growers logged on to complete a whole farm variety plan.

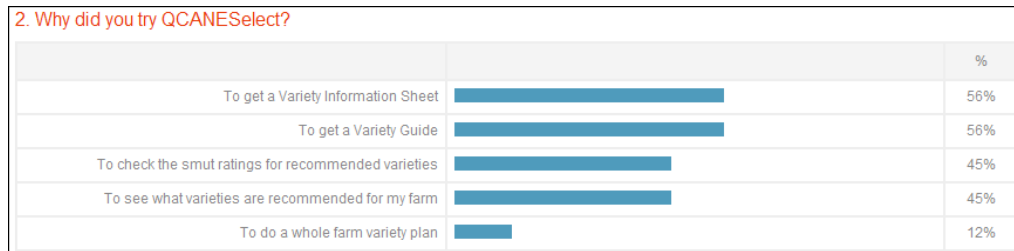


Figure 11 – Results of an Online Grower Survey conducted in November 2009 to the question “Why did you logon to QCANESelect™?”

A telephone survey was conducted in October 2009 which showed similar results to the online survey. The telephone survey gave a more conclusive result with 100% of respondents saying general variety information was their main driver for using the system and only 10% of growers saying they wanted to do a whole farm plan (Figure 12). These results were backed up by the usage statistics logged within the system which showed that most users were visiting the variety information pages to download variety information sheets, variety guides and other general variety information.



Figure 12 – Results of telephone Grower Survey conducted in October 2009 to the question “Why did you try QCANESelect™?”

The results from the 2009 survey agreed with the survey conducted in 2007 that growers want up-to-date and relevant variety information. Since the launch of

QCANESelect™ some extension staff have suggested to growers that they download variety information sheets from QCANESelect™ rather than obtain hardcopies of the sheets and this has further encouraged growers to use QCANESelect™. Where growers did not have access to the internet or are reluctant to use QCANESelect™, they have asked the extension staff to access QCANESelect™ on their behalf.

Telephone surveys and conversations with growers at shed meetings and field days clearly show that they have their own opinions about variety selection and planning. It is important to note that the system is used as a guide only, and some feedback suggests that growers believe they already have an understanding of variety planning and thereby feel that there isn't a need to use the whole farm plan elements of the system. When asked during the surveys about having an extension officer complete a variety plan for their farm, all growers declined. This could be due to the timing of the survey at the end of the harvest season when growers are busy and have already completed their planting for this year.

A number of growers with large mixed cropping enterprises in the Bundaberg/Isis region have used QCANESelect™ to develop whole farm plans for the sugarcane component of their enterprises. QCANESelect™ has also been used in conjunction with farm productivity assessments as part of the Reef Rescue package. The response from these growers has been very positive, with the farm charts being particularly useful for visualising different aspects of their farm. Further effort is required to promote the benefits of whole-farm variety plans outside of specific situations like those mentioned above.

Growers are happy to use the system with 100% of respondents to both surveys suggesting that they would continue to use the system, a good result indicating the system is easy to use with no major issues that appear to discourage ongoing use. A number of growers have asked for the regional reports to contain graphs of seasonal sugar content. This data has been requested from mills for the 2009 season, and will be incorporated in QCANESelect™ in the near future.

Responses to offers of training in the regions were also conclusive, with most growers declining the opportunity to attend training sessions with BSES extension staff. Productivity Service companies and one mill in the northern region have shown interest in training in the next few months. This training has particular merit as Productivity and Extension staff are in close contact with growers and can continue to encourage growers to log on to the system. Once again, the response to this question may be timing related as most growers have completed their planting for this season.

Extension and advisory staff were surveyed for their thoughts and opinions towards QCANESelect™. Areas of interest to the project team in these survey results were the attitudes of extension staff towards growers using computer-based management tools, possible uptake of the system, and how QCANESelect™ might influence variety selection and adoption. The data collected in 2007 and 2009 from extension staff doesn't show any significant change in attitudes, but more of a spread of opinions.

When asked about the acceptance of computer-based management tools, advisory staff believe there is greater acceptance in 2009 than there was in 2007 (Figure 13). This is in part due to the acceptance of QCANESelect™ but also reflects the rapidly changing attitudes of the general public to computers and internet services.

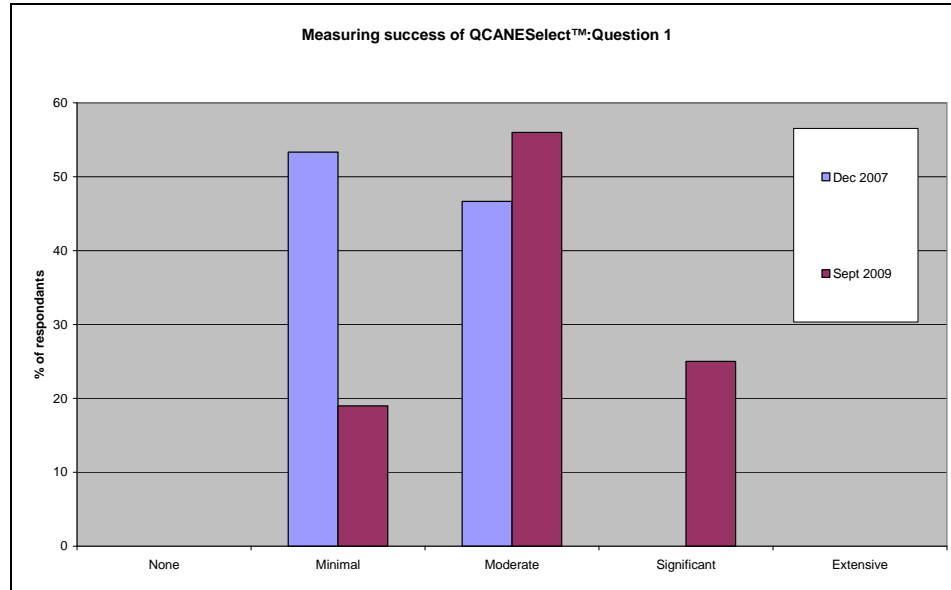


Figure 13 – Extension staff assessments of the likely grower acceptance of computer-based management tools

Extension staff were asked to give an estimate of grower usage of QCANESelect™ over the next 5 years. In 2007, staff gave a more optimistic response for grower usage in the early years after launch of the tool than in 2009, being more than double that of their estimate in 2009. The low estimate for early years after release was biased by a few very pessimistic estimates. The estimates at the end of five years show the 2009 survey responses slightly higher than those from 2007. The 2009 survey probably provides a more realistic estimate because extension staff now know how QCANESelect™ works and what information it provides (Figure 14).

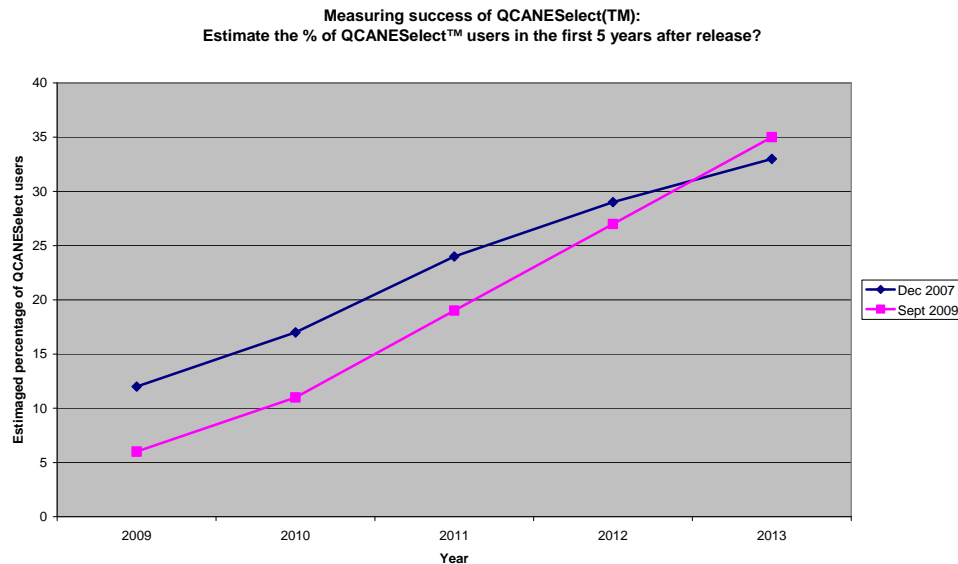


Figure 14 – Extension staff assessments of the likely uptake of QCANESelect™ by growers.

Extension staff had a similar assessment of the effect that QCANESelect™ would have on variety adoption in 2007 and 2009. The majority suggested that QCANESelect™ would have a moderate effect on variety adoption. In 2009, there was an increase in the proportion of extension officers who thought that QCANESelect™ would have minimal effect on variety adoption and an increase in the number who thought it would have extensive influence (Figure 15).

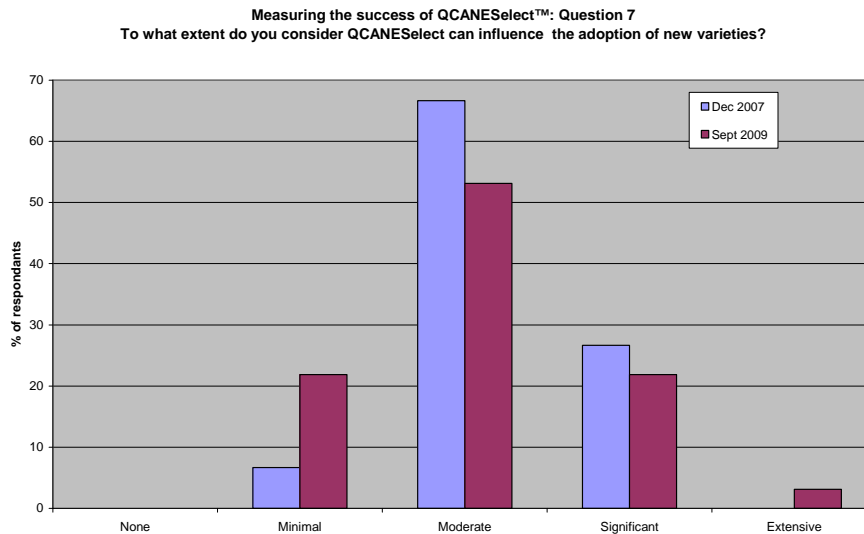


Figure 15 – Extension officer’s assessment of the likely extent to which QCANESelect™ will influence adoption of varieties.

5.2 Observations/Discussions

During the development of the system, user feedback has played an important role in allowing the project team to set priorities and design paths, and help to fine tune the system. Feedback, like extension services, is available in many different forms. The QCANESelect™ project team used feedback functionality built into the system, where growers provide feedback directly to the team via auto-generated emails. Feedback has also been gathered via the telephone and email surveys, along with one to one extension. An enthusiastic grower, who was also a member of the development team, allowed us to discuss his own whole farm plan spreadsheets at a development team workshop, and provided good feedback on early development of the whole farm plan prototypes. Another grower suggested that we should allow blocks to be recombined in future years as well as being split. This change has been implemented.

The project team has made a point of always contacting any user that sends feedback. Feedback that results in an improvement in the system gives growers a sense of ownership of the system, leading to more growers wanting to use QCANESelect™ and be a part of something new and exciting.

5.3 Training Objectives

Training manuals that can be printed as a hardcopy have been prepared for use in grower and industry sessions where the system is introduced. A copy of the manual is listed in *Appendix 8 – QCANESelect™ Training Manual*. While surveys of growers indicate little interest in training for QCANESelect™, we expect that more growers will be interested prior to the next planting season. For the same reason, a full help system was developed and is available to all users. *Appendix 9 – Example from QCANESelect™ Online Help Manual* shows the help page for Importing block details into the whole farm plan function.

The project team continues to offer training to growers in newsletters and at shed meetings and will pursue a strategy to train extension and advisory staff in the use of whole farm plans so that they have the required skills to promote the benefits to growers. Grower training will concentrate on variety information and any other functions that the growers are particularly keen to use. One request came through the surveys for online training and the use of tutorials to guide users through the more complex functions. It may be possible to convert the training manual to an online training package with the assistance of experts like Henry Thomas from ShedMeeting.com, who is preparing a video presentation of QCANESelect™ to be listed on the ShedMeeting website.

5.4 Usage Statistics

QCANESelect™ has the ability for administrators to log usage of the system. This has allowed the project team to track how the system is being used, by region and by the function viewed in the system. Further analysis needs to be conducted during and after the 2010 planting season to check adoption levels.

For this report, usage statistics were gathered from July to November 2009. Data collected shows the grower user name (if registered), the page that was viewed, reports generated and the date. The login data has matched project team expectations where highest usage was considered to be prior to and during the planting season, and subsequently reducing after that time until the next calendar year (Figure 16).

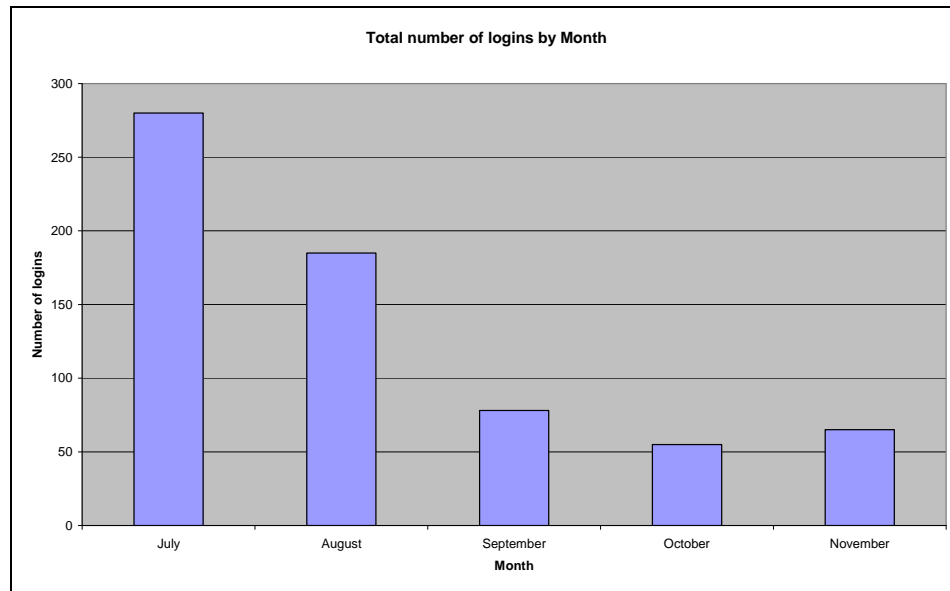


Figure 16 – Login data from July to November 2009.

Figure 17 compares registered user and guest user logins from September to November 2009 (guest user logins were not logged until the beginning of September). There is a strong trend showing a high percentage of users have taken the time to register. The logon statistics from September to November also confirm the seasonal usage assumptions of the project team, in that growers will be more likely to use the system around planting time, during spring and autumn. The increase in November logins in Figures 16 and 17 and the increased use of variety information resources in November (Figure 18) can be attributed in part to QCANESelect™ training given to Babinda cane inspectors on 19 November 2009.

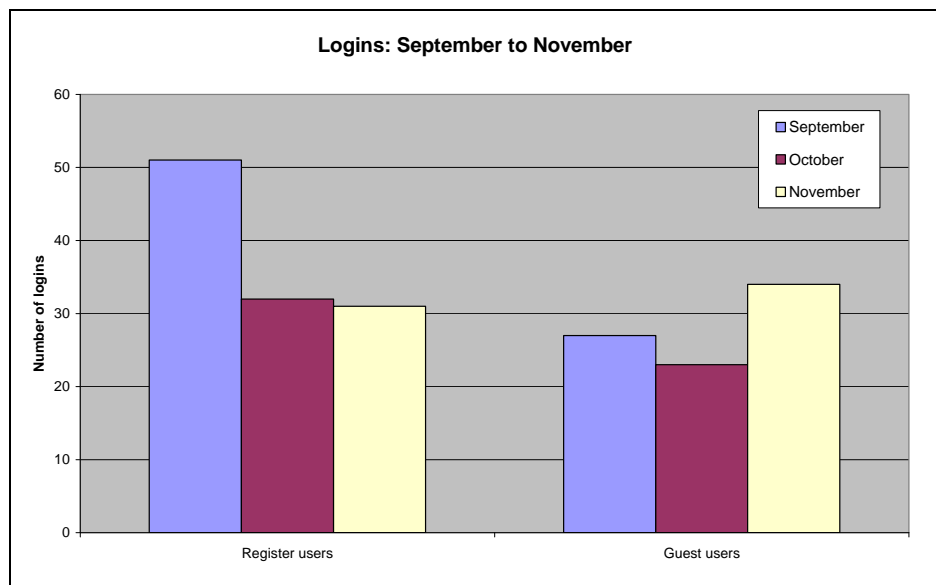


Figure 17 – Registered User and Guest Use from September to November 2009.

Variety information is a major driving factor in getting growers to use the system, and this can be seen in Figure 18, with the bulk of pages viewed contained within the variety information function. The project team believes this adds further weight to the survey results discussed earlier.

With the increasing release of many new smut resistant varieties, growers are in search of information on these varieties, and some of them are turning to QCANESelect™ for that information. Block recommendations are the second most popular page, and again this can be attributed to the simple display of variety information for block specific conditions available by simple point and click functionality. This page, along with the variety information page, is the easiest function to navigate in and around.

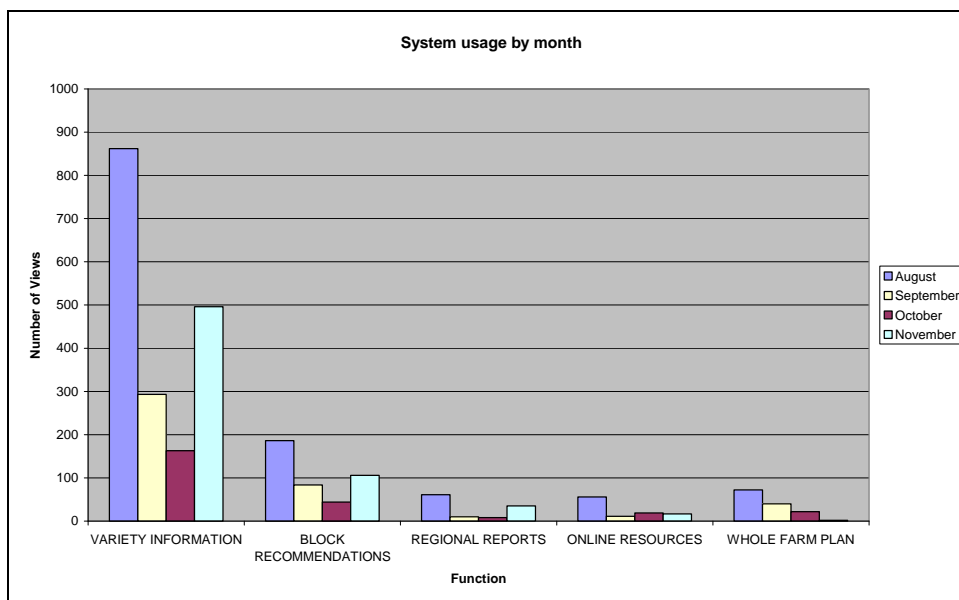


Figure 18 – Function Use by Month

As variety information is the most used function in QCANESelect™, it is possible to break down the statistics related to it even further. Figure 19 below dissects the October usage data within the variety information function. Variety data requested, including variety guides and comparison reports make up 78% of all variety information data requested. Disease ratings made up 8% of data requested and similar numbers of growers accessed variety guides, variety comparison reports and tables of ratings for management issues. A small number of growers downloaded soil recommendation tables and harvest recommendation charts.

QCANESelect™ provides the most up-to-date information to growers and extension officers and growers are starting to use QCANESelect™ in place of hardcopies of variety information sheets. This leads to growers being better informed, and makes the decision making process more accurate, which can help with increased productivity and reduced on-farm risk in relation to disease outbreaks.

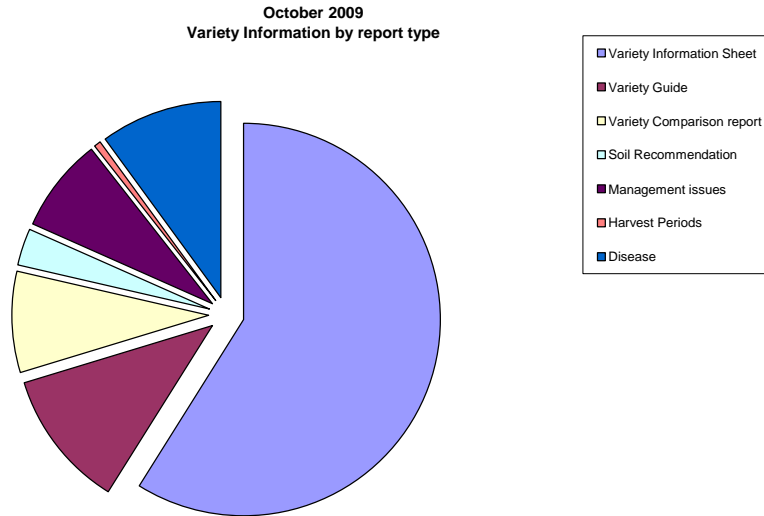


Figure 19 – October 2009 breakdown of Variety Information use

The regional usage graph in Figure 20 shows a significant difference between August and October usage patterns. The differences in usage between regions could be due to many things, including extension activities, such as training supplied to Babinda cane inspectors that caused the spike in November usage, and the enthusiasm of local extension staff for QCANESelect™. The level of coverage in local media, including industry newsletters, may also have an influence on regional usage statistics. In the future, this chart should be updated to monitor the success of regional promotional programs for QCANESelect™.

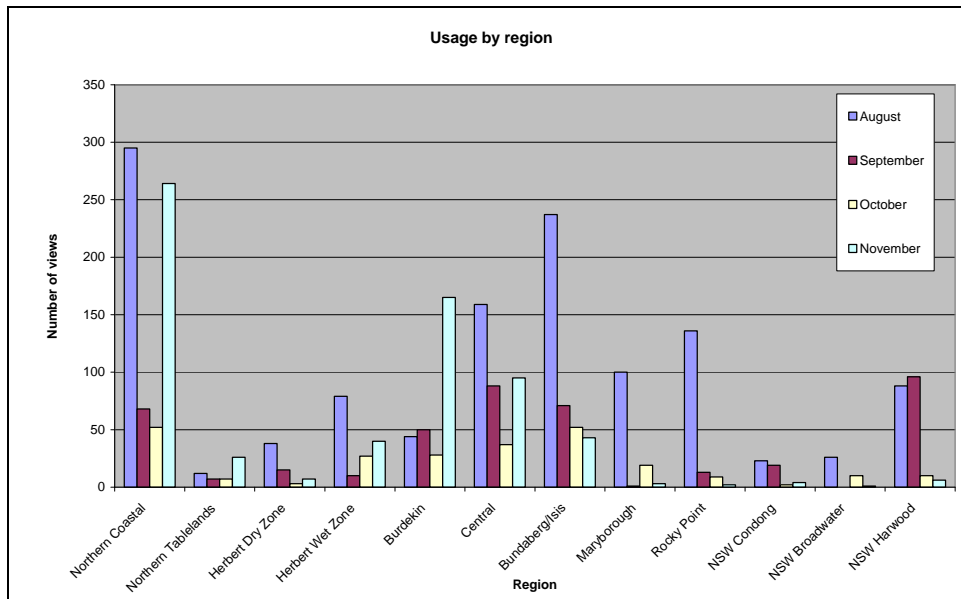


Figure 20 – Regional Usage patterns by Region

6.0 ACHIEVEMENT OF OBJECTIVE 4

Promoting the web-based decision-support program in all regions.

QCANESelect™ has been promoted, and continues to be promoted, in all regions through field days, shed meetings, print and electronic media, BSES Bulletin articles and BSES newsletters. Section 7.0 (Outputs) provides more details on some of these activities.

7.0 OUTPUTS

QCANESelect™ is the major output from the project and is available freely on-line. Communication activities have been critical to the success of the project to promote QCANESelect™. A wide range of media has been used for this purpose including:

- Bulletin articles;
- Newsletter items;
- Newsprint articles;
- Radio interviews;
- Television interviews;
- ASSCT paper and presentation;
- ISSCT Plant Breeding Workshop abstract and presentation;
- SRDC reports;
- Shed/CPI meetings;
- Field day presentations;
- Paper Training and Online Help manuals.

QCANESelect™ has been promoted in all regions, and was highlighted in television news broadcasts throughout Queensland on Channel 7 in October and November 2009.

In the Burdekin region, Whole Farm Plans are being set up for those growers requiring Farm Productivity Assessments as part of their Reef Rescue funding, and this work is expected to continue for the next one to two years.

Henry Thomas of ShedMeeting.Com is preparing a video presentation of QCANESelect™ for his website that will be available to all growers and industry personnel.

8.0 EXPECTED OUTCOMES

QCANESelect™ has many benefits for the industry from an economic stand point as well as an environmental perspective.

QCANESelect™ assists growers to make more informed variety selections and can give a better understanding of the implications of variety selection. Yield improvements of between 10-20% over a whole crop cycle can be achieved by selecting the best variety for each block. Whole farm variety plans created in QCANESelect™ can help growers to minimise risk by limiting over reliance on one variety which can lead to disease epidemics and managing their exposure to diseases by limiting the proportion of varieties planted on their farm that are susceptible to diseases. If the majority of growers are making the best available variety choices and have a balanced mix of varieties, the productivity and sustainability of the whole industry can be improved.

QCANESelect™ also provides for a more environmentally sustainable future for the industry. By using the system to increase the likelihood of selecting the most appropriate varieties in each situation, QCANESelect™ can reduce the need for early plough out of crops as a result of disease incursion or pest infestation. Reducing early plough out, or the incidence of plough-out/replant operations, can assist in promoting good soil health, both physically, in structure and texture, as well as biologically, with improved soil biotic conditions. By reducing the incidence of early plough out and using a planned approach to variety rotation, paddocks will be fallowed less, leading to possible reductions in soil erosion and reductions in chemical weed control of fallow, and the associated reduction in the use of fossil fuels bought about by lesser machinery operations.

9.0 FUTURE NEEDS AND RECOMMENDATIONS

QCANESelect™ is automatically updated as new information is entered into the BSES-CSIRO Variety Improvement database. Yield scores will be updated each season in conjunction with variety selection meetings. Variety information is a critical part of BSES activities and QCANESelect™ will form the basis for future production and dissemination of variety information by BSES. This commitment by BSES will ensure continued maintenance and support of QCANESelect™.

However, the project team believes there is a need for a sustained program of advertising in industry newsletters and further extension of QCANESelect™ in order for it to exhibit increased grower adoption rates. There is also a need for ongoing promotion and training of QCANESelect™ to extension, Productivity Service staff and other industry groups to ensure that these people are accessing the most up-to-date information on varieties and to encourage them to promote use of QCANESelect™ to growers. This group is also vital for ensuring that the information in QCANESelect™ is up-to-date and accurate.

Automatic and seamless data sharing between mills and QCANESelect™ would greatly simplify use of the whole farm planning component of QCANESelect™. Access to grower block information would facilitate this process, and initial discussions have been held within some mill areas to negotiate and obtain access to this data. The project team recommend that further discussions are held with mills so growers can download their farm details directly from the mill computer system into QCANESelect™.

Data sharing and data interpretation between mill data and QCANESelect™ would also improve the information on productivity of varieties. After careful consideration of this data, it was decided that it is better in most cases to look at full year data after it has been checked and errors corrected. BSES currently has access to this data but sometimes the data for some mills is not provided for six months after the end of the season and growers in these particular mills will be disadvantaged if they do not have access to the information in QCANESelect™ in a timely manner. The seasonal sugar profile for varieties will be added to QCANESelect™ in the near future as mill supply data is received for the 2009 harvest.

The ease with which the regional reports and whole farm plan reports can be produced has generated interested in some Productivity Services companies who are working towards a goal of getting more detailed mill supply data to BSES so that some of their end of season reports can be more simply produced. We recommend that BSES, Productivity Service Companies and mills work together to simplify productivity reports using QCANESelect™ as the platform.

We believe it is not possible to formulate recommendations directly from calculations made on tonnes cane/ha data obtained from mills because most mills cannot supply this data based on soil type and because of the confounding factors such as proportion of crop classes and other biases that can influence yield of a variety on a mill area basis. However, we believe that seasonal sugar content is much less affected by soil type and biases in the data and we are working on automating the calculation of the seasonal sugar bonuses and penalties. This will only be applicable to varieties that have been released for a number of years and have sufficient supply to give a reasonable sample for harvest throughout the season. This objective measure of seasonal sugar content will improve the accuracy of recommendations.

The success of QCANESelect™ has prompted suggestions from growers and extension that there could be similar web-based decision support tools developed for other types of information. Specifically, the following issues were raised as possibilities:

- weed control/herbicide recommendations along the line of a web-based version of the BSES C.H.E.S. (Cane Herbicide Expert System) which was produced by BSES and the University of Central Queensland in an SRDC project;
- nutrition/fertiliser calculators (from the Six Easy Steps program and previous versions of the BSES Nutrition manual);
- other farm management calculators, such as:
 - spray-rig calibrations; and
 - fertiliser box calibrations.

10.0 PUBLICATIONS ARISING FROM THE PROJECT

Focus Group Workbook - Technical Manual MN07001 (Appendix 2).

QCANESelect™ Training Manual - Technical Manual MN09008 (Appendix 9).

BSES Bulletin – Croft B, Cox M, Millard D, Burrows A (2009). QCANESelect™ takes the guesswork out of variety selection. Volume 22, p10-13 (Appendix 10).

BSES Bulletin – (2008). Pilot release of QCANESelect™ announced. Volume 19, p27 (Appendix 10).

ASSCT Paper – Millard D, Croft B, Cox, M and Payne D (2009). Development of a web-based decision-support tool and information resource for sugarcane varieties in the Australian Sugar Industry. Proceedings of the Australian Society of Sugar Cane Technologists 31: 316-325 (Appendix 11).

ISSCT Presentation – Croft B, Cox M, Millard D, Burrows A (2009). QCANESelect™: A web-based variety management and information resource for the Australian sugar industry (Appendix 12).

Australian Sugarcane (2009) Variety selection at your fingertips. Vol 13 No 3, p4-6.

11.0 ACKNOWLEDGMENTS

The computer programming for QCANESelect™ was performed by Rebecca Watts and Phil Lethbridge. The project team acknowledges the many growers, advisory and mill staff that assisted in the development team and focus group meetings. This project was partially funded by SRDC and DEEDI.

12.0 REFERENCES

Cox MC, Hogarth M, Smith G (2000) Cane Breeding and Improvement. *Manual of Cane Growing*, 91

Cox MC, Stringer JK (2007) Benchmarking genetic gains from new cultivars in Queensland using productivity data. *Proc. Int. Soc. Sugar Cane Technol.* **26**, 624-631.

Lynch T, Gregor S, Midmore D (2000), Intelligent support systems in agriculture: How can we do better?, *Australian Journal of Experimental Agriculture* **40**, 609-620.

Markley J, Ashburner B, Beech M (2008) The development of a spatial recording and reporting system for productivity service providers. *Proceedings of the Australian Society of Sugar Cane Technologists* **30**, 10-16.

Prestwidge D, Stainlay T, Skocaj D, Di Bella L, Higgins A (2008) Harvest planning for growers. *Proceedings of the Australian Society of Sugar Cane Technologists* **30**, 328-336.

Singels A (2008) A new approach to implementing computer-based decision support for sugarcane farmers and extension staff: the case of My Canesim. *Sugar Cane International* **26**, 22-25.

Stewart PF, Cameron T (2006) Improving the sugarcane farming system with FEAT: a decision-making tool to facilitate on-farm change. *Proceedings of the Australian Society of Sugar Cane Technologists* **28**, 310-316.

APPENDIX 1 – Focus groups

The focus groups range in size from six to sixteen growers (Table 1). The workshops took between 2 to 3 hours to complete. The feedback received from growers was positive, with most expressing the view that they would find a variety selection tool very useful. Even growers who indicated they were not computer literate said they would like a web-based decision-support tool for variety selection provided it was:

- simple & easy to use
- allowed feedback from growers
- printer friendly – can exclude pictures
- kept up-to-date
- delivered with a user guide with prompts
- not too many links on a single page
- print out the page you are looking at in PDF format
- linked to NSW Sugar
- could incorporate infinite info from SPIDNet
- could compare 4 or 5 varieties against each other.

Table 1 – Grower focus group attendance

District	Growers	
	Attended	Invited
Inkerman	3	10
Dalbeg	4	6
Clare	7	6
Pioneer/Kalamia	16	15
Plane Creek	4	6
Mackay	9	9
Proserpine	13	13
Herbert	7	9
Bundaberg	6	12
Isis	6	7
Condong	7	8
Broadwater	6	12
Harwood	6	7
Totals	94	120

APPENDIX 2 – Focus group workbook



Project BSS294
Whole-farm Planning for the Management of
Varieties to Maximise Productivity and Reduce
Losses from Diseases

Project Workbook



Produced by BSES Limited under Project BSS294 Whole-farm Planning for the Management of Varieties to Maximise Productivity and Reduce Losses from Diseases, partially funded by the Sugar Research and Development Corporation and the Queensland Department of Primary Industries and Fisheries.

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1.0 Introduction

1.1 Variety selection

Sugarcane varieties play an important role in improving profits for the Australian sugar industry. Selecting appropriate varieties can be a complex procedure and each grower's situation is different. When selecting varieties, growers need to consider a range of factors such as yield potential, suitability for different soil types, susceptibility to diseases, and other characteristics best suited to their properties and farming practices.

Planting one variety in large proportions of a region makes that region vulnerable to a disease or pest incursion that attacks the selected variety. By selecting a mix of varieties with different genetic backgrounds, the risk of serious disease or pest incursion reducing yield in all varieties will be reduced.

Growers gather information on varieties from many sources, including their own experience, BSES and productivity services staff, newsletters, mill data and other growers.

Project BSS294 aims to produce a web-based decision support tool for variety selection that gives growers, advisory staff, and other industry groups access to all the available data and advice on varieties through the Internet. For example, it will be possible to check a variety's resistance to one or more diseases, susceptibility to certain pests, and/or suitability to different soil types.

The industry is now faced with a new threat from sugarcane smut and varieties will play a crucial role in overcoming yield loss due to smut.

1.2 Decision-support tool for variety selection

The decision-support tool will be available over the Internet and will guide a user to a profitable and sustainable variety selection mix through a series of questions, options and/or choices.

Regional focus groups will be formed to assist in designing the decision-support tool so that it provides the information growers need and in a format that is easily understood. Some examples of what the decision-support tool may be able to do are:

- compare a farm's exposure to a disease such as smut with different mixes of varieties;
- find all varieties that are recommended for a certain soil type in a region;
- find varieties that match the selection criteria provided by a grower, e.g. resistant to pachymetra root rot, high early sugar and suitable for poor soils;
- view a summary of all the characteristics and yield data for a particular variety from BSES and mill data.

The decision-support tool will provide growers and advisory staff a link to the most up-to-date information on varieties generated by the powerful BSES variety improvement database and associated milling data. The decision-support tool will also allow grower feedback on varieties. This valuable feedback will be recorded and incorporated into the decision-support tool.

1.3 Workbook

Growers, extension officers and productivity services staff will use the decision-support tool to assist them in making variety selection decisions. This workbook is designed to stimulate discussion on how growers make variety selection decisions and where the information comes from that assists in that decision making. The information gathered from all regions will be collated, and will be used by the project development team to design a prototype decision-support tool. Variety selection surveys will be carried out to gather a subset of data from a wider range of growers and industry representatives.

The project team includes grower representatives from each region of Queensland and New South Wales, BSES extension officers, productivity services staff, computer programmers, representatives from milling companies, and research staff from BSES and QDPI&F. This team will meet to review the information gathered by the focus groups and will develop a model from which the computer-design team will produce the decision-support tool.

The focus groups will be invited to meet again over the next 12-18 months when the project team has a model and a prototype of the decision-support tool. The prototype will be demonstrated at this time, and feedback will be sought from the group on their comments about the system. The comments received will be collated and forwarded to the development team, and, if feasible, the system will be improved and a final version produced.

We believe that involvement by the focus groups will be vital in ensuring that the best possible product is produced, and that it is user friendly and meets the needs of growers, advisory staff and the industry.

1.4 Contacts

For further information on this project contact any of the following:

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0427 585 419

2.0 Today

2.1 What are we here for?

Notes

I am part of a team that has been given the task of designing a web-based decision support tool for the whole-farm planning of varieties to maximise profitability and reduce losses from diseases and pest incursion.

Before we design this system we need to identify just how you make the variety selection decisions on your farm because, at the very least, the system we design has to be able to do the same thing.

The reason we are here is for you to tell me how you, as growers, make variety decisions and what helps you do that.

2.2 How long have we got?

Two hours, followed by, or including lunch/smoko.

2.3 What processes will we use?

We will look at a series of activities that are designed to get you to tell me how and why you make your variety selections.

List on whiteboard = list on butchers paper = list on flip chart = scribbled notes.

Some of the pages have a box called the Fallow block. The fallow block is where you write things that we need to talk about later, things that might not be about varieties, but are still important.

The activities are broken down into thinking, writing and talking time. We will use the whiteboard to list items in the talking time.

2.0 Today

2.4 The Current Variety Selection Process

Notes

What works in the variety selection process at the moment?

What doesn't work in the variety selection process at the moment?

Fallow block

3.0 Activities 3.2 Activity 2 - Variety Guides

Notes

Each region has its own BSES Variety Guide, tailored to suit the characteristics and needs of that particular growing region. The aim of the activity is to identify which variety guide you find to be most useful.



KQ228^D

VARIETY	KQ228 ^D		
PARENTAGE	DN80-3425 x CP74-2005		
SMUT INFORMATION	RESISTANT. Tested in 1 Indonesian trial. Showed good resistance.		
APPEARANCE	Yellow-green stalk with noticeable white wax. Leaves blue-green with sharp edges.		
SUITED SOILS AND SITUATIONS	Yet to be determined.		
BURDEKIN PRODUCTIVITY - YIELD CCS	High. Average.		
HARVESTING TIME	Early.		
FEATURES/COMMENTS	Information presented based on Burdekin Variety Guide. Early results indicate heavy tones with average CCS. Suckering when harvested late in season. To be released in small quantities in 2006.		
GERMINATION - SPEED RELIABILITY	Fast. Good.		
RATOONING - SPEED RELIABILITY	Fast. Good.		
LODGING TOLERANCE	Average		
REACTION TO STRESS - WATERLOGGING DROUGHT FROST	Unknown. Unknown. Unknown.		
DISEASE REACTION - FIJI LEAF GALL LEAF SCALD MOSAIC PACHYMETRA BROWN RUST SMUT	Intermediate. Resistant. Resistant. Intermediate. Resistant. Resistant.		
PEST INCIDENCE	Unknown.		
HERBICIDE REACTION	Unknown.		
CROP MANAGEMENT PRACTICES	Harvest early to avoid suckering and reduction in CCS.		

Fallow block

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Notes

3.2 Activity 2 - Variety Guides

Q215 [®]	Q216 [®]	MIDA [®]	ARGOS [®]	
A free trashing, erect variety with white to brown coloured stalks. The leaves are broad and dark green in colour.	Erect type. Red-purple stalks with thin green leaves. Red striped leaf sheath.	Pink – Red stalk colour. Large erect top early in the year. Free trashing mid season onwards.	Red stalk colour with dark green erect foliage. Arrows heavily.	APPEARANCE
58N978 X 67N1691	Q117 x Co440	Q96 x MQ79-1030	CP51-21 x MQ68-79521	PARENTS
Poor sand or clay soils in the drier parts of the district	Most areas in the district excluding drought affected and highly fertile soils	Good – Richland soils along river/creek flats.	Most soils excluding those poorly drained.	SUITED SOILS AND SITUATIONS
Moderate Moderate-Low	Moderate-high Moderate-Low	Moderate – High High (mid – late)	Moderate Moderate	Yields - PRODUCTIVITY CCS
Good germination and establishment in plant. Strong ratooner.	Erect type.	Intermediate – resistant to Smut. Erect growth habit	Fast germination and establishment in plant & ratoon.	BEST FEATURES
CCS can be low in this variety. May sucker heavily late in the season.	Does not perform well under drought conditions. Average CCS variety.	Large top early in the year. Use pre – emergent herbicides at planting due to poor leaf cover.	Arrows heavily, tops may go pithy. Stalks deteriorate in dry conditions.	VARIETY MANAGEMENT ISSUES
Mid – Late.	Mid	Mid – Late	Early – Mid	HARVESTING TIME
Rapid	Average, can be slow in cool wet conditions	Average	Rapid	GERMINATION
Good Very good	Average Good	Average Average	Rapid Good	Speed - RATOONING Reliability
Sparse	Sparse	Sparse	Moderate – Heavy	FLOWERING
Light-Moderate	Light- Moderate	Minimal (erect type variety)	Minimal (erect type variety)	LODGING
Heavy, late in the season	Light-Average (Can be heavy late or on Richland soils)	Light	Light – Average	SUCKERING
Good Unknown Good	Average - Poor Unknown Good	Average - Poor Unknown Poor	Poor Unknown Poor	REACTION TO STRESS: DROUGHT TOLERANCE FLOOD TOLERANCE WATERLOGGING
Resistant Resistant Resistant Intermediate Unknown Resistant Inter. - Susceptible Resistant Resistant	Inter. - Susceptible Resistant Intermediate Resistant Unknown Resistant Susceptible Resistant - Inter. Resistant	Unknown Resistant Inter. – Susceptible. In trial Susceptible Resistant Intermediate Intermediate Resistant	Intermediate Resistant Inter. – Susceptible In trial Unknown Intermediate In trial Resistant Resistant	DISEASE: CHLOROTIC STREAK LEAF SCALD PACHYMETRA RED ROT RSD COMMON RUST SMUT YELLOW SPOT ORANGE RUST
Susceptible Intermediate	- Intermediate	- Susceptible	- Susceptible	PESTS: GRUBS RATS
Intermediate	Intermediate	Intermediate	Susceptible	HERBICIDE REACTION
Reduce nitrogen rates to control lodging and improve CCS.	Reduce nitrogen rates to improve CCS.		Ensure adequate potassium levels.	NUTRIENT MANAGEMENT

Fallow block

Notes

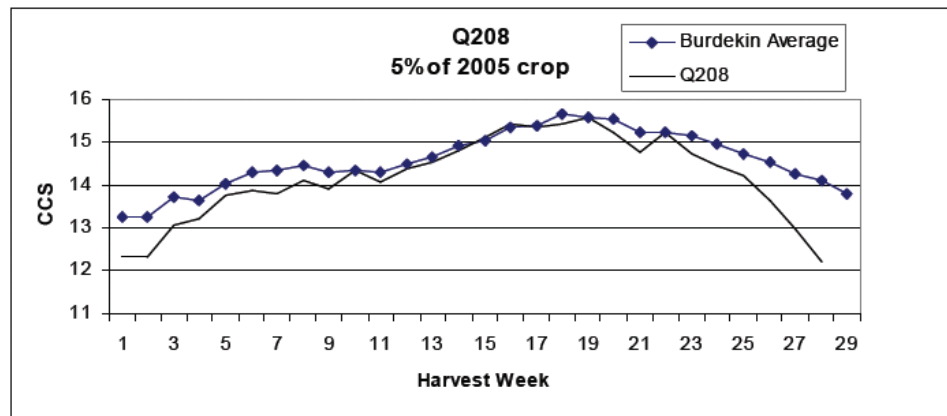
3.2 Activity 2 - Variety Guides

SUGGESTED HARVEST PERIODS FOR RECOMMENDED VARIETIES

Optimum periods for harvesting to achieve best productivity are shown below. Actual harvesting results may vary slightly according to soil type, farming practices and annual weather patterns. To find which climatic zone suits your farm please consult the climatic zone map on the following page.

Wet Climatic Zone

	June	July	Aug	Sep	Oct	Nov	Dec
Q120							
Q135							
Q138							
Q157							
Q158							
Q164							
Q174 ^a							
Q183 ^b							
Q186 ^b							
Q187 ^b							
Q194 ^b							
Q195 ^b							
Q200 ^b							
Q204 ^b							
Q215 ^b							
Q216 ^b							
Mida ^b							
Argos ^b							



Fallow block

Notes

3.2 Activity 2 - Variety Guides

Step 1

List the features of both variety guide formats that you *like*.

One variety per page	Multiple varieties per page

Step 2

List the features of both variety guide formats that you *do not like*.

One variety per page	Multiple varieties per page

Step 3

List on whiteboard

Step 4

How useful are CCS and maturity curves or harvest cycle graphs when selecting varieties?

Not Useful	Useful	Very Useful

Step 5

List answers on whiteboard

Step 6

List any other illustrations or graphs that would assist in variety selection.

Step 7

List other illustrations on whiteboard

Fallow block

3.0 Activities

3.4 Activity 4 – Risk and the whole-farm planning for variety selection model

Notes

Step 1

What level of **risk** are you prepared to take? Below is a typical Financial Investor’s Chart. Tick the box that best describes your financial risk acceptance.

CONSERVATIVE	MODERATE	BALANCED	GROWTH	AGGRESSIVE
Lowest Risk		Neutral Risk		Highest Risk

Step 2

What if we considered the same question in terms of variety selection? Tick the box that best describes your cane variety risk acceptance.

CONSERVATIVE	MODERATE	BALANCED	GROWTH	AGGRESSIVE
Lowest Risk (eg. SMUT resistant varieties)		Neutral Risk		Highest Risk (eg. SMUT susceptible varieties)

Step 3

Is risk a factor you think about up front when selecting a variety, especially when considering the outbreak of sugarcane smut?

Yes	No	Maybe

Other factors influencing Risk in variety selection

Step 4

List Yes/No's and risk factors on whiteboard

Fallow block

5.0 Conclusion

The development team thanks you for participating in this focus group. Your ideas and input are very important to us and to the success of the project. The success of the decision-support tool will be due in large part to your participation in these workshops.

We will approach you in the future (after this years crushing) to ask you to meet with us again to review the model and prototype of the decision support tool.

There is a short survey on the workshops effectiveness and your computer use at the back of the workbook. Please take a couple of minutes to fill it out for us.

My contact details are listed on page 4, please feel free to call or email me with any concerns or further ideas or thoughts about the project.

Again, thanks for your attendance and input.

APPENDIX A

Criteria used in variety selection

Profit

Maximising profit is the main purpose of any standard business model. Variety selection is an important decision in maximising farm profits, as it influences many facets of both farm income and expenses. Selecting the correct variety is essential to maximising the yield of a particular field but it also influences some of the expenses incurred in growing a crop.

Sugarcane farms increase profits by minimising costs per hectare while maximising yields. This can be presented as:

$$\text{Profit} = \text{Farm Income} - \text{Farm Expenses}$$

Correct variety selection can play a large part in both sides of the profit equation, for example, selecting the highest and most reliable ratooning variety for a block and harvesting it to get the best CCS will generate more income, thereby increasing farm profitability.

Farm income can include:

- **Crop yield** – This is normally expressed as tonnes of cane per hectare (TCH), \$/ha or \$/tonne, using a base sugar price per tonne, e.g. \$350/t.
- **CCS** – Commercial cane sugar has been the standard measure of recoverable sugar content for many years in the industry. Recently, some areas have moved to different payment systems. Growers are payed on TCH and the CCS relative to other growers harvesting cane at the same time during the season. This relative payment system is designed to give growers a bonus for high sugar content, while maintaining a fair payment for growers who harvest crops at different times during a season.
- **Alternative uses of sugarcane biomass**
 - varieties selected for high biomass for energy production
 - varieties selected with high trash content for garden mulch
 - other products e.g. ethanol, stock feed, high-value by-products

Expenses can include:

- **Labour costs** for employing field workers can be an important component of some farming enterprises
- **Harvesting costs** normally expressed as a dollar per tonne of cane harvested e.g. \$6.50/tonne
- **Fertilisers and herbicides**
- **Cultivation and planting costs**
- **Irrigation and drainage**
- **Other costs** of running a business such as interest, insurance, rates, etc

Soils

Selecting the appropriate variety to suit a particular soil type is essential in maintaining maximum productivity and sustainability. For example, in the Burdekin region, Q171^(d) is suitable for saline/sodic and average-to-poor soils, while Q208^(d) performs best on average and sandy soils.

Similarly, in the Central region, Q138 is noted for performing on poorer soil types, while Q209[Ⓛ] seems to perform well over a range of soil types.

Growers need to be conscious of a blocks' soil type, structure and soil health when making variety selection decisions.

Pests and diseases

There are a wide range of diseases and pests that growers need to manage on their farms. BSES gathers information on each variety's resistance or tolerance to diseases and pests, but growers have to make decisions using this information on their own farm(s).

Growers should select varieties that not only maximise productivity but also reduce the risk from disease and pest outbreaks. The orange rust outbreak in 2000 on one of the industry's most commonly planted variety, Q124, clearly demonstrated this. Over reliance on one variety left the industry vulnerable to orange rust and caused serious hardship to growers, mills and local economies. Productivity data demonstrated that losses were occurring from the disease directly, as well as from inappropriate management of replacement varieties.

The detection of sugarcane smut in Queensland in 2006 will have a large effect on variety selection. Many commercial varieties are susceptible to smut and replacement of these varieties will cause disruption to growers' farming operations. With smut, most growers have some time to commence the change to resistant varieties before the disease starts to cause serious losses.

The speed with which growers move to a smut-resistant variety mix will depend on the individual circumstances of each grower and how averse to risk taking they may be (i.e. how long does a grower continue to plant susceptible varieties and how soon should ratoon crops be replaced with resistant varieties).

Pests are significant constraints on the profitability of sugarcane farming in Australia. Insect and animal pests cost the Australian sugar industry more than \$20 million each year in lost production and control costs. Variety selection that uses up-to-date disease and pest information will assist in reducing costs.

In the Bundaberg region, Q146 is resistant to smut disease and might be attractive to growers in that region that are faced with the smut incursion. However, it is also susceptible to canegrubs and is of limited use on farms that have a canegrub problem.

Management issues

There are a number of management issues that growers need to consider in variety selection. Growers may decide to plant a variety with slightly lower yield potential but longer ratooning ability if this is more important to the farming enterprise. Some management issues and how they interact with varieties are:

- **Water use efficiency** – Maximum productivity requires an optimum supply of water, supplied either as rainfall, irrigation or a combination of both. Readily available water (RAW), which is the water holding capacity of a soil and the plant available water capacity (PAWC), which is the zone below the RAW zone from which the root system can access water, all effect crop demand and should be considered when selecting varieties.

- **Nutrition** – Cane yield will be reduced if any one of the 17 nutrients is in short supply, even though there may be ample quantities of all the others. Nutrient availability for many plants is strongly influenced by soil pH. High-yielding varieties may require more nitrogen, but an over abundance may cause heavy suckering. Growers should select the variety best suited to a particular soil type or class, and then supply the crop with an appropriate nutrition level.
- **Waterlogging tolerance** – Waterlogging caused by poor drainage can have a significant impact on production. A variety is rated as either having a high or low tolerance to waterlogging, and this should be taken into consideration in areas of high rainfall or poor drainage.
- **Flood tolerance** – Inundation during flood events can cause severe damage to sugarcane. Varieties vary in their ability to survive different periods of inundation.
- **Drought tolerance** – Growers in drier regions with no access or limited access to irrigation will place a higher value on drought-tolerant varieties.
- **Frost susceptibility** – Varieties with an erect habit will tolerate frost better than those that sprawl or have an open canopy. A well-grown canopy will help to retain heat in the crop and help prevent cold air from descending onto the growing point. Growers in frost-susceptible areas need to know the frost tolerance of varieties.
- **Herbicide reaction** – Sugarcane varieties have inherent differences that affect their sensitivity to herbicides. Varieties that show adverse responses to herbicides have been noted by growers, BSES and productivity services staff. This information needs to be made available to all growers.
- **Maturity** – Time of harvesting to obtain maximum CCS. *Crop ripeners* and *plant growth regulators* can be used as a crop management tool in managing crop maturity in particular situations throughout the harvest season. They slow down vegetative growth of the plant, causing an increase in sugar levels. The use of ripeners can allow for the extension of season length, harvesting flexibility and reduce the potential risk of low sugar levels early and late in the season. Research currently is being carried out to identify the varieties that have the best response to crop ripeners. These products must be used only in accordance with label information.

Growth characteristics

The selection of appropriate sugarcane varieties can be made not just on yield but also on different aspects of the plant morphology and growth characteristics.

Some of the plant characteristics involved in variety selection to maximise profit and minimise the risk of disease/pest outbreak are:

- **Germination** – Reliable germination in plant cane is essential for establishment of a solid stand of cane that will form the basis of yield for the whole crop cycle. Poor germination may lead to reduced tonnage and, in the worst case scenario, the crop may need replanting, drastically effecting profit. Growers prefer varieties that germinate quickly and reliably.

- **Ratooning** – Ratooning is similar to germination as it provides the basis for the next crop. Extending the number of ratoon crops, while maintaining yields, is vital for maximising farm profits. Varieties vary greatly in their ability to maintain yields in ratoon crops, especially when the crops suffer stresses such as drought or harvester damage. Farming enterprises who want to reduce labour costs place a high importance on longer ratooning varieties, because replanting is the highest labour input operation on a farm.
- **Standover cane** – This is common practice in the NSW milling regions of Broadwater and Harwood.
- **Lodging** – Lodging is a problem in some regions, especially if the variety is susceptible to suckering. Varieties that lodge easily might lead to crop losses from lower sugar content. This is due to an increase in suckering and rotting of the lodged stalks (particularly in the Wet Tropics) or reduced yield because crop growth slows down for a time after lodging. Lodged cane is less suitable as planting material than is erect cane. Growers may also select a variety that does not lodge in an effort to minimise harvesting cost.
- **Suckering** – Suckering is the production of large, fleshy stemmed stalks that are full of water and can reduce CCS. Some varieties will produce more suckers when supplied with an over abundance of nitrogen or when they are planted on high-fertility soil types.
- **Arrowing** – Variety selection with regard to flowering is a regional issue. There is some thought that a variety that flowers before the end of the growing season may not continue to grow after that time, therefore reducing yield. Plants reduce their water up-take after they flower, leading to paddocks becoming too wet to harvest, and upsetting harvest schedules.
- **Parentage** – One way to reduce the risk of adverse impact of a disease or pest incursion is to plant a varied variety mix on the farm. One variety should not make up more than 50% of sugarcane grown. If a grower selects a range of varieties and all the varieties have the same parents, the whole farm might have an increased risk to disease incursion.
- **Others** – There are a number of other variety characteristics that a grower might use in selecting sugarcane varieties. Things such as stalk brittleness and susceptibility to stool tipping can be important selection criteria for growers in cyclone-prone areas. Other characteristics, such as stalk colour and leaf habit, do not have a direct correlation to cane yield, but are of interest to growers.

The roseate or sprawling growth habit of some varieties may cause growers some block management issues. Some believe that these varieties are more susceptible to damage from mechanical equipment and herbicide sprays.

Trash quantity at harvest is particularly important in some mill areas where growers obtain a significant income from baling trash for sale as garden mulch.

APPENDIX B

Whole-farm Variety Selection

Percentage of farm to one variety

What is the percentage of your farm planted to each variety? How high a percentage of a single variety would you be willing to plant? 40% 50%, 60%, more?

Late harvest and fertiliser requirement reductions for some varieties

Some varieties can take significant reductions of fertiliser when harvested late, as there is no plant biomass to make use of the fertiliser, particularly Nitrogen.

Crop class and variety selection

Some varieties will yield well into fourth ratoon, and others will not, depending on soils, water availability and seasonal variations.

Variety maturity - Harvest time

To have a good maturity spread of varieties on your farm to maximise sugar content at harvesting

Disease and pest resistance

Identify soils with poor resistance to issues such as pachymetra or cane grubs. Plant resistant varieties to counter act these problems.

Trash characteristics of a variety

Some growers will select varieties according to their trash quantities which will affect green harvesting/trash blanketing/baling of mulch or some may prefer varieties that have the ability to self-trash, making machinery operations more efficient.

Performance of varieties to row spacing

How a variety performs to the wider row spacing that are more suitable to controlled traffic, minimum tillage and dual row configurations, will be of concern to growers.

Climatic conditions

Variety adaptability to changing climate such as droughts and floods.

Number of harvesting rounds

Smaller growers, who are involved in harvesting groups, may only be allocated two or three harvesting rounds and would therefore require varieties with a longer harvesting window to suit their particular program.

Cold harvest – poor ratooning speed

A variety such as Q124 in the Bundaberg region, has a very slow ratooning speed if it is cut in the cooler months, which in turn would affect the production levels of the following crop.

Variety suits late harvest and requires sufficient moisture

Q141 in Bundaberg suits a late harvest, but if it runs out of water late in the season, this can be devastating to the productivity of the variety. Poor drought tolerance.

APPENDIX C

Variety Selection Information Sources

Information Source	Description
BSES Variety Guide	Printed every 1 – 2 years
BSES Newsletter	Monthly editions
BSES Extension Officer	Unlimited availability
Productivity Services Officer	Unlimited availability
Shed meetings/workshops	Quarterly meetings
Other growers/Neighbours	Daily advice
Newspapers	Published articles
Local mill	End-of-year variety summary
Variety selection meetings	Plant Breeding review of trial results
CANEGROWERS	Monthly editions
Trade magazines	Industry publications
Machinery Contractors	Planting & Harvesting

APPENDIX D

Soil Classifications

Australian Soil Classification e.g. Red Ferrosol; Yellow Kandosol; Stratic Rudosol

Local Mapping Units e.g. Pingin (Northern); Pioneer (Central); Telegraph (Southern)

Great Soil Group i.e. Red Volcanic; Yellow Clay; Alluvial; Delta

General Description i.e. Good Soil; Average Soil; Poor Soil

Local Description i.e. Grey Forest; Alluvial; Red Volcanic; Sand; Cracking Clay

Project BSS294 Whole-farm Planning for the Management of Varieties Survey

Internet

Does your business have access to the Internet?

Yes No

Which of the following Industry websites do you use?

BSES Limited

Bureau of Meteorology

Mill

CANEGROWERS

Is there any other sugar industry websites that you use?

How often do you use the internet?

Daily

Weekly

Monthly

Only at crushing

What farm management software do you use, or would you like to use for variety advice?

How would you like to use these tools for your variety selection decisions? Tick (✓) the appropriate box.

Through a web-based system at home

Through a web-based system, at home but with a local extension officer present

At a BSES station with a local extension officer

Would you use a web-based tool for variety selection?

Yes / No

Why?

APPENDIX 3 – Industry Surveys

Industry personnel were interviewed in local regions and at 2 field days, as well as via an internal BSES Extension Officer survey that was emailed to participants. The extension surveys are discussed in below in Appendix 5 - Extension Surveys. The results of the industry surveys have been summarized below. A total of 27 industry surveys were completed.

Q1. What tools do you use for variety selection? (eg. SPIDNet, variety guide)? Apart from the variety guides, where else do you get variety information?

Close to 90% of respondents used the existing Variety guides in their selection processes. A similar percentage also used information from other extension and industry peers in their selections.

Q2. How important is access to mill data when making variety decisions?

Very important; need to get more reliable milling and trial data, especially on new varieties.

Q3. How much grower acceptance is there for farm management tools?

96% of the growers interviewed said they have access to the internet and 73% said they would use a whole farm variety selection tool

Q4. Do you think your growers would use a variety selection tool on the Internet?

63% of industry personnel think their growers might use a variety selection tool.

Q5. Would you use a variety selection tool on the Internet?

Over 90% of respondents said they would.

Q6. What are the key things you would like to see in an Internet variety information tool?

A lot of the answers concentrated on what was already in the variety guides. Answers included:

- regional separation of variety information
- soil types
- emergence speed
- disease ratings
- ratooning ability
- chemical tolerance
- harvest schedules
- suckering
- arrowing
- place for regional comments by growers, extension officers etc.
- access to the data on which recommendations are made
- simple instructions
- speed of system/tool.

Q7. What do you think of your local BSES-produced variety guide?

Answers included:

- limited use, info at least a year old
- adequate, fuller text would benefit
- reasonable
- need access to 'hands on' info.

No consensus was found in preference for 'one variety per page' vs. 'multiple varieties on a page' formats

Q8. Is there enough information in the variety guide about soil types and/or situations? How would you like soil types to be described, e.g. scientific name, local description, mapping unit, etc?

100% describe their soils via a combination of general and local descriptions.

Q9. What do you think is the most important variety-selection issue for your growers?

Matching variety performance to soil class. Overall productivity and resultant profitability over a range of soils and situations.

Recurring themes in the interviews were:

- need to get information on the disease resistance of varieties out to growers sooner
- the web-based tool should not replace one-on-one extension services
- the tool must be simple, easy and fast to use
- must be delivered with suitable training
- need access to 'hands on' info
- need to have good, colour photos of variety traits.

No consensus was found in preference for 'one variety per page' vs. 'multiple varieties on a page' formats

Is there enough information in the variety guide about soil types and/or situations? How would you like soil types to be described, e.g. scientific name, local description, mapping unit, etc?

100% describe their soils via a combination of general and local descriptions.

What do you think is the most important variety-selection issue for your growers?

A. Matching variety performance to soil class. Overall productivity and resultant profitability over a range of soils and situations.

Recurring themes in the interviews were:

- need to get information on the disease resistance of varieties out to growers sooner
- the web-based tool should not replace one-on-one extension services
- the tool must be simple, easy and fast to use
- must be delivered with suitable training.

APPENDIX 4 – Grower Surveys

To achieve maximum participation in the grower survey, it was decided that field days and shed meetings would be targeted as the areas of greatest potential. The feed back from growers was very negative towards surveys and therefore their participation hard to come by.

Q1. On a scale of 1-10 how would you rate the BSES Variety Guides?

70% of growers rated the variety guide as useful or better (7 or above).

Close to 90% of respondents use the existing Variety guides in their selection processes. A similar percentage also use information gathered from grower peers in their selections.

Q2. Does your business have access to the Internet? Q6. Is there any other variety selection software you use? Q7. How would you like to use these tools for your variety selection decisions?

96% of the growers interviewed said they have access to the internet and 73% said they would use a whole farm variety selection tool. The same percentage said they would use the tool in their own homes, with or without an extension officer assisting them.

Q3. What Industry websites do you use?

90% of growers used their local milling entity website for payment and productivity data, and 84% used the Bureau of Meteorology website and other wether sites like Elders Weather.

Q4. Are there any other sugar industry websites that you use?

Other websites that were mentioned included the QSL site and a couple of references to productivity board sites and the BSES Limited website.

Q5. How often do you use the internet?

Just under half the growers used the internet daily and most others would use the internet weekly.

Q8. Can you name 3 varieties that are smut resistant and could be planted on your farm?

Over 50% of growers could name at least on smut resistant variety on their farms.

Q9. What percentage (%) of smut-resistant varieties do you have on your property?

70% of growers could tell us the percentage of smut resistant varieties on their farms.

Q10. Is there enough information in the variety guide about soil types and/or situations? How would you like soil types to be described, e.g. scientific name, local description, mapping unit, etc?

Of the 25 growers who answered the soil description question, 100% describe their soils via a combination of general and local descriptions.

Q11. What is the biggest single factor affecting variety selection on your farm?

A number of similar themes were repeated in the answers to this question, including:

- disease resistance
- reliable milling data for new varieties
- get new varieties out sooner, selection takes too long
- early and late CCS
- variety info on compaction and coming up in wet conditions
- chemical tolerance
- fertiliser requirements (can I reduce application and save?)
- need more growers trialling new varieties to get more 'commercial' level data
- should be an emphasis on value adding, not just sugar
- water logging tolerance.

APPENDIX 5 – Extension Survey 2009

BSES extension officers were surveyed at a PBR meeting in September 2009. Thirty eight responses were received and the results have been summarised as part of the questionnaire below.

Q1. How much grower acceptance is there for computer generated farm management tools?

	None	Minimal	Moderate	Significant	Extensive
Answers		6	17	9	

Q2. Estimate the no. of growers that currently involve themselves in farm management software programs?

	None	Minimal	Moderate	Significant	Extensive
Answers		23	12	2	

Q3. Would you consider QCANESelect™ a farm management tool?

Yes – 21

No – 2

Q4. Estimate the % of QCANESelect™ users in the first 5 years after the official launch:

	2009 -	2010 -	2011 -	2012 -	2013 -
Answers	1-20%	2-30%	10-60%	5-60%	5-90%

Q5. To what extent do you consider a grower's management of a commercial variety can influence the expression of trait that the breeding program has been targeting?

	None	Minimal	Moderate	Significant	Extensive
Answers	1	4	6	15	5

Q6. To what extent do you consider the specific soil and climate conditions in your region have influenced the expression of a trait in a variety?

	None	Minimal	Moderate	Significant	Extensive
Answers	1	3	4	20	3

Q7. To what extent do you consider QCANESelect™ can influence the adoption rate of new varieties in your region?

	None	Minimal	Moderate	Significant	Extensive
Answers		7	16	7	1

Q8. What do you see as the major issues with variety adoption in your region?

- lack of local productivity/performance data for fast-tracked varieties
- perceived performance risks
- positive and negative issues at, or near, release date
- growers not referring to BSES recommended lists

- varieties planted on wrong soil class
- there are no issues; if the varieties are good enough they will be taken up quickly
- ability to demonstrate commercial advantage
- negative influence of poorly grown crops in early years of release
- multiple, and differing, recommendations by third parties.

Q9. How well does BSES sell/market new varieties?

The majority of respondents believe that BSES markets varieties reasonably well, but a common theme is that growers are often confused by the role productivity service companies play in release of new varieties.

Q10. Do you think that QCANESelect™ can help BSES sell/market new varieties?

- yes, it's an easily accessible information base where growers can directly compare performance features of a range of new varieties in their district
- yes, to the small percentage of growers who use the program
- limited help due to age of growers and the fact that growers like to look and see a new variety.

Defining the success of a new variety

Q11. How do you evaluate the success of a commercially released variety?

- rate of adoption
- variety gets to 25% of supply after 10 years
- ease of production
- lower cost of production
- grows/yields as expected with no ratoon failures
- shows adoption over appropriate soil classes.

Q12. Do you think the adoption rate of 23.8% for newly released varieties will increase in the future?

Yes – 8

Perhaps – 1

No – 2

If yes, what will be the main contributing factor?

- new varieties are better
- might be inflated by smut replacement
- high sugar price
- especially if there are new disease outbreaks/pest incursions
- necessity of increased yields to stay competitive.

Q13. Can QCANESelect™ contribute to this success? How?

- by consolidation of variety information
- but cannot replace extension officer
- easy access to up-to-date information.

QCANESelect™

Q14. What functions of QCANESelect™ do you use? And how often? (please tick)

Number of responses in table

Function	Frequently (more than once a week)	Occasionally (once a week)	Not so much (maybe once a month)	Not at all
Variety Information	10	12	7	2
Block Recommendations	1	8	9	6
Regional Reports	4	8	6	8
Whole Farm Plans	1	2	6	15
Online Resources	2	8	7	8
Feedback	3	2	6	10

Q15. What functions of QCANESelect™ do you think are most useful to growers? (please tick)

Number of responses in table

Function	Useful	Occasionally Useful	No so useful
Variety Information	28	12	
Block Recommendations	17	8	
Regional Reports	11	8	2
Whole Farm Plans	19	2	1
Online Resources	8	8	2
Feedback	8	2	4

Q16. Do you understand how QCANESelect™ makes variety recommendations?

Yes – 26

No – 1

Q17. How accurate do you think yield scores are in terms of their use in QCANESelect™ block recommendations and Whole-farm Plan?

	None	Minimal	Moderate	Significant	Extensive
Answers			15	11	

Your reasons?

- very subjective
- will improve as data improves
- problems with little knowledge of new varieties
- confidence grows with commercial data collected over a number of years
- should be a devoted productivity based rating as well as a applied weighting for regv.

Q18. How often would you give advice from QCANESelect™ to a grower?

	None	Minimal	Moderate	Significant	Extensive
Answers	3	11	4	9	3

Q19. *Would you direct a grower to QCANESelect™ for variety information?*

	None	Minimal	Moderate	Significant	Extensive
Answers		4	5	12	10

PBR

Q20. *What effect do you think that the introduction of PBR will have on variety adoption?*

	None	Minimal	Moderate	Significant	Extensive
Answers	6	14	3	8	

Q21. *Do you think QCANESelect™ could be a useful extension tool in regard to PBR implementation?*

Yes – 16

No – 3

Possibly – 5

Q22. *What changes could be made to QCANESelect™ to help extension staff handle PBR questions/issues?*

- calculator to show cost/benefit of varieties
- put in PBR rates for each variety
- add PBR info links/FAQ sheets.

APPENDIX 6 – Development team meetings

First development team meeting

The first development team meeting was held on the 26th and 27th April 2007 at Seagulls Resort Townsville. Twenty people attended the two day meeting and these people included growers, BSES, SRDC, Productivity Board, NSW Sugar, Futurecane economist and computer programmers.

The objectives of the meeting were to present the team with an overview and progress report on the project, discuss the mechanisms and information inputs required to develop a whole farm variety management tool, decide the format for the variety guides and establish a work program for the future.

The agenda for the meeting follows:

AGENDA Project BSS294

Whole-Farm Planning for Management of Varieties to Maximise Productivity and Reduce Losses from Diseases

Development Team Meeting Townsville 26th & 27th April 2007

“Development team held first meeting, project work program planned and format decided for variety guides”

26th April 2007 – Thursday

- | | |
|-------|--|
| 8:00 | Breakfast |
| 9:30 | Arrivals/Registration |
| 10:00 | Introductions & Smoko |
| 10:30 | Session 1 – <i>Project progress</i>
(Following sessions – 10 min talk, 5 min questions. Topics as outlined, some of the ideas listed will be discussed in the Question and Answer sessions after each talk) |
| 10:30 | John Agnew
Welcome & Introduction to facilities and format of the meeting. |
| 10:45 | Barry Croft – Project Chief Investigator
Introduction to Project Aims & Outcomes. What the project delivers to BSES and the sugar industry and why it is necessary. |
| 11:00 | Mike Cox – Project Chief Investigator
SPIDNet & New Varieties. BSES-CSIRO data on varieties and getting new varieties to market |
| 11:15 | Rob Cocco – Variety adoption issues
How are varieties adopted in the industry, how can we provide better information on varieties to allow better decisions in variety adoption? |

- 11:30 Duncan Payne – Project status report
Milestones completed and work in progress.
- 11:45 Rob Magarey – Diseases and Pests
Managing risks from diseases and pests and the role of varieties in this process.
- 12:00 Phil Lethbridge – Programming update
Introduction to programming team, Status report on Variety guide automation and what guidance the programming team needs to produce the web-based decision tool.
- 12:15 Neil Sing – Economic modelling
FEAT and the role of economics in variety adoption
- 12:30 Lawrence Di Bella – Local variety adoption program
Lawrence will go through the Herbert's program and views on variety selection
- 12:45 Dave Millard – Survey response
Grower and industry survey analysis
- 13:45 Session 2 – Workshop – *Building a web-based tool*
- 14:45 Summary
- 15:00 Smoko
- 15:30 Session 3 – Workshop - *Project planning*
- 16:45 Wrap-up for end of day

27th April 2007 – Friday

- 8:00 Breakfast
- 8:30 Session 4 - *Regional presentations and thoughts*
- 8:30 Barry Croft - Outcomes of day 1 and plans for day 2
- 8:40 NSW Sugar – Ged Bambach (Variety adoption/selection NSW and problems facing their industry)
- 8:50 Bundaberg/Isis – Tony Linedale & Jim Sullivan (spread of smut in the region – need for resistant varieties)
- 9:10 Central – Rob Cocco
(incl. thoughts on FPAs and the variety selection tool)
- 9:20 Northern – Greg Shannon
(incl. thoughts on FPAs and the variety selection tool)
- 9:30 Discussion - *How do we complement and work with what is already happening in the regions?*

10:00	Smoko – Sandwich platter
10:30	Session 5 – <i>Issues and concerns</i>
10:30	Round table discussion
11:30	<i>Closing remarks</i>

Results of a survey conducted on all participants at the end of meeting showed that people strongly agreed that the project was addressing an important issue and the majority agreed that a web-based decision support tool would be used by growers and extension staff.

Some direct quotes from the feedback review sheets follow.

“Project addresses very important issue for industry profitability and sustainability.”

“I feel this is a very important project and hope that a very useful tool is developed because at the moment information is not getting out to growers soon enough.”

“...will get too bogged down in a complicated system perhaps we should start with something simple and build upon it.”

“Develop a system which allows for local situation (i.e. GIS systems) to continue.”

“Need ability to compare varieties.”

“...marry all information together to come out with right decision.”

“Road test with pilot groups and modify as necessary.”

Meeting review questions have been summarised as Figures 1 to 4 below.

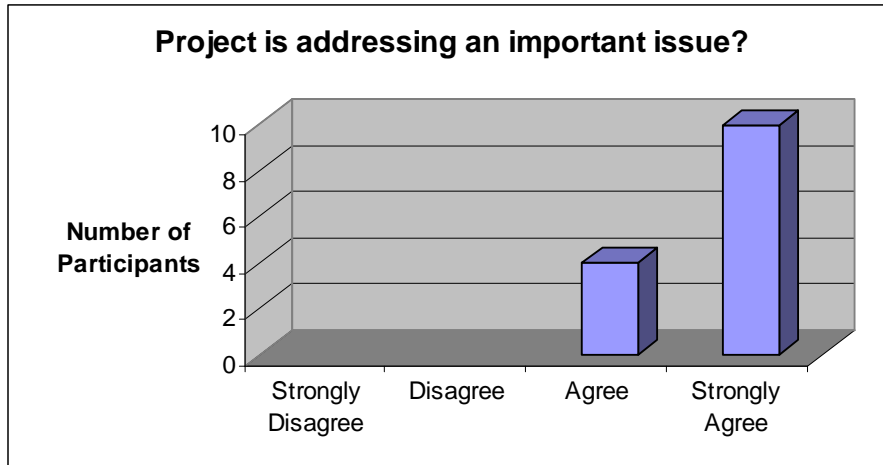


Figure 1 - Is the project addressing an important issue?

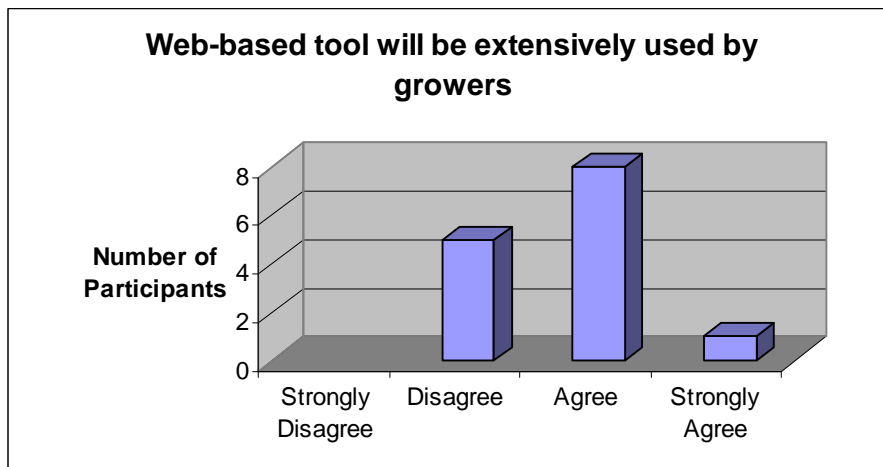


Figure 2 - Will the web-based tool be used extensively by growers?

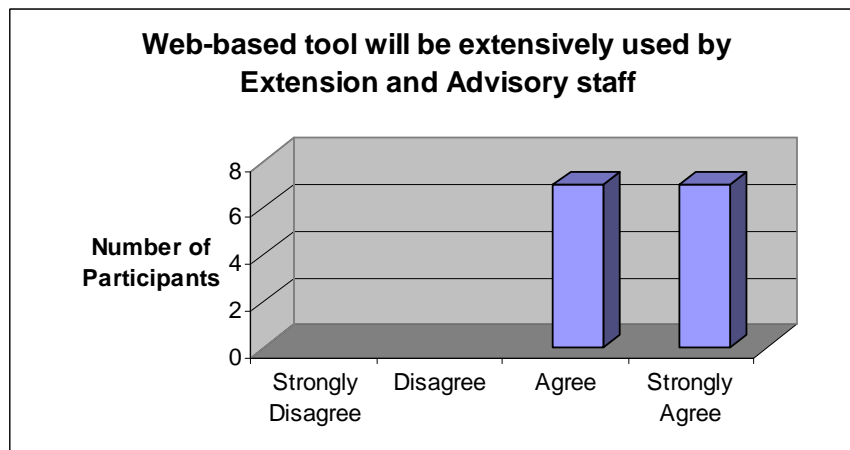


Figure 3 - Will the web-based tool be used extensively by extension and advisory staff?

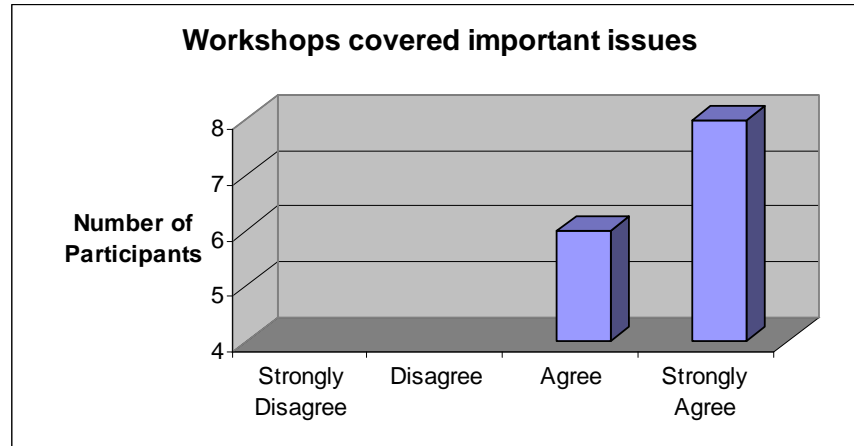


Figure 4 - Did the workshop sessions cover important issues?

Results of first development team meeting

The group agreed that the tool should have live up-to-date information on varietal characteristics and disease ratings, through links to the powerful SPIDNet database, and if possible, access to live and reliable mill data. It is the combination of these that will allow early adoption and management of varieties in the whole farm planning tool.

The tool will provide a much needed link between growers, extension and plant breeders, however, the input of data has to remain accurate for the system to function at its greatest potential. QCANESelect™ itself must remain simple and user friendly, if a large adoption rate from growers is expected. QCANESelect™ should be capable of providing simple variety selections based on very little user input and more advanced format selections where detailed options and risk scenarios are entered.

The development team considered and recorded appropriate names for the tool, other than its current name QCANESelect™. It was agreed that the tool needs identity from an early stage to accelerate its marketing potential.

Second development team meeting

The second development team meeting was held at Rydges, South Bank Convention Centre in Townsville on the 15 and 16 April 2008 to finalise the draft model of QCANESelect™ and to get feed back on faults and fixes to the program. Twenty people including growers, programming consultant, BSES and Productivity service company staff attended the meeting. The agenda for this meeting was as follows:

QCANESelect Development Team Meeting
15th and 16th April 2008

“Finalising the model for QCANESelect™”
 South Bank Convention, Townsville

AGENDA

DAY 1	
08:15	Arrive at South Bank Convention Centre, Townsville
08:30	Welcome and introduction <i>Barry Croft</i>
08:40	QCANESelect™ update A summary of the proceedings and outcomes of QCANESelect™ since the 2007 Development Team Meeting <i>Duncan Payne</i>
09:10	Functionality and Components of QCANESelect™ <ul style="list-style-type: none"> • Login procedures and entitlement • Home page • Variety Information Sheets, Variety Guides and Comparison reports • Block Recommendations • Regional Reporting • Whole of Farm Planning • Feedback <i>Dave Millard</i>
09:30	“Live” Demonstration of QCANESelect™ <i>Dave Millard</i>
10:00	MORNING TEA
10:30	Group testing exercise of QCANESelect™ checking for: <ul style="list-style-type: none"> • Faults in the system per region • Ideas to be implemented • Gather more thoughts on how the model should look / feel To be facilitated by <i>John Agnew</i>
12:30	LUNCH
13:15	Group testing Feedback <ul style="list-style-type: none"> • Group leaders to report back to main group • Identify faults and inclusions (if any) <i>Group leaders</i>
15:00	AFTERNOON TEA
15:15	<u>Regional Reporting</u>
	Presentation and Group Exercise <ol style="list-style-type: none"> 1. Current Ideas 2. Regional ideas 3. How to implement the new ideas <i>Barry Croft</i>
17:00	CLOSE OF DAY 1

19:00	Team Dinner – Rydges Southbank Grill (open bar from 18:00)
DAY 2	
08:30	Perspective of Day 1 <i>Barry Croft</i>
08:40	Mills and BSES – Data sharing and AGTRIX / AgDat report <i>Rob Cairns</i>
09:10	<u>Whole Farm Planning</u> Presentation <i>Mike Cox</i> Group Exercise 1.0 Current Ideas 2.0 Regional ideas 3.0 How to implement the new ideas Facilitated by <i>Evan Shannon</i>
11:45	Summary, bringing it all together and determining future plans <i>Barry Croft</i>

The afternoon session of day 1 and the morning session of day 2 were spent in groups, exploring ways and exchanging ideas of incorporating “Regional Reporting” and “Whole Farm Planning” into QCANESelect™.

Results of the second development team meeting

The outcome of the meeting was a great success, with all members confident with the existing draft model and the project team can now focus on the final development stages of QCANESelect™. The development team will meet before the end of 2008 to review the final program, in consultation with the programmers, and QCANESelect™ will be launched in February 2009.

Regional Reporting ideas from Development Team meeting

The key items to come out of the regional reporting workshop were that everybody liked the pie-chart and graph formats discussed, such as the one below (Figure 5) on regional variety mix in the Burdekin:

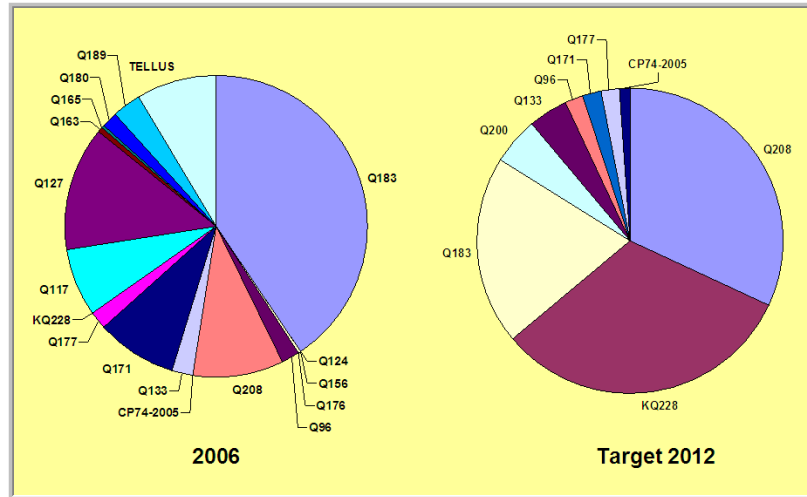


Figure 5 - Mock up of regional variety mix in the Burdekin

Live access to mill data would provide more up-to-date information on variety composition. Currently BSES collates data provided by mills at the end of the harvest season. Often this takes six months or more to be finalised.

The critical reports (but not a complete list) were:

- overall variety composition;
- crop class;
- CCS curves / Seasonal Sugar mix;
- variety to soils mapping;
- disease susceptibility.

Whole of Farm Planning ideas from Development Team meeting

In discussing whole of farm planning issues, workshop groups were asked to concentrate their focus on three areas:

- what are the key elements for a whole of farm plan?
- what information do we need from a grower to make a recommendation for a whole of farm plan?
- how could we present the information to growers on the variety situation on his farm, especially in regard to productivity and risk issues?

The key items to come out of the workshop discussions in relation to these questions were:

1. What are the key elements for a whole of farm plan?

- we need to keep farm plans to rolling three years. Any more is too long and too much information to take in.
- we need to be conscious of managing the whole crop cycle, from plant crops through ratoons to fallow and plough-out replant, not just elements of the crop cycle.
- we have to have a component that allows a grower to manage the risk of disease exposure.
- and we have to allow for historical block data to be captured retrospectively, especially where it involved disease and/or pest incursion or previous cropping history.

2. *What information do we need from a grower to make a recommendation for a whole of farm plan?*
 - we need to have a way to capture and/or load existing farm structure, including blocks, soil classes, crop class and variety data.
 - we need to be able to bring in/capture historical data on block problems or variety performance particular to a given block, like drainage, whether the block is flood prone, mixture of soil classes within the block.
 - we do not want growers or extension officers or productivity board officers to have to re-key the data if it exists in another system. E.g. Mill data, FPA or FEAT.

3. *How could we present the information to growers on the variety situation on his farm, especially in regard to productivity and risk issues?*
 - simple lists of blocks and the recommendations are needed for specific block details.
 - for whole farm presentations similar formats could be used to those presented for regional reporting. It was emphasised that future targets should be restricted to no more than three years.
 - grower interface (or industry personnel interface) needs to be interactive. Growers should be able to change farm level parameters and see the effects on their whole of farm plan. This was defined as a live feedback concept
 - promotion of the tool via productivity board personnel and extension officer in one on one grower visits, CPI meetings or award nights.

Third development team meeting

The third and final development team meeting was held at BSES Limited, Meringa on 16 and 17 December 2008 to fine tune the QCANESelect™ model. Over thirty growers, Productivity Services personnel and extension staff met to hear an update of system development and walkthrough a prototype of the whole farm plan function.

The agenda for this development team was as follows:

QCANESelect Development Team Meeting
16th & 17th December 2008

“Fine tuning the QCANESelect™ model”
 BSES Limited, Meringa

DAY 1	
09:00	Arrive at BSES Meringa, tea and coffee
09:30	Welcome and introduction <i>Barry Croft</i>
09:45	QCANESelect™ update A summary of the work done in QCANESelect™ since the April 2008 Development Team Meeting. Including focus groups revisited and grower use so far <i>Dave Millard</i>
10:15	Smoko
10:45	Functionality & Components of pilot release version of QCANESelect™ <ul style="list-style-type: none"> • Logon procedures • Home Page • Variety Information Page • Block Recommendations • Grower Feedback <i>Michaela Alexander</i>
11:15	Functionality & Components of final release of QCANESelect™ <ul style="list-style-type: none"> • Regional Reporting • Whole of Farm Planning <i>Dave Millard</i>
11:45	BSES Maturity Model – Brix refractometer data from different blocks can be fed to the model to chart individual block maturities <i>Steve Staunton</i>
12:15	Lunch – BBQ at Meringa station with local staff
13:15	Live testing of pilot release version of QCANESelect™ (split into groups using wireless connection on laptops – Dave’s, Barry’s, Mike’s, Michael’s, Dave C’s). Check for: <ul style="list-style-type: none"> • Faults in the system within different regions • Possible improvements that could be implemented • Gather more thoughts on how the model should look / feel <i>Dave / Michaela</i>
14:15	Review of pilot release feedback <i>Dave</i>

14:30	Afternoon tea
14:45	Live testing of Regional Reports in the development environment. List: <ul style="list-style-type: none"> • Faults in the system within different regions • Possible improvements that could be implemented • Gather more thoughts on how the reports look / feel <i>Dave / Michaela</i>
16:00	Review of regional reporting feedback <i>Dave</i>
16:15	Access to reporting data in the different regions <i>Jo Stringer</i>
16:30	CLOSE OF DAY 1

DAY 2	
08:30	Review of Day 1 <i>Barry Croft</i>
08:45	Refining of yield scores and seasonal sugar values <i>Barry Croft</i>
09:15	Live testing of Whole Farm Planning, Productivity and Risk Management module in the development environment. List: <ul style="list-style-type: none"> • Faults in the system within different regions • Possible improvements that could be implemented • The data that needs to be in a printed Productivity and Risk Management plan • Gather more thoughts on how the function looks / feels <i>Dave / Michaela</i>
	Smoko to be taken during this session
10:45	Review of Whole Farm Planning <i>Dave</i>
11:15	Discussion of ideas for official launch and training programs
11:45	Wrap-up / Summary of meeting <i>Mike Cox</i>
12:00	Lunch – BBQ at Meringa station with local staff
13:00	CLOSE OF DAY 2

There were two key aims of this meeting:

- to gather feedback from growers, extension staff, productivity staff, and mill staff on the working components of the QCANESelect™ pilot version to assist with the fine tuning of the model ready for its release in February 2009,
- to discuss development to-date on the whole of farm planning model and seek advice from growers and industry staff about the direction of future development of this model.

Team members were given the opportunity to test their knowledge of the system for themselves by running through different variety information, block recommendation and regional reporting scenarios.

Results from the third development team meeting

The live testing, or hands-on sessions were spent in small groups and generated extremely positive feedback, discussion and many novel ideas

Ideas for the official launch of QCANESelect™ in 2009 were also considered in the final session. The suggestions were:

- Conduct launch in a cane growing region, possibly two adjoining regions like the Herbert and Tully
- The launch should not be incorporated with another big event such as GIVE Day, ASSCT or a field day as this will take the focus away from QCANESelect™
- Make use of television exposure like the ABC's Landline show or similar shows to gain extra exposure

Regional Reporting ideas from Development Team meeting

Live testing was undertaken in small groups and lead to considerable discussion of faults, improvements and alternatives in the regional reporting module in the QCANESelect™ development site. Key suggestions were:

- direct links for data import from mill/ regions
- customise the tool for each local area's productivity reporting
- try to get information from mills down to their 'zone' level
- need further meetings such as this one to monitor progress and improve the reporting database
- need for a variety disease graph for regions.

Whole of Farm planning ideas from Development Team meeting

The components of the Whole of Farm planning module were discussed and a workshop run to test the entering of a grower's current farm data into the prototype version of the whole of farm module. Below is a subset of suggestions taken from feedback sheets:

- require more ratoon options beyond 5R
- use and data items should follow farm maps as much as possible
- requires easy loading of mill block data so don't have to enter data manually
- save recommendations with date and time so can revisit later
- ability to visit variety guide with ease once recommendation has been given
- have a link back to the rules page to avoid going through all the 'previous' buttons
- need training in small groups, training is the key
- future ability to have access to farm map even if in PDF format to start with.

In the first development team meeting survey results indicated clearly that attendees believed the web-based tool would be used extensively (Figure 3 above). After the third team meeting most attendees felt very strongly that the tool would be used extensively by extension and advisory staff (Figure 6).

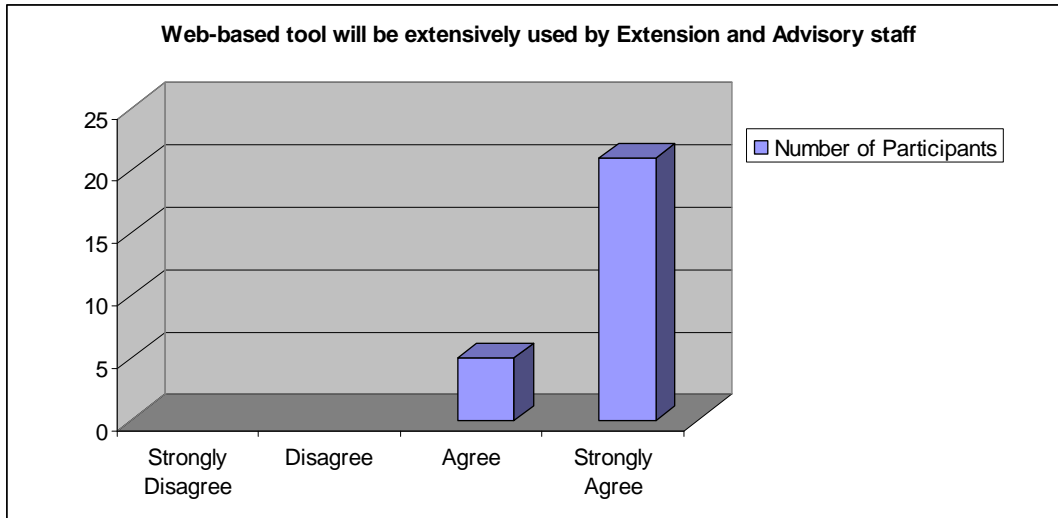


Figure 6 - Will QCANESelect™ be used extensively by extension and advisory staff?

Most attendees at the third development team meeting had seen previous versions of QCANESelect™ and were happy with the prototypes that had been demonstrated. This was reflected in their answers when surveyed on whether the system development was meeting their expectations (Figure 7).

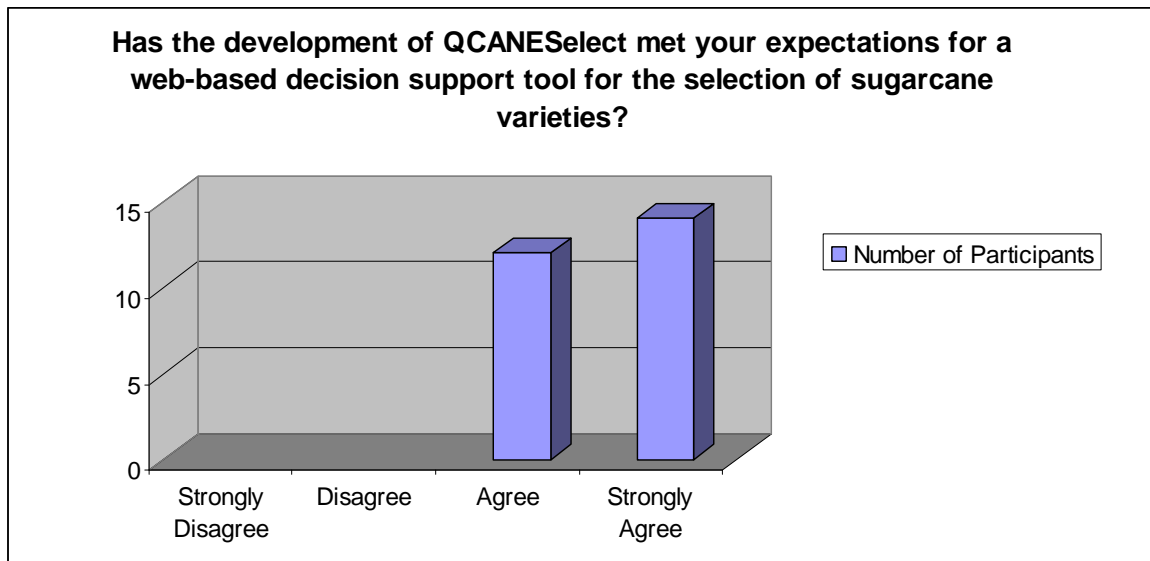


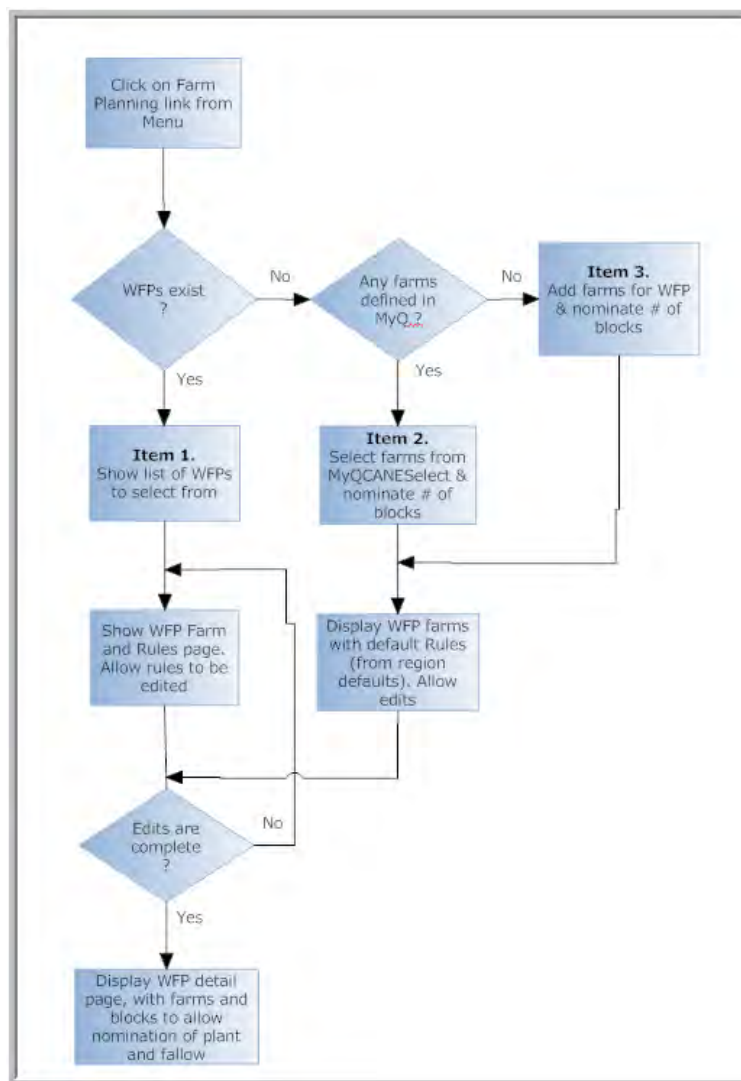
Figure 7 - Has the development of QCANESelect™ met your expectations?

APPENDIX 7 – Whole farm plan Use Case

Whole of Farm Planning, Productivity and Risk Management Use Case

The Whole of Farm Planning, Productivity and Risk Management function in QCANESelect™ builds on features developed in the Block Recommendation and Regional Reporting functions, to produce a powerful farm productivity and risk management tool, available to growers and industry personnel alike. The function begins by creating a productivity and risk management plan using a farm, or farms and then via a set of configurable rules or guidelines, showing the user different variety planting decisions, while highlighting the risks to the grower. Comparisons between the farm(s) and the region in terms of varieties planted or disease susceptibility will be available.

Initial display of the Farm Planning, Productivity and Risk Management pages should be based on decisions like this (WFP - Whole Farm Plan):



The same flow chart is represented here in words. When the user clicks on the Whole of Farm Planning, Productivity and Risk Management link there are three pages that can be displayed:

1. A Select Farm Risk Plan page if the user already has saved any Farm Risk Plans (**Item 1** above)
2. A Create Farm Risk Plan page where the user can select the farm(s) to be included in the plan, provided farms have been added to the MyQCANESelect profile (**Item 2** above)
3. A Create Farm Risk Plan page where the user is asked to enter the farm(s) to be included in the plan. These farms will be added to the users MyQCANESelect profile (**Item 3** above)

If we follow the **Item 1** path, user clicks on Whole farm Planning, Productivity and Risk Management menu item. System checks for Farm Risk Plans and finds some for the grower. These could have been entered by the grower or by extension for the grower. Page like this one is displayed.

<i>QCANESelect</i>					
Home Variety Information Sheets Block Recommendation Whole-Farm Planning Regional Reporting Online Resources Grower Feedback					
Whole of Farm Planning, Productivity and Risk Management					
Select Farm Risk & Productivity Plan	Farm Risk Plan	Region	Mill Area	Farms	Grower
<input type="checkbox"/>	1000	Herbert Wet Zone	Herbert River Mills	2801, 2802	Millard, Dave
<input type="checkbox"/>	1001	Herbert Dry Zone	Herbert River Mills	2801, 2802	Millard, Dave
<input type="checkbox"/>	1002	Burdekin	Burdekin Mills	1608	Millard, Dave
<input checked="" type="checkbox"/>	1003	Burdekin	Burdekin Mills	1131, 1132	Millard, Dave
Copyright BSES (c) 2007					

User selects a Farm Risk Plan to browse/edit and gets this page. There will need to be an Add/Create Productivity and Risk Management Plan link on this page that is not shown above. When a Plan is selected, the details from the previously saved Farm Risk Plan are displayed, including all the productivity and risk management rules. The user can change any of the rules and their rankings, but not the number of blocks; these can be altered on the Farm/Block Plan page.

QCANESelect

[Home](#)
[Variety Information Sheets](#)
[Block Recommendation](#)
[Whole-Farm Planning](#)
[Regional Reporting](#)
[Online Resources](#)
[Grower Feedback](#)

Whole of Farm Planning, Productivity and Risk Management

Farm Risk Plan	Region	Mill Area	Grower	Farm(s)	No. of Blocks
1003	Burdekin	Burdekin Mills	Millard, Dave	1131	5
1003	Burdekin	Burdekin Mills	Millard, Dave	1132	7

Target Planting Rate (eg. 15%) (whole numbers only)

 Create Plan for how many years?

Productivity and Risk Management Rules

Rank	Rule	Delete Rule	Rank	Rule	Delete Rule
<input type="text" value="1"/>	% of any one variety limited to a maximum of <input type="text" value="35"/>	<input type="checkbox"/>	<input type="text" value="1"/>	% of good early season sugar varieties <input type="text" value="20"/>	<input type="checkbox"/>
<input type="text" value="1"/>	% of Susceptible varieties for Smut <input type="text" value="5"/>	<input type="checkbox"/>	<input type="text" value="1"/>	% of good mid season sugar varieties <input type="text" value="60"/>	<input type="checkbox"/>
<input type="text" value="1"/>	% of Intermediate-Susceptible varieties for Smut <input type="text" value="20"/>	<input type="checkbox"/>	<input type="text" value="1"/>	% of good late season sugar varieties <input type="text" value="20"/>	<input type="checkbox"/>
<input type="text" value="2"/>	% of Susceptible varieties for Pachymetra <input type="text" value="20"/>	<input type="checkbox"/>	<input type="text" value="3"/>	% of Good Drought Tolerant varieties <input type="text" value="20"/>	<input type="checkbox"/>
<input type="text" value="2"/>	% of Intermediate-Susceptible varieties for Pachymetra <input type="text" value="35"/>	<input type="checkbox"/>	<input type="text" value="3"/>	% of Average Drought Tolerant varieties <input type="text" value="70"/>	<input type="checkbox"/>
			<input type="text" value="3"/>	% of Poor Drought Tolerant varieties <input type="text" value="10"/>	<input type="checkbox"/>

[Add more Productivity and Risk Management Rules](#)

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To add a Productivity and Risk Management rule, user clicks on the Add More Rules link. This should take us to a page similar to this:

QCANESelect

[Home](#)
[Variety Information Sheets](#)
[Block Recommendation](#)
[Whole-Farm Planning](#)
[Regional Reporting](#)
[Online Resources](#)
[Grower Feedback](#)

Whole of Farm Planning, Productivity and Risk Management

Productivity and Risk Management Rules

Rule Ranking (when the rule is tested)

 Percentage of varieties for
[Add Rule](#)

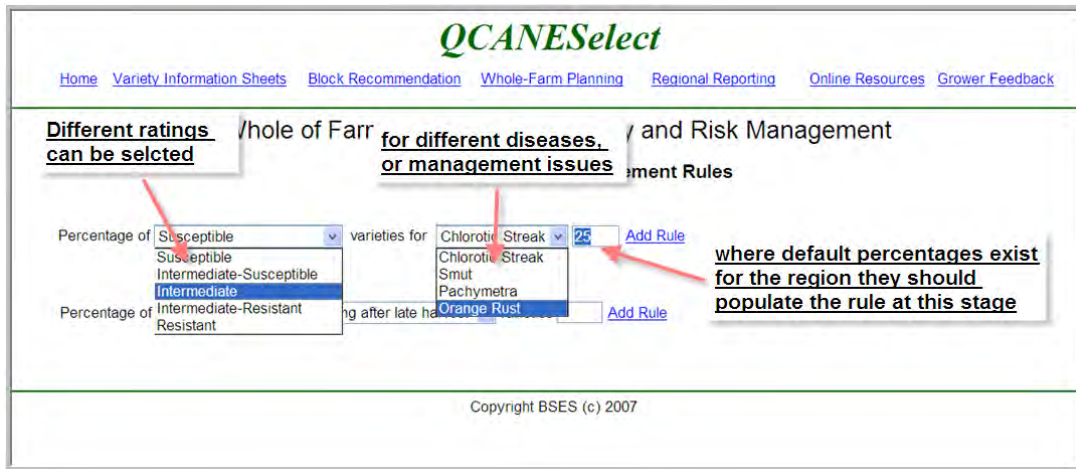
Rule Ranking

 Percentage of rated varieties
[Add Rule](#)

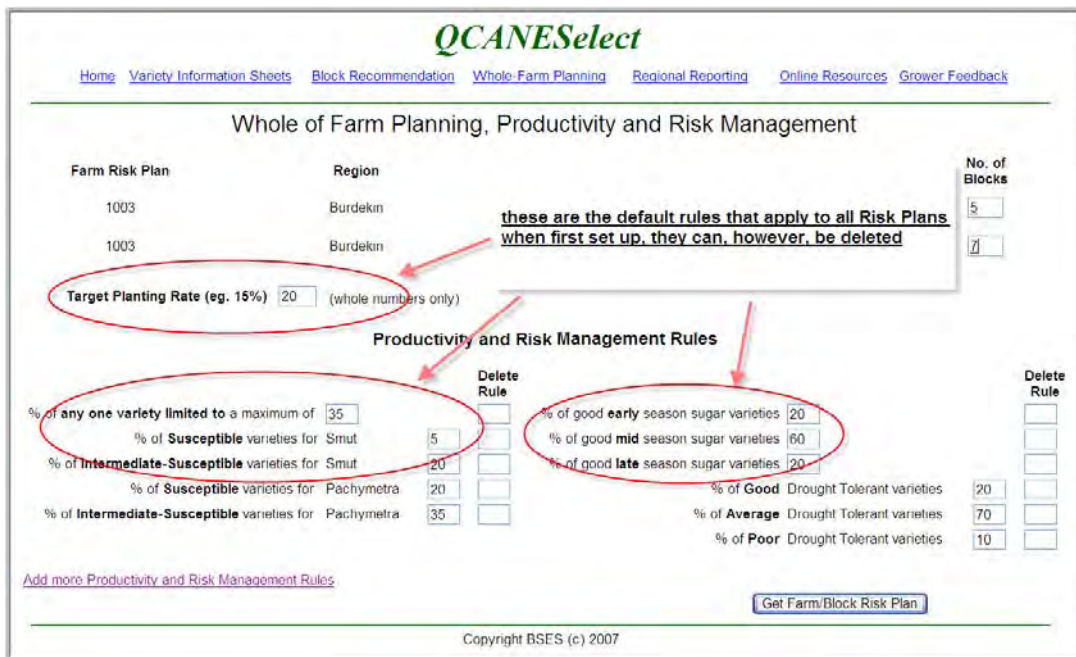
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Any rules not already attached to the Farm Risk Plan should be available to be added here. If regional default percentage values exist they should populate the percentage field, but be editable. Rule rankings are important in the processing of the recommendations for the Productivity and Risk Management Plan and their use will be demonstrated later.

Note. Further screen shots below showing Rules should show the ranking order for the rules, however this functionality was added later.



Should have mentioned that some rules are always shown when creating a Risk Plan:



The Regional defaults should be maintained on a separate page, accessed from the Admin menu for the time being, looking something like this (again, with rankings that aren't shown here).

QCANESelect

[Home](#)
[Variety Information Sheets](#)
[Block Recommendation](#)
[Whole-Farm Planning](#)
[Regional Reporting](#)
[Online Resources](#)
[Grower Feedback](#)

Whole of Farm Planning, Productivity and Risk Management

Regional defaults for Productivity and Risk Management Rules

Region: Burdekin

Target Planting Rate (eg. 15%): (whole numbers only)

Create Plan for how many years?:

Percentage of Susceptible varieties for Orange Rust: Add Rule

Percentage of Good rated Ratooning after late harvest varieties: Add Rule

when a rule is added here, it is shown in the grid below, down here

% of any one variety limited to a maximum of <input type="text" value="20"/>	Delete Rule <input type="checkbox"/>	% of good early season sugar varieties <input type="text" value="20"/>	Delete Rule <input type="checkbox"/>
% of Susceptible varieties for Smut <input type="text" value="0"/>	<input type="checkbox"/>	% of good mid season sugar varieties <input type="text" value="60"/>	<input type="checkbox"/>
% of Intermediate-Susceptible varieties for Smut <input type="text" value="20"/>	<input type="checkbox"/>	% of good late season sugar varieties <input type="text" value="20"/>	<input type="checkbox"/>
% of Susceptible varieties for Pachymetra <input type="text" value="20"/>	<input type="checkbox"/>	% of Good Drought Tolerant varieties <input type="text" value="30"/>	<input type="checkbox"/>
% of Intermediate-Susceptible varieties for Pachymetra <input type="text" value="20"/>	<input type="checkbox"/>	% of Average Drought Tolerant varieties <input type="text" value="60"/>	<input type="checkbox"/>
		% of Poor Drought Tolerant varieties <input type="text" value="10"/>	<input type="checkbox"/>

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Back to the setup page for a Farm Productivity & Risk Management Plan.

QCANESelect

[Home](#)
[Variety Information Sheets](#)
[Block Recommendation](#)
[Whole-Farm Planning](#)
[Regional Reporting](#)
[Online Resources](#)
[Grower Feedback](#)

Whole of Farm Planning, Productivity and Risk Management

Farm Risk Plan	Region	Mill Area	Grower	Farm(s)	No. of Blocks
1003	Burdekin	Burdekin Mills	Millard, Dave	1131	<input type="text" value="5"/>
1003	Burdekin	Burdekin Mills	Millard, Dave	1132	<input type="text" value="7"/>

Target Planting Rate (eg. 15%): (whole numbers only)

Create Plan for how many years?:

Productivity and Risk Management Rules

% of any one variety limited to a maximum of <input type="text" value="35"/>	Delete Rule <input type="checkbox"/>	% of good early season sugar varieties <input type="text" value="20"/>	Delete Rule <input type="checkbox"/>
% of Susceptible varieties for Smut <input type="text" value="5"/>	<input type="checkbox"/>	% of good mid season sugar varieties <input type="text" value="60"/>	<input type="checkbox"/>
% of Intermediate-Susceptible varieties for Smut <input type="text" value="20"/>	<input type="checkbox"/>	% of good late season sugar varieties <input type="text" value="20"/>	<input type="checkbox"/>
% of Susceptible varieties for Pachymetra <input type="text" value="20"/>	<input type="checkbox"/>	% of Good Drought Tolerant varieties <input type="text" value="20"/>	<input type="checkbox"/>
% of Intermediate-Susceptible varieties for Pachymetra <input type="text" value="35"/>	<input type="checkbox"/>	% of Average Drought Tolerant varieties <input type="text" value="70"/>	<input type="checkbox"/>
		% of Poor Drought Tolerant varieties <input type="text" value="10"/>	<input type="checkbox"/>

[Add more Productivity and Risk Management Rules](#)

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When user is happy with all Productivity and Risk Management Rules displayed, they click on the Get Farm/Block Risk Plan button. Before we go there, lets finish the other two paths to get us to this same point.

The page displayed at **Item 2 - Create Farm Risk Plan** page where the user can select the farm(s) should look something like the following:

QCANESelect

[Home](#)
[Variety Information Sheets](#)
[Block Recommendation](#)
[Whole-Farm Planning](#)
[Regional Reporting](#)
[Online Resources](#)
[Grower Feedback](#)

Whole of Farm Planning, Productivity and Risk Management

Select Farms for Plan	Region	Mill Area	Grower	Farm	No. of Blocks
<input type="checkbox"/>	Herbert Wet Zone	Herbert River Mills	Millard, Dave	2801	<input type="text"/>
<input type="checkbox"/>	Herbert Dry Zone	Herbert River Mills	Millard, Dave	2802	<input type="text"/>
<input type="checkbox"/>	Burdekin	Burdekin Mills	Millard, Dave	1131	<input type="text"/>
<input type="checkbox"/>	Burdekin	Burdekin Mills	Millard, Dave	1132	<input type="text"/>
<input type="checkbox"/>	Burdekin	Burdekin Mills	Millard, Dave	1608	<input type="text"/>

Target Planting Rate (eg. 15%) (whole numbers only)

 Create Plan for how many years?

Productivity and Risk Management Rules

% of any one variety limited to a maximum of <input type="text"/>	<input type="text"/>	Delete Rule <input type="text"/>	% of good early season sugar varieties <input type="text"/>	<input type="text"/>	Delete Rule <input type="text"/>
% of Susceptible varieties for Smut <input type="text"/>	<input type="text"/>	<input type="text"/>	% of good mid season sugar varieties <input type="text"/>	<input type="text"/>	<input type="text"/>
% of Intermediate-Susceptible varieties for Smut <input type="text"/>	<input type="text"/>	<input type="text"/>	% of good late season sugar varieties <input type="text"/>	<input type="text"/>	<input type="text"/>
% of Susceptible varieties for Pachymetra <input type="text"/>	<input type="text"/>	<input type="text"/>	% of Good Drought Tolerant varieties <input type="text"/>	<input type="text"/>	<input type="text"/>
% of Intermediate-Susceptible varieties for Pachymetra <input type="text"/>	<input type="text"/>	<input type="text"/>	% of Average Drought Tolerant varieties <input type="text"/>	<input type="text"/>	<input type="text"/>
			% of Poor Drought Tolerant varieties <input type="text"/>	<input type="text"/>	<input type="text"/>

[Add more Productivity and Risk Management Rules](#)

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The farms displayed are from the users MyQCANESelect profile. User can select any one or more farms from the same region to build into the Farm Productivity and Risk Management Plan. They must nominate number of blocks in each farm, years for plan to be developed/created and the Productivity and Management Rules exactly as for the processing in Item 1.

In **Item 3** – Create Farm Risk Plan page where the user is asked to enter the farm(s), the user has no farms defined in their MyQCANESelect profile and has no previously saved Farm Risk Plans.

Need to supply a page that morphs the MyQCANESelect Add Farms functionality with the Productivity and Risk Management Rules prototypes (like this, only better):

QCANESelect
[Home](#) [Variety Information Sheets](#) [Block Recommendation](#) [Whole-Farm Planning](#) [Regional Reporting](#) [Online Resources](#) [Grower Feedback](#)

Whole of Farm Planning, Productivity and Risk Management

Farm(s)
Add Farm
 Region: Burdekin
 Mill Area: Inverla
 Grower: Milard, David
 Farm Name/ID: 1128
 Add New Farm
 * Required Field

Select Farms for Plan

Region	Mill Area	Grower	Farm	No. of Blocks
<input type="checkbox"/> Burdekin	Burdekin Mills	Milard, David	1127	<input type="text"/>
<input type="checkbox"/> Burdekin	Burdekin Mills	Milard, David	1128	<input type="text"/>

Target Planting Rate (eg. 15%) (whole numbers only) Create Plan for how many years?

Productivity and Risk Management Rules

Rule	Delete Rule	Rule	Delete Rule
% of any one variety limited to a maximum of <input type="text"/>	<input type="checkbox"/>	% of good early season sugar varieties	<input type="checkbox"/>
% of Susceptible varieties for Smut <input type="text"/>	<input type="checkbox"/>	% of good mid season sugar varieties	<input type="checkbox"/>
% of Intermediate-Susceptible varieties for Smut <input type="text"/>	<input type="checkbox"/>	% of good late season sugar varieties	<input type="checkbox"/>
% of Susceptible varieties for Pachymetra <input type="text"/>	<input type="checkbox"/>	% of Good Drought Tolerant varieties	<input type="checkbox"/>
% of Intermediate-Susceptible varieties for Pachymetra <input type="text"/>	<input type="checkbox"/>	% of Average Drought Tolerant varieties	<input type="checkbox"/>
		% of Poor Drought Tolerant varieties	<input type="checkbox"/>

[Add more Productivity and Risk Management Rules](#)

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User has to add the farms, and then tick the ones to be used in the Productivity and Risk Management Plan. They can add or delete Productivity and Risk Management Rules as per the processing for the previous options, and click the Get Farm/Block Risk Plan when they wish to proceed. The Productivity and Risk Management Rules on that page would have been populated from regional defaults.

That should mean, regardless of which path we took, we are at the point where **the Get Farm/Block Risk Plan button has been clicked**. What we'd like to see is something like this page:

QCANESelect
[Home](#) [Variety Information Sheets](#) [Block Recommendation](#) [Whole-Farm Planning](#) [Regional Reporting](#) [Online Resources](#) [Grower Feedback](#)

Whole of Farm Planning, Productivity and Risk Management

Farm	Block	Area (ha)	Planting Date	2008 Details		2009 Details		2010 Details	
				Variety	Crop Class	Plant	Fallow	Plant	Fallow
1131	1					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1131	2					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1131	3					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1131	4					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1131	5					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	1					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	2					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	3					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	4					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	5					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	6					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	7					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Let's talk about this page some more. The farm and block numbers have been auto generated but the user may wish to enter more blocks for a farm, so add row functionality needs to be available. We also need to talk at some point about splitting and joining blocks in different years, but not now.

Once we have farm and block details, user has to enter variety, planting date and crop class details. (Crop class could be generated from planting date by provision of some simple rules, this would save data entry?) The planting date is required so we can distinguish between crops planted this year, and those planted last year that will be harvested as plant this year. This will be important in the rule checking later on. I hope.

To make the keying of the plan somewhat easier, note the Show Varieties and Show Crop Classes buttons. Clicking on the Show Varieties button should display a list of varieties that combines the “approved for planting and ratooning” and the “ratooning only” lists. This is the only way we will get all varieties that might be planted on the farm. User selects (copies) the variety and then drops (pastes) it in the appropriate rows on the grid. We’d like to be able to drop it on more than one row without having to reselect it each time. When this data is entered the page looks like this:

QCANSelect

[Home](#)
[Variety Information Sheets](#)
[Block Recommendation](#)
[Whole-Farm Planning](#)
[Regional Reporting](#)
[Online Resources](#)
[Grower Feedback](#)

Whole of Farm Planning, Productivity and Risk Management

Farm	Block	Area (ha)	Planting Date	Variety	Crop Class	2008 Details		2009 Details			2010 Details	
						Plant	Fallow	Plant	Fallow	Plant	Fallow	
1131	1	12	Apr 2007	Q208	P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1131	2	11.8	May 2005	Q183	2R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1131	3	13	Mar 2006	KQ228	1R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1131	4	12.2	May 2004	Q208	3R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1131	5	15	-	Fallow	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1132	1	15.6	Apr 2007	Q208	P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1132	2	5	Apr 2004	Q127	3R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1132	3	5	May 2005	Tellus	2R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1132	4	1				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1132	5					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1132	6					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1132	7	7.3	-	Fallow	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1132	8	7.4	Mar 2005	Q171	2R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1132	9	10	-	Fallow	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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When *this years details* are confirmed, the plant and fallow checkboxes for the Risk Plan years is opened up/available to the user. They can be hidden completely until *this years details* are correct. User indicates the blocks required to be fallow and those requiring a planting recommendation. Like this:

QCANESelect

[Home](#)
[Variety Information Sheets](#)
[Block Recommendation](#)
[Whole-Farm Planning](#)
[Regional Reporting](#)
[Online Resources](#)
[Grower Feedback](#)

Whole of Farm Planning, Productivity and Risk Management

Farm	Block	Area (ha)	Planting Date	2008 Details				2009 Details				2010 Details	
				Variety	Crop Class	Plant	Fallow	Plant	Fallow	Plant	Fallow		
1131	1	12	Apr 2007	Q208	P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1131	2	11.8	May 2005	Q183	2R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1131	3	13	Mar 2006	KQ228	1R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1131	4	12.2	May 2004	Q208	3R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1131	5	15	-	Fallow	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	1	15.0	Apr 2007	Q208	P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	2	5	Apr 2004	Q127	3R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1132	3	5	May 2005	Tellus	2R	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	4	18.1	May 2006	KQ208	1R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	5	4	Mar 2005	Q183	2R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1132	6	2	May 2005	Q208	2R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1132	7	7.3	-	Fallow	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	8	7.4	Mar 2005	Q171	2R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1132	9	10	-	Fallow	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Or like the page below? On this page the planting details have been carried forward to future years and the crop classes incremented by 1. Just curious if it helps highlight ratoons that are getting too old? Not sure, might be too confusing. I am concerned that the previous page is getting too busy. With the below page, we confirm this years details, then that data is greyed, and 2009 data becomes editable/available and 2010 data is also greyed, just to make it clearer. When user confirms 2009 data, the next years becomes available, and so on for all the extra years of the plan. Page might look something like this?

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Whole of Farm Planning, Productivity and Risk Management

Farm	Block	Area (ha)	Planting Date	2008 Details				2009 Details				2010 Details			
				Variety	Crop Class	Plant	Fallow	Variety	Crop Class	Plant	Fallow	Variety	Crop Class	Plant	Fallow
1131	1	12	Apr 2007	Q208	P	<input type="checkbox"/>	<input type="checkbox"/>	Q208	1R	<input type="checkbox"/>	<input type="checkbox"/>	Q208	2R	<input type="checkbox"/>	<input type="checkbox"/>
1131	2	11.8	May 2005	Q183	2R	<input type="checkbox"/>	<input type="checkbox"/>	Q183	3R	<input type="checkbox"/>	<input type="checkbox"/>	Q183	4R	<input type="checkbox"/>	<input type="checkbox"/>
1131	3	13	Mar 2006	KQ228	1R	<input type="checkbox"/>	<input type="checkbox"/>	KQ228	2R	<input type="checkbox"/>	<input type="checkbox"/>	KQ228	3R	<input type="checkbox"/>	<input type="checkbox"/>
1131	4	12.2	May 2004	Q208	3R	<input type="checkbox"/>	<input type="checkbox"/>	Q208	4R	<input type="checkbox"/>	<input type="checkbox"/>	Q208	5R	<input type="checkbox"/>	<input type="checkbox"/>
1131	5	15	-	Fallow	-	<input type="checkbox"/>	<input type="checkbox"/>	-	-	<input type="checkbox"/>	<input type="checkbox"/>	-	-	<input type="checkbox"/>	<input type="checkbox"/>
1132	1	15.6	Apr 2007	Q208	P	<input type="checkbox"/>	<input type="checkbox"/>	Q208	1R	<input type="checkbox"/>	<input type="checkbox"/>	Q208	2R	<input type="checkbox"/>	<input type="checkbox"/>
1132	2	5	Apr 2004	Q127	3R	<input type="checkbox"/>	<input type="checkbox"/>	Q127	4R	<input type="checkbox"/>	<input type="checkbox"/>	Q127	5R	<input type="checkbox"/>	<input type="checkbox"/>
1132	3	5	May 2005	Tellus	2R	<input type="checkbox"/>	<input type="checkbox"/>	Tellus	3R	<input type="checkbox"/>	<input type="checkbox"/>	Tellus	4R	<input type="checkbox"/>	<input type="checkbox"/>
1132	4	18.1	May 2006	KQ208	1R	<input type="checkbox"/>	<input type="checkbox"/>	KQ228	2R	<input type="checkbox"/>	<input type="checkbox"/>	KQ228	3R	<input type="checkbox"/>	<input type="checkbox"/>
1132	5	4	Mar 2005	Q183	2R	<input type="checkbox"/>	<input type="checkbox"/>	Q183	3R	<input type="checkbox"/>	<input type="checkbox"/>	Q183	4R	<input type="checkbox"/>	<input type="checkbox"/>
1132	6	2	May 2005	Q208	2R	<input type="checkbox"/>	<input type="checkbox"/>	Q208	3R	<input type="checkbox"/>	<input type="checkbox"/>	Q208	4R	<input type="checkbox"/>	<input type="checkbox"/>
1132	7	7.3	-	Fallow	-	<input type="checkbox"/>	<input type="checkbox"/>	-	-	<input type="checkbox"/>	<input type="checkbox"/>	-	-	<input type="checkbox"/>	<input type="checkbox"/>
1132	8	7.4	Mar 2005	Q171	2R	<input type="checkbox"/>	<input type="checkbox"/>	Q171	3R	<input type="checkbox"/>	<input type="checkbox"/>	Q171	4R	<input type="checkbox"/>	<input type="checkbox"/>
1132	9	10	-	Fallow	-	<input type="checkbox"/>	<input type="checkbox"/>	-	-	<input type="checkbox"/>	<input type="checkbox"/>	-	-	<input type="checkbox"/>	<input type="checkbox"/>

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Regardless of format, the system should provide recommendations for the blocks marked as Plant in any of the years, as indicated below.

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Whole of Farm Planning, Productivity and Risk Management

Farm	Block	Area (ha)	Planting Date	2008 Details			2009 Details			2010 Details	
				Variety	Crop Class	Plant	Fallow	Plant	Fallow	Plant	Fallow
1131	1	12	Apr 2007	Q208	P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1131	2	11.8	May 2005	Q183	2R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1131	3	13	Mar 2006	KQ228	1R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1131	4	12.2	May 2004	Q208	3R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1131	5	15	-	Fallow	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	1	15.6	Apr 2007	Q208	P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	2	5	Apr 2004	Q127	3R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1132	3	5	May 2005	Tellus	2R	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	4	18.1	May 2006	KQ208	1R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	5	4	Mar 2005	Q183	2R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1132	6	2	May 2005	Q208	2R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1132	7	7.3	-	Fallow	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	8	7.4	Mar 2005	Q171	2R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1132	9	10	-	Fallow	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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When all the recommendations are done and all risk and management rules have been passed or accepted as breaches (this is documented below) we should see a page something like this one.

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Whole of Farm Planning, Productivity and Risk Management

Farm	Block	Area (ha)	Planting Date	2008 Details		2009 Details		2010 Details	
				Variety	Crop Class	Variety	Crop Class	Variety	Crop Class
1131	1	12	Apr 2007	Q208	P	Q208	1R	Q208	2R
1131	2	11.8	May 2005	Q183	2R	Q183	3R	Fallow	-
1131	3	13	Mar 2006	KQ228	1R	KQ228	2R	KQ228	3R
1131	4	12.2	May 2004	Q208	3R	Fallow	-	Q171	P
1131	5	15	-	Fallow	-	Q183	P	Q183	1R
1132	1	15.6	Apr 2007	Q208	P	Q208	1R	Q208	2R
1132	2	5	Apr 2004	Q127	3R	Fallow	-	KQ228	P
1132	3	5	May 2005	Tellus	2R	Fallow	-	Q183	P
1132	4	18.1	May 2006	KQ208	1R	KQ228	2R	KQ228	3R
1132	5	4	Mar 2005	Q183	2R	Q183	3R	Fallow	-
1132	6	2	May 2005	Q208	2R	Q208	3R	Fallow	-
1132	7	7.3	-	Fallow	-	Q183	P	Q183	1R
1132	8	7.4	Mar 2005	Q171	2R	Q171	3R	Fallow	-
1132	9	10	-	Fallow	-	KQ228	P	KQ228	-1R

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But there is a fair bit of processing before this page. Let's go back to the page where the user has ticked blocks requiring a recommendation.

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Whole of Farm Planning, Productivity and Risk Management

Farm	Block	Area (ha)	Planting Date	2008 Details				2009 Details		2010 Details	
				Variety	Crop Class	Plant	Fallow	Plant	Fallow	Plant	Fallow
1131	1	12	Apr 2007	Q208	P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1131	2	11.8	May 2005	Q183	2R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1131	3	13	Mar 2006	KQ228	1R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1131	4	12.2	May 2004	Q208	3R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1131	5	15	-	Fallow	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	1	15.0	Apr 2007	Q208	P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	2	5	Apr 2004	Q127	3R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1132	3	5	May 2005	Tellus	2R	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	4	18.1	May 2006	KQ208	1R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	5	4	Mar 2005	Q183	2R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1132	6	2	May 2005	Q208	2R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1132	7	7.3	-	Fallow	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1132	8	7.4	Mar 2005	Q171	2R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1132	9	10	-	Fallow	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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For each ticked checkbox we want a variety recommendation. To get one we will need to know a few things like the soil type in each block, disease history, and special requirements like water logging or early/late harvest. To get this we will show a page similar to the individual block recommendation page.

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Whole of Farm Planning, Productivity and Risk Management


Block Recommendations

Region Burdekin **Mill Area** Burdekin Mills **Plan** 1003 **Farm** 1131 **Block** 5

Soil Class <input type="radio"/> Non-Sodic Duplex (ESP<6) <input checked="" type="radio"/> Sodic Duplex (ESP>6) <input type="radio"/> Sodic/Saline/Sand (Poor soils) <input type="radio"/> Cracking Clay (35% clay through profile) <input type="radio"/> Uniform (Non cracking soils with similar depth through profile) <input type="radio"/> Silty Loam (Delta/Alluvial/River soils)	Diseases of Concern <input checked="" type="checkbox"/> Smut <input checked="" type="checkbox"/> Chlorotic Streak <input type="checkbox"/> Red Rot <input type="checkbox"/> Leaf Scald <input type="checkbox"/> Brown Rust <input type="checkbox"/> Orange Rust	Management Issues Seasonal Sugar <input checked="" type="checkbox"/> Early <input checked="" type="checkbox"/> Mid <input type="checkbox"/> Late <input type="checkbox"/> Cane Grub Tolerance <input type="checkbox"/> Fast and Reliable Germination <input type="checkbox"/> Fast and Reliable Ratooning in Good Conditions <input checked="" type="checkbox"/> Fast and Reliable Ratooning in Harsh Conditions <input type="checkbox"/> Drought Tolerance
--	--	--

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User ticks the soil class, diseases of concern and relevant management issues, and when finished clicks on the Next Block button. System displays the next block requiring a recommendation, in this case, Block 7, Farm 1132. If this was the last block to require a recommendation, the Next Block button changes to a Get Recommendations button, we will assume this is the case.



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Whole of Farm Planning, Productivity and Risk Management Block Recommendations

Region Burdekin	Mill Area Burdekin Mills	Plan 1003	Farm 1132 Block 7
------------------------	---------------------------------	------------------	---------------------------------

Soil Class <input type="radio"/> Non-Sodic Duplex (ESP<6) <input type="radio"/> Sodic Duplex (ESP>6) <input type="radio"/> Sodic/Saline/Sand (Poor soils) <input checked="" type="radio"/> Cracking Clay (35% clay through profile) <input type="radio"/> Uniform (Non cracking soils with similar depth through profile) <input type="radio"/> Silty Loam (Delta/Alluvial/River soils)	Diseases of Concern <input checked="" type="checkbox"/> Smut <input type="checkbox"/> Chlorotic Streak <input type="checkbox"/> Red Rot <input checked="" type="checkbox"/> Leaf Scald <input type="checkbox"/> Brown Rust <input type="checkbox"/> Orange Rust	Management Issues Seasonal Sugar <input type="checkbox"/> Early <input type="checkbox"/> Mid <input checked="" type="checkbox"/> Late <input type="checkbox"/> Cane Grub Tolerance <input type="checkbox"/> Fast and Reliable Germination <input type="checkbox"/> Fast and Reliable Ratooning in Good Conditions <input type="checkbox"/> Fast and Reliable Ratooning in Harsh Conditions <input checked="" type="checkbox"/> Drought Tolerance
--	--	---

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The user has now specified all the soil classes, diseases of concern and management issues for all the blocks that they want a planting recommendation for, in all the years their Productivity and Risk Plan is going to run for, so they click on the Get Recommendations button.

Productivity and Risk Management Plan Recommendations

This is the key processing for making recommendations for the Productivity and Risk Management Plan. The aim is to find the best mix of varieties for a farm or farms.

Some absolute Productivity and Risk Management rules can apply. For instance, where any disease selected in the rules is set to 0%, then we can automatically tick that diseases checkbox (and stop it from being un-ticked), and exclude any susceptible or intermediate-susceptible varieties from the variety set to be used in the recommendations. Or we could exclude the varieties and not show the disease in the Diseases of Concern at all.

Where a disease susceptibility percentage is set to anything above zero then we have to rely on the 'area planted' checks to highlight when the percentage specified is reached.

Step by step, the whole of farm recommendations look like this:

1. Individual block recommendations are made using the existing process. Best yield score for soil type minus disease penalties +/- any sugar penalty/bonus for the first year of the plan
2. Productivity and Risk Management Rules are checked in order of Ranking, starting at level 1. These will commonly be the % of farm to one variety, or % of (in the smut incursion) smut susceptible varieties per farm
3. If a breach (or violation, we'll need to choose the right word) of a level 1 rule occurs, the system will redo the individual block recommendation (at point 1 above) and check the 2nd choice variety to see if it breaches any rules, if it does the 3rd choice will be used. Only varieties to fourth choice should be checked, or down to a certain yield score i.e. no varieties with a re-calculated yield score less than eight should be recommended. Where no variety above a re-calculated yield score of 8, or in the first

- four choices, can be made, the choices should be displayed and the user be required to accept one of the variety choices variety for the plan and the associated rule breach
4. When the first block passes level 1 checking, the second block requiring a recommendation will be processed. The variety chosen will be checked for level 1 breaches, and so on
 5. When all recommendations for the current year have successfully passed level 1 checking, the next years planting recommendations should be performed, and so on. I am not sure of the benefits of checking all of level 1 rules for all the years of a productivity and risk management plan as opposed to trying to process all rules at any level for the first year of the plan, then all rules for the second year of the plan etc. I think I favour the first option, all of the highest ranking rules for all the years, simply because they are the most important rules, that's why they have a high ranking.
 6. Where the algorithm provides recommendations of the same variety for different blocks but with the re-calculated yield score being different (because of differing soil types), then the variety will be assigned to the block with the highest yield score. The next best variety, for the other block, will be considered
 7. Where the algorithm provides recommendations of the same variety for different blocks and the re-calculated yield scores are the same (i.e. same soil type in both blocks), then the variety will be assigned to the block with the largest area (provided it doesn't breach any level 1 rules). The next best variety for the other block will be considered
 8. Users must have the option of accepting a recommendation that is in breach of any of the rules (they are governing their own risk in this), but if a rule breach is accepted they should be able to specify that further rule checking continues.
 9. When all level 1 rules are processed and recommendations are made and rule breaches accepted, the next levels of rules should be tested. For these I think it will be enough to create a list of secondary rules breached and continue checking without user involvement. When all rules are processed, a page with the recommendations should be displayed, with a link detailing the rules breached/violated.

Let's work all of that into an example, just for one year. Here are the ticked blocks requiring recommendations again.

Farm	Block	Area (ha)	Planting Date	Variety	2008 Details	
					Crop Class	Plant
1131	1	12	Apr 2007	Q208	P	<input type="checkbox"/>
1131	2	11.8	May 2005	Q183	2R	<input type="checkbox"/>
1131	3	13	Mar 2006	KQ228	1R	<input type="checkbox"/>
1131	4	12.2	May 2004	Q208	3R	<input type="checkbox"/>
1131	5	15	-	Fallow	-	<input checked="" type="checkbox"/>
1132	1	15.6	Apr 2007	Q208	P	<input type="checkbox"/>
1132	2	5	Apr 2004	Q127	3R	<input type="checkbox"/>
1132	3	5	May 2005	Tellus	2R	<input type="checkbox"/>
1132	4	18.1	May 2006	KQ208	1R	<input type="checkbox"/>
1132	5	4	Mar 2005	Q183	2R	<input type="checkbox"/>
1132	6	2	May 2005	Q208	2R	<input type="checkbox"/>
1132	7	7.3	-	Fallow	-	<input checked="" type="checkbox"/>
1132	8	7.4	Mar 2005	Q171	2R	<input type="checkbox"/>
1132	9	10	-	Fallow	-	<input checked="" type="checkbox"/>

In the above we need to make a recommendation for Farm/Blocks 1131/5, 1132/7 and 1132/9. The user has just clicked on the Get Recommendations button, and somewhere in one of the servers in Brisbane, this happens:



Example of Productivity and Risk Management Plan Recommendation Processing

Recommendations for the single blocks are made using the existing algorithm (re-calculated yield score = yield score – penalties + bonuses) and we get these results.

For 1131/5, assume Cracking Clay:

Region	Soil Class	Date	Time	User
Burdekin	Cracking Clay	24/07/2008	4:34 PM	David Millard
Recommendations	1	2	3	4
Variety	Q183[Ⓛ]	KQ228[Ⓛ]	Q208[Ⓛ]	Q177[Ⓛ]
Smut	Intermediate - Susceptible	Resistant	Intermediate - Resistant	Resistant
Include In Comparison Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Variety Links		Links		

For 1132/7, assume Non-sodic duplex:

Region	Soil Class	Date	Time	User
Burdekin	Non-Sodic Duplex	24/07/2008	4:35 PM	David Millard
Recommendations	1	2	2	4
Variety	Q208[Ⓛ]	KQ228[Ⓛ]	Q183[Ⓛ]	Q171[Ⓛ]
Smut	Intermediate - Resistant	Resistant	Intermediate - Susceptible	Resistant
Include In Comparison Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Variety Links		Links		

And for 1132/9, assume Silty Loam:

Region	Soil Class	Date	Time	User
Burdekin	Silty Loam	24/07/2008	4:36 PM	David Millard
Recommendations	1	1	3	4
Variety	KQ228[Ⓛ]	Q208[Ⓛ]	Q183[Ⓛ]	Q96
Smut	Resistant	Intermediate - Resistant	Intermediate - Susceptible	Intermediate
Include In Comparison Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Variety Links	Links			

If we summarize those recommendations, they look like this:

Variety Choice	Farm/Block 1131/5 (Cracking Clay)	Yield Score	Farm/Block 1132/7 (Non-Sodic Duplex)	Yield Score	Farm/Block 1132/9 (Silty Loam)	Yield Score
1	Q183 ^{db}	10	Q208 ^{db}	10.0	KQ228 ^{db}	9.5
2	KQ228 ^{db}	9.5	KQ228 ^{db}	9.5	Q208 ^{db}	9.5
3	Q208 ^{db}	9.0	Q183 ^{db}	9.5	Q183 ^{db}	9.0
4	Q171 ^{db}	8.5	Q171 ^{db}	8.5	Q96	8.5

Our Productivity and Risk Management Rules for this exercise are:

Productivity and Risk Management Rules

Rank	Delete Rule	Rank	Delete Rule
1 <input type="text" value="1"/> % of any one variety limited to a maximum of <input type="text" value="35"/>	<input type="checkbox"/>	2 <input type="text" value="2"/> % of good early season sugar varieties <input type="text" value="20"/>	<input type="checkbox"/>
2 <input type="text" value="2"/> % of Susceptible varieties for Smut <input type="text" value="5"/>	<input type="checkbox"/>	2 <input type="text" value="2"/> % of good mid season sugar varieties <input type="text" value="60"/>	<input type="checkbox"/>
2 <input type="text" value="2"/> % of Intermediate-Susceptible varieties for Smut <input type="text" value="20"/>	<input type="checkbox"/>	2 <input type="text" value="2"/> % of good late season sugar varieties <input type="text" value="20"/>	<input type="checkbox"/>
3 <input type="text" value="3"/> % of Susceptible varieties for Pachymetra <input type="text" value="20"/>	<input type="checkbox"/>	3 <input type="text" value="3"/> % of Good Drought Tolerant varieties <input type="text" value="20"/>	<input type="checkbox"/>
3 <input type="text" value="3"/> % of Intermediate-Susceptible varieties for Pachymetra <input type="text" value="35"/>	<input type="checkbox"/>	3 <input type="text" value="3"/> % of Average Drought Tolerant varieties <input type="text" value="70"/>	<input type="checkbox"/>
		3 <input type="text" value="3"/> % of Poor Drought Tolerant varieties <input type="text" value="10"/>	<input type="checkbox"/>

[Add more Productivity and Risk Management Rules](#)

The following steps through the first of the level 1 Productivity and Risk Management rules (no variety greater than 35%):

1. System adds the first choices to a temporary whole farm matrix and checks for violations for the highest ranked rules. These are those marked 1 or 1st in the Productivity and Risk Plan. This happens in the background and the user will not see the page below, it is in this doc for demonstration purposes.

Farm	Block	Area (ha)	Planting Date	Variety	2008 De Crop Class
1131	1	12	Apr 2007	Q208	P
1131	2	11.8	May 2005	Q183	2R
1131	3	13	Mar 2006	KQ228	1R
1131	4	12.2	May 2004	Q208	3R
1131	5	15	-	Q183	-
1132	1	15.6	Apr 2007	Q208	P
1132	2	5	Apr 2004	Q127	3R
1132	3	5	May 2005	Tellus	2R
1132	4	18.1	May 2006	KQ208	1R
1132	5	4	Mar 2005	Q183	2R
1132	6	2	May 2005	Q208	2R
1132	7	7.3	-	Q208	-
1132	8	7.4	Mar 2005	Q171	2R
1132	9	10	-	KQ228	-

2. The Q183[Ⓛ] recommendation for farm 1131, block 5, violates the 1st ranked rule that any one variety is limited to 35% if both block 2 and block 5 for farm 1131 are planted with Q183[Ⓛ]. (BTW. I have not checked the mathematics exactly, I am assuming they break the 35% barrier, and this algorithm walkthrough is based on that.) The next two choices also violate this rule, so the 4th choice, Q171[Ⓛ] will be selected. Thought: maybe we have to prevent these level one rules from being set too low, as poorer performing varieties may end up being selected. In this case don't let the maximum of one variety rule be entered under 30% and maybe not above 60%?
3. Q208[Ⓛ] and KQ228[Ⓛ] in blocks 7 & 9 of farm 1132 also violate the same rule. Q183[Ⓛ] in both blocks is the third choice, however, it is rated higher (9.5 vs 9.0, remembering that the blocks are different soil types) for block 7, so becomes the recommendation for that block
4. Now, Q183[Ⓛ] the third recommendation for block 9 will breach the level 1 rule because we've used it for block 7, as do the first and second choices, so the fourth is tested. And Q96 is used
5. So the recommendations now look like this:

Farm	Block	Area (ha)	Planting Date	Variety	2008 De
					Crop Class
1131	1	12	Apr 2007	Q208	P
1131	2	11.8	May 2005	Q183	2R
1131	3	13	Mar 2006	KQ228	1R
1131	4	12.2	May 2004	Q208	3R
1131	5	15	-	Q171	-
1132	1	15.6	Apr 2007	Q208	P
1132	2	5	Apr 2004	Q127	3R
1132	3	5	May 2005	Tellus	2R
1132	4	18.1	May 2006	KQ208	1R
1132	5	4	Mar 2005	Q183	2R
1132	6	2	May 2005	Q208	2R
1132	7	7.3	-	Q183	-
1132	8	7.4	Mar 2005	Q171	2R
1132	9	10	-	Q96	-

6. If the ratings for Q183[Ⓛ] had been identical for blocks 7 and 9, then Q183[Ⓛ] would have been assigned to block 9 as it is a larger area, and the fourth recommendation taken for block 7 i.e. Q171[Ⓛ] because it would have been a lower yield score
7. Next we repeat the process for the next level 1 ranked rule, or should we only have one level 1? If we have only one, does it make any difference?
8. If we pass all the level 1 ranked rules we move onto the level 2 ranked rules.
9. What happens if we cannot select a variety because of rule breach? There are two choices:
 - a. Flag the breach and keep testing further rules
 - b. Stop the rule testing, and show a page that details rules already successfully passed, and allows the user to accept the rule violation and:
 - i. Continue processing the remain rules
 - ii. Take the recommendations as they are without further rule testing
10. In allocating varieties to each block, what would be the minimum yield score we would recommend? If we suggest nothing below an 8.5 is that going to limit the varieties we have to choice from? Need to check existing ratings over each region and see if we have enough choice at 8.5 and above. Quote from Barry's notes; "I would suggest that using this method the system stops at score of below 8.5 and gives a warning that no variety with acceptable productivity can be selected that meets the rules – do you want to proceed with an adjusted rule (maybe identify offending rule and ask them to vary the rule setting??)"

11. Following is an example of how the rule breach page might look:

Farm	Block	Area (ha)	Planting Date	Variety							
1131	1	12	Apr 2007	Q208							
1131	2	11.8	May 2005	Q183							
1131	3	13	Mar 2006	KQ228							
1131	4	12.2	May 2004	Q208							
1131	5	15	-	Q208	Breach of Rule 1	> 35% of farm	Accept Breach	Next Choice	Select	Next Choice	Select
1132	1	15.6	Apr 2007	Q208			<input type="checkbox"/>	Q171	<input type="checkbox"/>	Q96	<input type="checkbox"/>
1132	2	5	Apr 2004	Q127							
1132	3	5	May 2005	Tellus							
1132	4	18.1	May 2006	KQ208							
1132	5	4	Mar 2005	Q183							
1132	6	2	May 2005	Q208							
1132	7	7.3	-	Q183							
1132	8	7.4	Mar 2005	Q171							
1132	9	10	-	Q96							

12. In this example, Q208^(b) as selected initially is a breach of the first ranked rule that any one variety should not be more than 35% of farm. User has the option to accept the Q208^(b) recommendation, or select one of the next two recommendations that do not breach the rule. They can also take the recommendations as they are at this point and accept the variety plan as it stands, or change them AND also continue with further rule checking
13. What happens if they take the Q171^(b) next choice and continue Rule Checking? At some point we should show the rules successfully passed and the breaches accepted. We could do it with a 'Show Rule Processing', or similar, button next to each recommendation, like this:

Whole of Farm Planning, Productivity and Risk Management										
Farm	Block	Area (ha)	Planting Date	Variety						
2008 Planting Recommendations Complete										
1131	1	12	Apr 2007	Q208						
1131	2	11.8	May 2005	Q183						
1131	3	13	Mar 2006	KQ228						
1131	4	12.2	May 2004	Q208						
1131	5	15	-	Q171			<input type="button" value="Show Rule Processing"/>			
1132	1	15.6	Apr 2007	Q208						
1132	2	5	Apr 2004	Q127						
1132	3	5	May 2005	Tellus						
1132	4	18.1	May 2006	KQ208						
1132	5	4	Mar 2005	Q183						
1132	6	2	May 2005	Q208						
1132	7	7.3	-	Q183	-		<input type="button" value="Show Rule Processing"/>			
1132	8	7.4	Mar 2005	Q171						
1132	9	10	-	Q96	-		<input type="button" value="Show Rule Processing"/>			

14. When the Show Rule Processing button is clicked, system takes us to a page looking something like this one:

**Whole of Farm Planning, Productivity and Risk Management
Block Recommendations**

Region Burdekin **Mill Area** Burdekin Mills **Plan** 1003 **Farm** 1131 **Block** 5

<p>Soil Class</p> <p><input type="radio"/> Sodic Duplex (ESP>6)</p>	<p>Diseases of Concern</p> <p><input type="checkbox"/> Smut</p> <p><input type="checkbox"/> Chlorotic Streak</p>	<p>Management Issues</p> <p>Seasonal Sugar</p> <p><input type="checkbox"/> Early</p> <p><input type="checkbox"/> Mid</p> <p><input type="checkbox"/> Fast and Reliable Ratooning in Harsh Conditions</p>												
<p>Rules Processing</p> <p>Rank Rule</p> <p>1 > 35 % of farm</p> <p>1 > 35 % of farm</p> <p>1 > 35 % of farm</p> <p>2 > 20 % good early sugar</p> <p>3 > 10 % drought tolerance</p>	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Variety</th> <th style="text-align: left;">Breach overridden</th> </tr> </thead> <tbody> <tr> <td>Q183</td> <td><input type="checkbox"/></td> </tr> <tr> <td>KQ228</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Q208</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Q171</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Q171</td> <td><input type="checkbox"/></td> </tr> </tbody> </table>	Variety	Breach overridden	Q183	<input type="checkbox"/>	KQ228	<input type="checkbox"/>	Q208	<input type="checkbox"/>	Q171	<input type="checkbox"/>	Q171	<input type="checkbox"/>	<p>Q171 Variety recommended</p>
Variety	Breach overridden													
Q183	<input type="checkbox"/>													
KQ228	<input type="checkbox"/>													
Q208	<input type="checkbox"/>													
Q171	<input type="checkbox"/>													
Q171	<input type="checkbox"/>													

these braches may or
may not be true, used as
example only

[Back to Farm Plan](#)

2007

End Use Case

APPENDIX 8 – QCANESelect™ Training Manual



QCANESelect™ TRAINING MANUAL

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Warning

Our tests, inspections and recommendations should not be relied on without further, independent inquiries. They may not be accurate, complete or applicable for your particular needs for many reasons, including (for example) BSES Limited being unaware of other matters relevant to individual crops, the analysis of unrepresentative samples or the influence of environmental, managerial or other factors on production

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QCANESelect™ is a web based variety information resource and decision support tool containing the most up-to-date variety information available to growers and industry groups.

This training manual has been developed to assist users in navigating QCANESelect™, and to provide step by step instructions for some of the more complex functions. There are activities to help users gain confidence using the system.

1.0 INTRODUCTION

QCANESelect™ is an easy to use variety information resource and variety decision support tool, containing varied and diverse information about varieties. There are six (6) main components to QCANESelect™:



Variety information contains variety guides and variety information sheets, and tables of ratings for diseases, management issues, seasonal sugar, soil recommendations and suggested harvest periods. It allows direct comparisons between different varieties and provides links to photographs to aid variety identification.

Block recommendations allow for variety selection based on some simple characteristics such as Region, Soil Class, Disease of Concern, Seasonal Sugar and Management Issues. Recommendations are given; ranking varieties in order of performance over a normal crop cycle, while considering the user defined parameters.

Whole Farm Planning, Productivity and Risk Management is a powerful tool that assists growers to develop a whole-farm plan for managing varieties to improve farm productivity and sustainability while reducing risks. The whole-farm plan suggests the best variety for blocks to be planted in coming years based on grower defined risk management rules,

existing variety composition on the farm and soil type and other specific features of the block.

Regional reporting contains features which allow users to compare varieties and examine the composition of the crop in a Region relating to Area, Tonnes, Tonnes of Sugar per Hectare (TSH), Tonnes of Cane per Hectare (TCH), Sugar content (CCS) and disease resistance/susceptibility. Users can investigate the performance of varieties across different growing regions and mill areas.

On-line resources, contains additional information, such as; links to other web sites and BSES information sheets on diseases and management issues.

Feedback, this functionality allows users to give feedback about the system and the information in it, back to their local extension staff and the QCANESelect™ development team. If you see information on a variety that you don't agree with you can give feedback, and it will be discussed within extension.

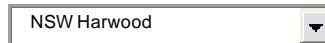
Online Help; is linked directly to QCANESelect™ containing all the relevant information on navigating around the system.

2.0 GETTING STARTED

2.1 How to guide

QCANESelect™ has been designed to be user friendly. Here are some simple tips to help you use the system.

Drop Down List Box



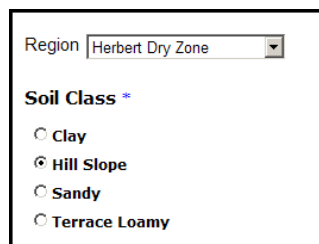
You will see drop down list boxes throughout QCANESelect™ where we want you to select one item from a list of choices. Click on the arrow and a list of options will appear, and then you click on the list item you want to select.

Tick Boxes

Q235 [Ⓢ]	<input type="checkbox"/>
Q232 [Ⓢ]	<input checked="" type="checkbox"/>
KQ228 [Ⓢ]	<input checked="" type="checkbox"/>
Q208 [Ⓢ]	<input type="checkbox"/>
Q200 [Ⓢ]	<input checked="" type="checkbox"/>

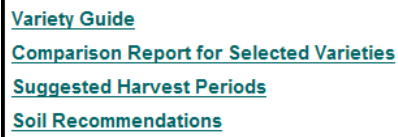
Tick Boxes are found in all areas of QCANESelect™ and allow you to select multiple options like on the Variety Information page where multiple varieties can be ticked to include in a comparison report. More than one (1) tick box can be selected at any one time. An easy way to identify tick boxes is the shape, they are always square.

Radio Buttons



Radio buttons, on the other hand, are small circles, a feature of radio buttons is that only one (1) in a series can be selected at one time. For example, when creating a Block Recommendation you can only select one (1) Soil Class.

Hyperlink

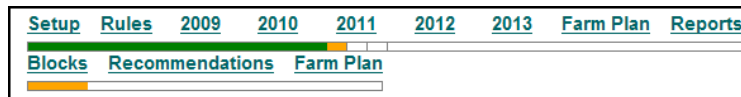


Hyperlinks are generally defined by text that is blue in colour and is underlined. Clicking on a hyperlink will take you to a web-page, or report, associated with that link.

Button

Click on a button to run reports, or move from one page to the next in a series. You will see buttons on the Variety information and Block Recommendation pages.

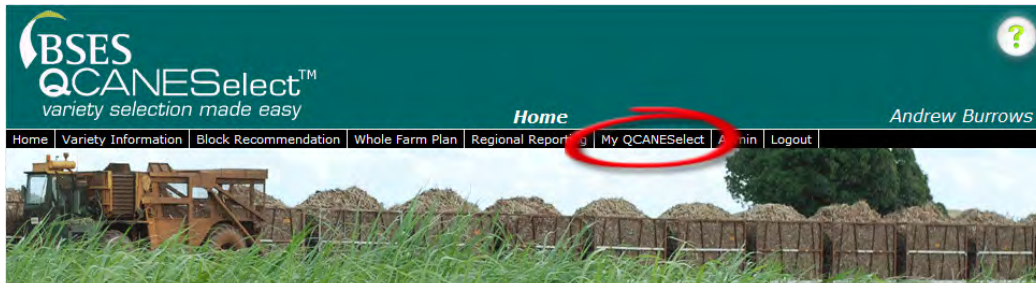
Progress Bar



The Progress Bar is a navigation tool that is used throughout the Whole Farm Plan. It works via a series of Hyperlinks and allows you to move from page to page of a plan without having to go through all the pages.

2.2 Setting up My QCANESelect

My QCANESelect allows users to set default region settings and add and edit farm information attached to their username.



Edit Registration, this information will be recorded when you Register, but you are able to change this information. Your name, email, and your username can remain the same.

Edit Registration	
First Name	<input type="text" value="A"/> *
Last Name	<input type="text" value="Farmer"/> *
Email Address	<input type="text" value="Afarmer@canefarm.com.au"/> *
Login Details	
Username	<input type="text" value="afarmer"/>
Password	<input type="password" value="*****"/> (Leave blank if you don't want to change)
Confirm Password	<input type="password" value="*****"/>
Region	<input type="text" value="Herbert Dry Zone"/>
Mill Area	<input type="text" value="Victoria"/>
<input type="button" value="Save"/>	
* Required Field	

To change your Password:

1. Enter your new password in the Password field
2. Re-enter your new password in the Confirm Password field
3. Click the Save button

To Change default Region:

1. Select appropriate Region from the drop down list
2. Select Mill Area
3. Click the Save button

To Enter Farm Details:

Use the Drop Down Lists to select:

1. Region
2. Mill Area
3. Enter in your Farm Name/ID
4. Click the Add New Farm button

Add Farm	
Region	<input type="text" value="Burdekin"/> *
Mill Area	<input type="text" value="Kalamia"/> *
Grower	<input type="text" value="."/> *
Farm Name/ID	<input type="text"/> *
<input type="button" value="Add New Farm"/> <input type="button" value="Cancel"/>	
* Required Field	

3.0 VARIETY INFORMATION

The variety information page in QCANESelect™ contains the most up-to-date information on varieties. This is because QCANESelect™ sources its information directly from SPIDNet, the BSES Plant Improvement database. QCANESelect™ acts as a point and click interface to provide variety data from this complex system that is both simple to use and understand.

TO GET VARIETY INFORMATION

Select the Region you wish to see variety information for from the drop down list. This page is designed for point and click access to all functions.

Variety Information

Select a Region

Southern Bundaberg-Isis

Variety Information Sheet & Document Links	Include in Comparison Report	Select All <input type="checkbox"/>
Q240	<input type="checkbox"/>	<input type="checkbox"/>
Q235 [Ⓞ] Links	<input type="checkbox"/>	<input type="checkbox"/>
Q232 [Ⓞ] Links	<input type="checkbox"/>	<input type="checkbox"/>
KQ228 [Ⓞ] Links	<input type="checkbox"/>	<input type="checkbox"/>
Q208 [Ⓞ] Links	<input type="checkbox"/>	<input type="checkbox"/>
Q200 [Ⓞ] Links	<input type="checkbox"/>	<input type="checkbox"/>
Q190 [Ⓞ] Links	<input type="checkbox"/>	<input type="checkbox"/>
Q177 [Ⓞ] Links	<input type="checkbox"/>	<input type="checkbox"/>
Q155	<input type="checkbox"/>	<input type="checkbox"/>
Q151 Links	<input type="checkbox"/>	<input type="checkbox"/>
Q146	<input type="checkbox"/>	<input type="checkbox"/>
Q135	<input type="checkbox"/>	<input type="checkbox"/>

1 [Variety Guide](#) (large download)

2 [Suggested Harvest Periods](#) **5**

3 [Soil Recommendations](#) **6**

Ratings Reports 7

Disease

Include varieties not recommended

Management Issue

Seasonal Sugar

1. Variety guides, these are the same look as the paper guides that are available from BSES. Variety guides and variety information sheets are instantly updated when BSES enters new data into the Plant Improvement database such as disease resistance or tolerance to environmental stresses.

- Click on the [Variety Guide](#) hyperlink

(WARNING - the variety guide for a region is a large file and could take a long time to download especially if you do not have a fast internet connection)

2. Variety Information sheets, taken from the Variety Guide showing only the selected variety on a full page

- Click on the Variety Name hyperlink, for example, [KQ228](#)[Ⓞ]

3. Links open up a new window, and allows users to look at variety photos and other information associated with a variety

- Click on the [Links](#) hyperlink

4. Comparison Reports for Selected Varieties, comparing the information from the Variety Guides of multiple varieties in an easy to follow format, more than one variety per page (similar format to fold out variety guides that were popular in some regions)

- Check the Tick Boxes for the varieties required for comparison or tick Select All to include all varieties, then

- Click [Comparison Report for Selected Varieties](#)

5. Suggested Harvest Periods allows users to make informed decisions on crop harvest times and assist in obtaining the best CCS advantage from a specific variety. The suggested harvest period table shows the best time to harvest a variety in blue and the next best time in green. If there is no coloured bar, it is recommended that the variety is not harvested in this period.

- Click the [Suggested Harvest Periods](#) hyperlink on the right of screen

6. Soil Recommendations,

Soil Class is one of the most important selection criteria for maximizing productivity from varieties. The Soil Recommendations report shows the varieties that are best suited to the Soil Classes in a Region. Varieties are listed in order of recommendation for the soil type.

- Click the [Soil Recommendations](#) hyperlink

7. Rating Reports provide tables of ratings for disease resistance and reaction of varieties to the important management issue in a region. The Seasonal Sugar report rates varieties good, average or poor for sugar content relative to mill average for early, mid and late harvest.

- Select the relevant issue from the drop down lists
- Click on the Go button

3.1 VARIETY INFORMATION ACTIVITIES

In your region which Varieties are best harvested early?

Find two (2) ways to get a description or photograph to help you identify a variety?

4.0 Block Recommendations




The Block Recommendation page allows growers to obtain recommendations for one block based a range of selection criteria that they define. The selection criteria are divided into four areas:

- Soil class
- Diseases
- Seasonal sugar
- Management issues

4.1 Previous Block Recommendations

From the Block recommendation page you can either create a new Block Recommendation or view or edit a saved Block Recommendation.

If you have previously saved a Block Recommendation, you will be directed to the Previous Block Recommendation Page. The Region and Mill Area are set to defaults from My QCANESelect™. To get a new block recommendation, click on the [New Recommendation](#) hyperlink. To view, edit or delete an existing block recommendation select the icons next to the block in the list.

Previous Block Recommendations										
New Recommendation										
Region	Southern Bundaberg-Isis	Mill Area	Isis							
Farm	All Farms									
Region	Mill Area	Farm	Block	Soil Class	Date	Time	User	View	Edit	Delete
Southern Bundaberg-Isis	Isis			Grey Forest	23/04/2009	8:38AM	A Farmer			

4.2 New Block Recommendation

If you have no existing block recommendations you will be taken directly to the new block recommendation page.

By selecting the appropriate Soil Class, Diseases of Concern, Management Issues including Seasonal Sugar; QCANESelect™ is able to give a block recommendation based on the selected criteria.

How to get a New Block Recommendation

Edit Block Recommendation

Region 6

<p>Soil Class *</p> <p><input checked="" type="radio"/> Alluvial 2</p> <p><input type="radio"/> Clay</p> <p><input type="radio"/> Seymour</p> <p><input type="radio"/> Terrace Loamy</p> <p><small>* Required Field</small></p>	<p>3 Diseases of Concern</p> <p><input checked="" type="checkbox"/> Smut</p> <p><input type="checkbox"/> Brown Rust</p> <p><input type="checkbox"/> Chlorotic Streak</p> <p><input type="checkbox"/> Leaf Scald</p> <p><input type="checkbox"/> Orange Rust</p> <p><input type="checkbox"/> Pachymetra</p> <p><input type="checkbox"/> Red Rot</p> <p><input type="checkbox"/> RSD</p> <p><input type="checkbox"/> Yellow Spot</p>	<p>Management Issues</p> <p>Seasonal Sugar</p> <p><input type="radio"/> Best All Round CCS</p> <p><input type="radio"/> Early 4</p> <p><input type="radio"/> Mid</p> <p><input type="radio"/> Late</p> <p><input type="checkbox"/> Cane Grub Tolerance</p> <p><input type="checkbox"/> Drought Tolerance</p> <p><input checked="" type="checkbox"/> Tolerance to Waterlogging</p> <p><input checked="" type="checkbox"/> Ratooning under wet conditions 5</p> <p><input type="checkbox"/> Ratooning under dry conditions</p> <p><input type="checkbox"/> Speed of Germination</p>
---	---	--

6

1. Click on the [New Recommendation](#) hyperlink
2. Select your **Region** from the drop down list. If changing regions, wait for the new soil classes to be displayed
3. Select the appropriate **Soil Class** for the block by clicking the radio button next to it (you must select a soil class)
4. Check the tick boxes beside the **Diseases of Concern**, multiple diseases are allowed (Optional - we recommend that you restrict your choices to only the diseases that are of most concern)
5. Click on appropriate **Seasonal Sugar radio button (Optional – only one button can be selected)**
6. Check relevant **Management Issues tick boxes (Optional - we recommend that you restrict your choices to only the management issues that are of most concern)**
7. Click on the **Get Recommendation button**

4.3 Block Recommendation Page

Once users have entered relevant information on the New Block Recommendation page, that information is used to generate a specific block recommendation which ranks each variety in order of performance; First (1st), Second (2nd), Third (3rd) and so on. The result is the variety recommended first (1st), is the variety that the group experts estimates will give the best dollar return over a crop cycle in the selected soil class. Bonuses or penalties applied to each variety if diseases, seasonal sugar or management issues are selected. The overall is a recommendation for that block that best suits all of the selected criteria. In some cases more than one variety may be ranked first choice. In this case the experts could not separate these varieties. The second, third and other ranked varieties are also shown and the grower can decide that he would prefer to select one of the lower ranked choices. The system is only a tool to assist growers.

Block Recommendation Example:

The example below shows a recommendation given for a block in the Herbert Wet Zone on Alluvial soils. Other criteria that were selected for this example were Smut, Tolerance to Waterlogging and ability to Ratoon under wet conditions. When each of these factors is considered for this block, the variety recommended as the best fit for that situation was KQ228[ⓓ] followed by Q208[ⓓ] and Q183[ⓓ].

Region	Soil Class	Date	Time	User
Herbert Wet Zone	Alluvial			
Recommendations	1st	2nd	3rd	
Variety	KQ228[ⓓ]	Q208[ⓓ]	Q183[ⓓ]	
Smut	Resistant	Intermediate - Resistant	Intermediate - Susceptible	
Tolerance to Waterlogging	Average	Average	Average	
Ratooning under wet conditions	Average	Average	Average	
Include In Comparison Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Variety Links	Links	Links		

While staying on this Recommendation Page you are able to get more information on those varieties.

Region	Soil Class	Date	Time	User
Herbert Wet Zone	Alluvial			
Recommendations	1st	2nd	3rd	
Variety	KQ228[ⓓ] 1	Q208[ⓓ]	Q183[ⓓ]	
Smut	Resistant	Intermediate - Resistant	Intermediate - Susceptible	
Tolerance to Waterlogging	Average	Average	Average	
Ratooning under wet conditions	Average	Average	Average	
Include In Comparison Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Variety Links	Links	Links		

1. Variety Information Sheets

Click on the Variety Name hyperlink, for example, [KQ228[ⓓ]](#)

2. Comparison Reports

Check the Tick Boxes for the varieties required for comparison

Click [Comparison Report for Selected Varieties](#)

[3. Variety links – select the links to go to photographs or other information on the variety.](#)

These functions are the same as those described in the Variety Information section.

4.4 Save a Block Recommendation

On the Block Recommendation Page, by clicking the Save button; you are brought to a page that asks for block and farm numbers. This allows users to Save a Block Recommendation, and come back to it later.

To Save a Block Recommendation

Recommendation Details	
Region	Southern Bundaberg-Isis
Soil Class	Grey Forest
Mill Area	Isis *
Farm	<input type="text"/>
Farm Block No	<input type="text"/>
Your Comments	<input type="text"/>
<input type="button" value="Save"/>	
* Required Field	

Region, Soil Class and Mill Area will automatically populate from My QCANESelect. Users are able to select a Farm for this recommendation from their list of saved farms, Farm Block No and Your Comments can also be entered. Once you are happy with the information, click the Save button. This recommendation can now be viewed or edited from the Previous Block Recommendation Page.

4.5 BLOCK RECOMMENDATION ACTIVITIES

Get a recommendation for a fallow block on your farm that you intend to plant this year or next year.

How do you get a comparison report for the top three (3) recommended varieties from a recommendation?

5.0 WHOLE FARM PLANNING, PRODUCTIVITY AND RISK MANAGEMENT

Whole Farm Planning, Productivity and Risk Management is a powerful tool that assists growers to develop a whole-farm plan for managing varieties to improve farm productivity and sustainability while reducing risks. The whole-farm plan suggests the best variety for blocks to be planted in coming years based on grower defined risk management rules, existing variety composition on the farm and soil type and other specific features of the block.

5.1 Creating a Whole Farm Plan

To create a Whole-farm Plan for the first time

Plan Details

1. Select a Region from the drop down list
2. Enter a Plan Name/Description
3. Enter a Target Planting Rate (%)
4. Specify how many years you want the plan to run for

Farm (s)

5. Select a Region and Mill Area for the Farm from the drop down lists
6. Enter Farm Name/ID
7. Click the Add New Farm button

Region	Mill Area	Grower	Farm	No. of Blocks	Remove Farm
Southern Bundaberg-Isis	Isis	Andrew Burrows	15465	8 13 *	X

9 Next >>

8. Enter the Number of Blocks on the farm (we suggest you use the same block numbers assigned by the mill including sub-blocks, for example if you have 10 blocks on your farm but block 2 is sub-divided into 3 sections labelled blocks 2A, 2B and 2C in the mill plans then you should enter 12 blocks)

9. Then click Next

To ADD a New Farm Plan to an Existing Farm repeat Steps 1 to 4.

To assign an Existing Farm to a new plan

- 10. Select the appropriate Mill Area
- 11. Select the Farm you want the plan for
- 12. Then click the Add Farm to Plan button

Alternatively, to Add a New Farm

- 13. Click on the [Add a New Farm](#) hyperlink and repeat steps 5 to 9.

Editing an Existing Plan

Farm Risk Plan	Region	Mill Area	Grower	Farms	Edit	Delete
cane farm	Southern Bundaberg-Isis	Isis	Andrew Burrows	trial farm		

To open an Existing Farm Plan

- 1. Click the Edit icon which is assigned to the farm and plan.

5.2 Risk Management Rules

The Risk Management Rules set the boundaries for selection criteria such as diseases, variety percentages and seasonal sugar. It is important to consider these rules very carefully; if they are too lenient it could lead to an increase of on farm risk, alternatively, if the rules are too restrictive, less appropriate varieties may be recommended over higher yielding ones. An example of a Risk Management Rule is that a grower may want to restrict the percentage of any one variety to 40% of his farm to reduce his risk that if anything goes wrong with this variety he is not over exposed. The philosophy behind the rules is similar to that used by investors when developing a diversified share portfolio.

To Create Rules

Rank	Rule	%
1st	% of any one variety limited to a maximum of	<input type="text"/>
1st	% of varieties rated <input type="text" value="Susceptible"/> for <input type="text" value="Smut"/> are <input type="text" value="At Most"/>	<input type="text"/>
1st	% of varieties rated Good for <input type="text" value="Early"/> Seasonal Sugar are At Least	<input type="text"/>

Varieties: To create a rule for the maximum of any one variety, enter the desired percentage in the corresponding field and click the Add Rule hyperlink

Diseases: To create rules for diseases use the drop down list to select the required rating (Resistant, Intermediate, etc), use the next drop down list to select the Disease of Concern (e.g. Smut, Orange rust), then select the operator (At Least, At Most and Equal) that tells the system how you want to manage this rule and finally add a percentage, then click the Add Rule hyperlink.

A simple example is that a grower may want to restrict the percentage of Pachymetra susceptible varieties on his farm to 30%. He would select susceptible, Pachymetra and “at most” and enter 30% in the percentage box.

Seasonal Sugar: The seasonal sugar rules allow you set a percentage for varieties that you want rated Good for either Early, Mid or Late season sugar content. To set the rule, select Early, Mid or Late from the drop down list, and enter the desired percentage. To finish, click the Add Rule hyperlink

REMEMBER TO HIT THE “ADD RULE” HYPERLINK OR YOUR RULE WILL NOT BE SAVED.

WARNING Be careful when selecting the Operators (At Least, At Most and Equal) when creating rules for diseases, as this can adversely affect the rule’s operation if entered incorrectly. For example if you want resistant varieties to be 80% or more of your crop you should select the “At Least” operator and enter 80%. This will tell the system that you do not want the percentage of resistant varieties to be less than 80%. If you by mistake select the “At Most” operator the system will think you do not want the resistant varieties to be any more than 80% and it will be happy to let you drop the level of resistant varieties to any percentage less than 80%.

5.3.1 Entering Block Information

Farm details need to be entered when a farm is created; this only has to be done once. Information that needs to be entered includes: block name or number, area (ha), the planting date, what variety and crop class. Other information required includes whether the block is going to be planted, fallowed or is to be left as stand over. These selections can be made by checking the tick boxes that relate to the block.

Farm	Block	Area (ha)	Planting Date (mm/yy or yy)	What Variety is in this block in 2009?	Crop Class	Do you want to Plant this block in 2009?	Do you want to Follow this block in 2009?	Will you stand this block over in 2009?	Your Planting Selection for 2009
10000	1	5.21		Q188	3R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10000	2	3.25		Fallow		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10000	3	1.86		Q205	5R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10000	3a	2.65		Q188	3R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10000	4	3.81				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10000	5a	4.96				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10000	5	4.32				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10000	8	2.65				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10000	9	3.56				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10000	10	1.96				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

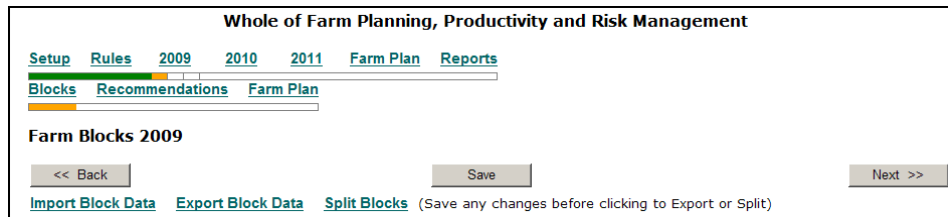
Enter crop class as it was for harvest in 2009

* Required Field

Clear existing 2009 Planting Selections?

When entering the farm information, such as variety and crop class, click in the field and a list will open, then select the relevant information and it will populate the cell. At the beginning of each year users will be returned to this screen, where they are able to select different blocks for planting and fallowing. Crop class should be how the mill will describe the crop in the year of the plan. i.e. If you set up the plan in 2009 a 3R crop above will be 3rd Ratoon for harvest in 2009. We have set up QCANESelect™ in this way so that block details obtained from the mill can be directly copied into QCANESelect™.

5.3.2 Importing and Exporting Block Information



Whole Farm Plan information can be imported from other sources using CSV (Comma delimited) files. A CSV file is a table of data where commas are used to separate information. This is useful when entering a lot of block information, and is done by using the Import Block Data function.

IMPORTING FARM INFORMATION

To Import Block Data from mill maps or spreadsheets, files must be saved as CSV files.

The CSV files (column headings) needs to set out in one (1) of three (3) ways.

Format 1: block data including area

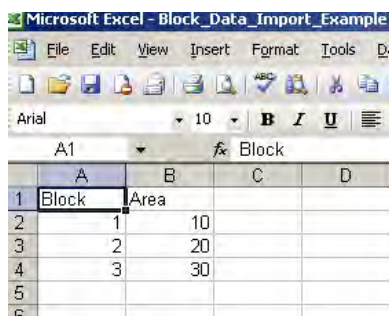
Block	Area
1a	5.36
3	11.25
4b	9.78

Format 2: Block data including variety

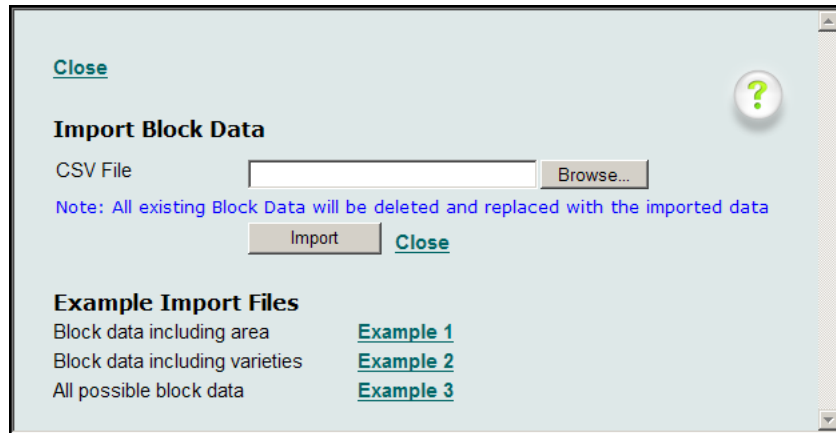
Block	Area	Planting date	Variety	Crop Class
1a	5.36	2007	KQ228	1R
3	11.25	2008	Q183	P
4b	9.78	2009	Q208	P

Format 3: All possible Block Data

Block	Area	Planting Date	Variety	Crop Class	Plant	Fallow	Stand over
1a	5.36	2007	KQ228	1R	No	Yes	No
3	11.25	2008	Q183	P	No	No	No
4b	9.78	2009	Q208	P	No	No	Yes



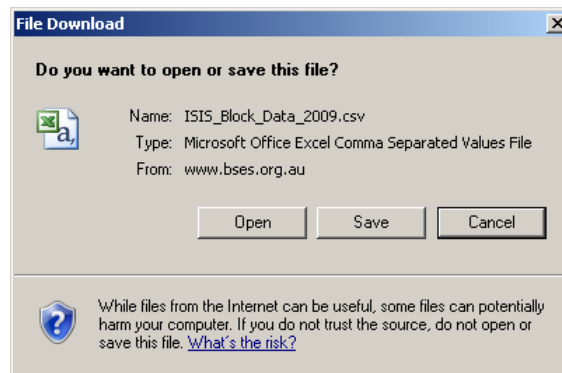
As long as your CSV file contains the same headings as the examples above, click the Browse button and navigate to the location of your CSV file



Select your CSV file and click Open, then click on the Import button. This information will automatically populate the cells on the block information page.

EXPORTING FARM INFORMATION

To Export your block information click on the hyperlink to [Export Block Data](#) and a new window will open up, to prompt you if you want to save the file or just open it.



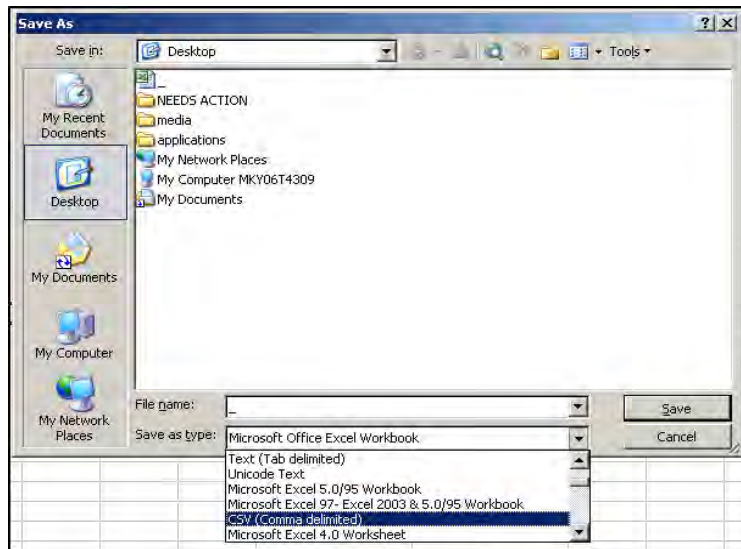
To save the data click on the Save button and navigate to the place where you want to save it and click on the Windows save button.

5.3.3 CSV Files

To be able to import your block information you need to have the information in a CSV file, which is a type of file used by a lot of applications. It might be possible to get a CSV file of your farm from your local mill representative.

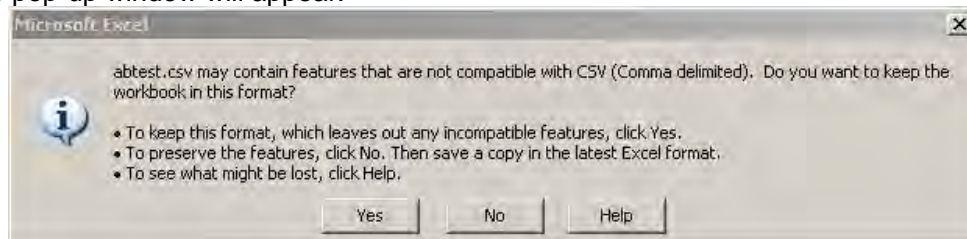
HOW TO CREATE A CSV

In Excel enter in your block information, in the same format as shown on the Importing and Exporting Block Information page. Then click on the File- Save As icon, the Save As prompt will come up.



1. Go to the directory where you want to save you farm details
2. Enter in a **File Name**
3. Change the Save as type to **CSV (Comma delimited)**; you will need to scroll down the list to find this file type
4. Then Click the Save button

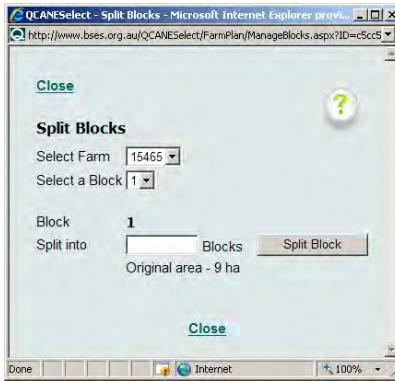
A new pop-up window will appear:



Click **Yes** to save your block data as a CSV file

5.4 Split Blocks

The Split Block option allows users to change block configuration on their farms. If you have a change in your blocks over time you can then update your farm on QCANESelect™. On the Block Information Page there is a hyperlink to Split Blocks, which will open a new window.



To Split a Block:

1. Select the appropriate farm from the drop down list box
2. Select the block that you want to split
3. Enter in how many blocks you want to create
4. Then Click Split Block

A new table will appear at the bottom of the page

Block	Area (ha)	Remove
2-1	4	
2-2	4	
2-3	1	X

From here you can change the block names if required and the area of the block by clicking in the appropriate field and type in what you want. Once you are happy with the changes click the Update Blocks button. This window will now close and take you back to the Block Information page, where you can see the results of the block split.

15465	1	9.00
15465	2-1	4.00
15465	2-2	4.00
15465	2-3	1.00

5.5 Block Recommendation Page

In the example below we have ticked that we want to plant blocks x y z and fallow blocks a b c.

Once you have entered in your farm block information you are then able to select which blocks you wish to get a recommendation for, which blocks to fallow and which to standover. At the beginning of each year of your plan you will be brought back to the farm block page, where you select whether to plant, fallow or standover for that year of your plan.

Year 1 of plan

Farm	Block	Area (ha)	Planting Date (mm/yy or yy)	What Variety is in this block in 2009?	Crop Class	Do you want to Plant this block in 2009?	Do you want to Fallow this block in 2009?	Will you stand this block over in 2009?	Your Planting Selection for 2009
15465	A	1.20		Q205	4R	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
15465	B	6.35		Q188	3R	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
15465	C	4.52		Q205	5R	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
15465	D	3.20	03/2009	Q208	P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	X	4.63		Fallow		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	Y	2.57		Fallow		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	Z	5.87		Fallow		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Year 2 of plan

Farm	Block	Area (ha)	Planting Date (mm/yy or yy)	Variety in this block in 2010	Crop Class	Do you want to Plant this block in 2010?	Do you want to Fallow this block in 2010?	Will you stand this block over in 2010?	Your Planting Selection for 2010
15465	A	1.20		Fallow		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	B	6.35		Fallow		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	C	4.52		Fallow		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	D	3.20	03/2009	Q208 ^D	P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	X	4.63	08/2009	KQ228 ^D	P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	Y	2.57	09/2009	Q240 ^D	P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	Z	5.87	08/2009	Q232 ^D	P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Then click the next button and you will be taken to a block recommendation page for each of the blocks we selected for planting in that year. The system goes to the largest block selected for planting first because to maximize productivity we want to select the best variety for the largest block.

The Block Recommendation Page in the Whole Farm Plan is very similar to the single Block Recommendation page; it allows users to make selection decisions based upon multiple variables and factors. It requires the same input information.

By selecting the appropriate Soil Class, Diseases of Concern, Management Issues and Seasonal Sugar, QCANESelect™ will give a recommendation.

1. Select the appropriate **Soil Class** for the block by clicking the radio button next to it
2. Check the tick boxes beside the **Diseases of Concern**, multiple diseases are allowed (if applicable to situation)
3. Click on appropriate **Seasonal Sugar radio button**, if required
4. Check relevant **Management Issues tick boxes**; if necessary select multiple issues
5. Click on the Get Recommendation button
(N.B The selection of Diseases of Concern, Seasonal Sugar and Management issues is not mandatory)

Block Recommendation 9

5

Region Southern Bundaberg-Isis **Mill Area** Isis **Plan** cane farm

Farm trial farm **Block 9** **Area** 11.00

<p>1</p> <p>Soil Class *</p> <p><input type="radio"/> Black Clay</p> <p><input type="radio"/> Grey Forest</p> <p><input type="radio"/> Heavy Alluvials</p> <p><input type="radio"/> Light Alluvials</p> <p><input checked="" type="radio"/> Poor Grey Forest & Sands</p> <p><input type="radio"/> Red Forest</p> <p><input type="radio"/> Red Volcanic</p>	<p>2</p> <p>Diseases of Concern</p> <p><input type="checkbox"/> Smut</p> <p><input type="checkbox"/> Brown Rust</p> <p><input type="checkbox"/> Fiji Leaf Gall</p> <p><input type="checkbox"/> Leaf Scald</p> <p><input type="checkbox"/> Mosaic</p> <p><input type="checkbox"/> Orange Rust</p> <p><input checked="" type="checkbox"/> Pachymetra</p> <p><input type="checkbox"/> Red Rot</p>	<p>Management Issues</p> <p>Seasonal Sugar</p> <p><input type="radio"/> Best All Round CCS</p> <p>3 <input type="radio"/> Early</p> <p><input type="radio"/> Mid</p> <p><input type="radio"/> Late</p> <p><input type="checkbox"/> Cane Grub Tolerance</p> <p><input checked="" type="checkbox"/> Fast and Reliable Germination</p> <p><input type="checkbox"/> Fast and Reliable Ratooning in Harsh Conditions</p> <p>4 <input type="checkbox"/> Drought Tolerance</p> <p><input type="checkbox"/> Tolerance to Waterlogging</p> <p><input type="checkbox"/> Frost Tolerance</p>
--	--	--

5.6 Understanding Recommendations and Percentages

The recommendation page is slightly different in the Whole Farm Plan than the single block recommendation page as it takes into consideration the Risk Management Rules set out earlier. Varieties are recommended for their suitability to the selection criteria set out on the Block Recommendation Page, while showing the effects a variety will have on the Risk Management Rules. If a variety exceeds a rule, it will be greyed out and you will not be able to immediately select this variety. This alerts you that selecting a particular variety will break one of your own rules which were set up to manage risk on your farm. But if there are other factors that suggest that it is best to still plant a variety that exceeds a rule, tick the **Select a variety that exceeds a rule** tick box and then select the variety. The system shows you what the percentage for each rule will change to if you select that variety. If the rule will be exceeded if you select that variety the number will be in red and there will be a small cross next to the number, if the percentage is within the acceptable range for the rule then the number will be green and there will be a small cross next to the number. If the percentage is within 5% of the threshold set for the rule then the number will be orange and there will be an equal number next to the number. The varieties that fall in the orange or buffer close to the threshold set for the rule can be selected. We have set up the system to allow slightly higher percentages than set in the rules so that if a block is certain size that will cause the

rule to be exceeded by a small amount then it is probably in the growers best interest to plant this block with the best variety for that block.

Select a variety that exceeds a rule

Recommendations	1st	2nd	2nd	4th
Variety	Q232 [Ⓛ]	KQ228 [Ⓛ]	Q208 [Ⓛ]	Q240
Select for Planting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smut	Resistant	Resistant	Intermediate - Resistant	Resistant
One Variety Maximum 40%	44% <input type="checkbox"/>	33% <input type="checkbox"/>	44% <input type="checkbox"/>	11% <input type="checkbox"/>
Susceptible for Smut At Most 20% (0%)	0% <input type="checkbox"/>	0% <input type="checkbox"/>	0% <input type="checkbox"/>	0% <input type="checkbox"/>
Resistant for Smut At Least 80% (56%)	67% <input type="checkbox"/>	67% <input type="checkbox"/>	56% <input type="checkbox"/>	67% <input type="checkbox"/>
Include In Comparison Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Variety Links	Links	Links	Links	

The system will repeat the process for each of the years of the plan until all years are completed. To make selections for following years click on the year button e.g. 2010.

When the Whole Farm Plan is complete you will see a page that summarizes your selections.

Block	2009			2010		
	Variety	Crop Class	Selection	Variety	Crop Class	Selection
1	Q232 [Ⓛ]			Q232 [Ⓛ]		
2-1	KQ228 [Ⓛ]			KQ228 [Ⓛ]		
2-2	KQ228 [Ⓛ]			KQ228 [Ⓛ]		
2-3	KQ228 [Ⓛ]			KQ228 [Ⓛ]		
3	Q208 [Ⓛ]			Q208 [Ⓛ]		
4	Q205 [Ⓛ]			Q205 [Ⓛ]		
5	Q205 [Ⓛ]			Q205 [Ⓛ]		Fallow
6	Q196 [Ⓛ]		Fallow	Fallow		Fallow
7	Q188 [Ⓛ]		Fallow	Fallow		KQ228 [Ⓛ]
8	Q232 [Ⓛ]			Q232 [Ⓛ]		
9	Fallow		KQ228 [Ⓛ]	KQ228 [Ⓛ]	P	

NOTE: If you want to change a selection in 2009 and you are in 2011, click on 2009 in the progress bar at the top of the page and this will jump back to 2009.

5.7 Whole Farm Plan Reporting

The Whole Farm Plan Reporting allows users to run reports associated with their plan.

Reports can be produced for:

- Variety composition
- Diseases resistance
- Management Issues
- Seasonal Sugar
- Recommended Harvest Periods
- Crop Class

There are two options for generating Whole Farm Plan reports.

Printable Farm Reports

On the summary page when all selections have been made there is a button “Printable Farm Report”. This button will generate an automatic report including selections made for each block, variety composition, and graphs to show how selections have affected the diseases or seasonal sugar rules that the grower has set up.

Personalised Whole Farm Plan reports

Select the Reports on the progress bar at the top of the page to generate a wide range of whole farm plan reports

1. Use the Drop Down list to select What would you like to report on?
2. Select the Years From and To
3. Choose whether you would prefer the report to be displayed as Pie Charts or Area Charts
4. Click the Get Report button

A new window will open with the reports available.

Farm Plan Reporting

What would you like to report on? 1

Years - From 2

To

Pie Chart(s) 3

Area Chart

- Varieties
- Diseases
- Management Issues
- Seasonal Sugar
- Harvest Periods
- Crop Class

4

When you generate a report on Diseases, Management Issues and Seasonal Sugar, you will be required to select one of the diseases or management issues or seasonal sugar periods. For example for a report on Diseases the page changes to:

Farm Plan Reporting

What would you like to report on? Years - From To

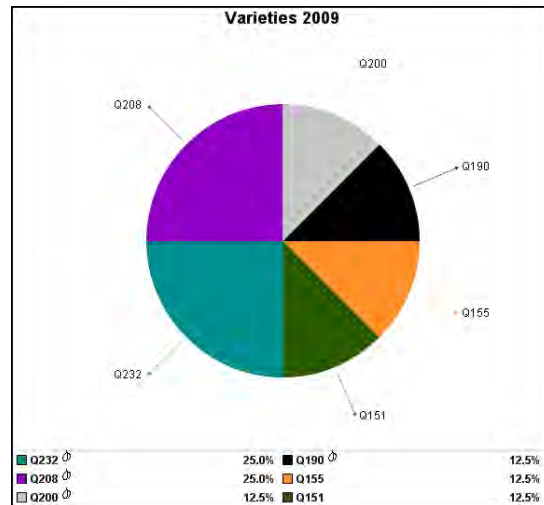
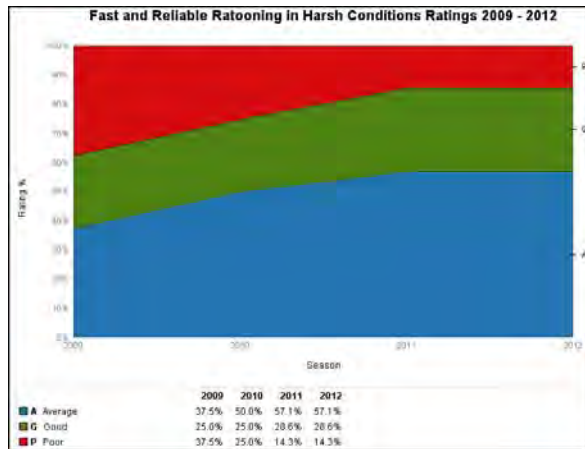
Disease of Concern

Pie Chart(s)
 Area Chart

Select the disease of concern from the drop down list, and click the Get Report button.

AREA CHART v PIE CHART

Area charts and Pie charts are two (2) different ways that the information in these reports can be displayed. When selecting Pie Charts for multiple years, it will produce a Pie Chart for every year; whereas an Area Chart will produce one (1) chart for all of the selected years on it. The data that was used to create the chart is shown below the chart. To download a copy of the data (figures) used to create the chart click on the arrow below the chart.



5.8 Whole Farm Plan Activities

Create a rule for 33% good early sugar?

From the second (2nd) of your plan export you farm information to CSV file, so that you can use it again in another plan.

6.0 Regional Reporting

Regional Reporting allows users to compare varieties within a region, and to compare regions, or mill areas, against each other. The data expressed in regional reporting has been collected over many years, from sources such as mills and productivity boards.

Regional Reporting allows users to compare varieties and regions on:

- Hectares
- Tonnes of Cane per Hectare (TCH)
- Tonnes of Sugar per Hectare (TSH)
- CCS
- Diseases

6.1 Variety production statistics

1. Select **What you would like to report on?** from the drop down list
2. Select the **Variety** radio button (if you select diseases the variety radio button does not appear)
3. Use the drop down list to select the appropriate **Region**
4. **Select the Varieties** from the list using the tick boxes, remembering you can select as many as you wish, although the more you select, the more complex the report. Hit the select all button if you want all varieties (this is not recommended).
5. Select the **Years From and To**
6. Click the **Get Report button**

Regional Reporting

What would you like to report on? 1

by Variety Region 2

Region 3

Years - From To 5

6

Variety Select All 4

<input type="checkbox"/> RB76-5418	<input checked="" type="checkbox"/> Q200 ⁰	<input type="checkbox"/> Q159	<input type="checkbox"/> Q121
<input checked="" type="checkbox"/> Q232 ⁰	<input type="checkbox"/> Q197 ⁰	<input type="checkbox"/> Q157	<input type="checkbox"/> Q117
<input checked="" type="checkbox"/> KQ228 ⁰	<input type="checkbox"/> Q196 ⁰	<input type="checkbox"/> Q153	<input type="checkbox"/> Q102
<input type="checkbox"/> Q227 ⁰	<input checked="" type="checkbox"/> Q190 ⁰	<input checked="" type="checkbox"/> Q151	<input type="checkbox"/> Q97
<input type="checkbox"/> Q226 ⁰	<input type="checkbox"/> Q189 ⁰	<input type="checkbox"/> Q142	<input type="checkbox"/> Q96
<input type="checkbox"/> Q221 ⁰	<input type="checkbox"/> Q185 ⁰	<input type="checkbox"/> Q138	<input type="checkbox"/> Q87
<input checked="" type="checkbox"/> Q212 ⁰	<input type="checkbox"/> Q183 ⁰	<input type="checkbox"/> Q136	<input type="checkbox"/> PINDAR
<input type="checkbox"/> Q209 ⁰	<input checked="" type="checkbox"/> Q177 ⁰	<input checked="" type="checkbox"/> Q135	<input type="checkbox"/> NCo310
<input checked="" type="checkbox"/> Q208 ⁰	<input type="checkbox"/> Q171 ⁰	<input type="checkbox"/> Q124	<input type="checkbox"/> H56-752
<input type="checkbox"/> Q207 ⁰	<input type="checkbox"/> Q170 ⁰	<input type="checkbox"/> Q123	<input type="checkbox"/> CP44-101
<input type="checkbox"/> Q205 ⁰			

6

7. If you select only one or two years, the reports will appear as bar charts. If more than two years are selected you will get a line graph.

8. To copy the graph or pie chart into a document simply right click on your mouse while it is pointed at the report and select copy, then you can paste the report into your document. Please acknowledge that the report was obtained from QCANSelect™.

6.2 Regional production statistics

- 1.** Select **What you would like to report on?** using the drop down list
- 2.** Select the **Region** radio button
- 3.** Select the **Regions** from the list using the tick boxes, remembering you can select as many as you wish
- 4.** Select the **Years From and To**
- 5.** Click **Get Report**

Regional Reporting

What would you like to report on? ¹ by Variety ² Region ² Years - From ⁵ To ⁴ ⁵

Region Select All ³

Northern Coastal
(Mossman, Mulgrave, Babinda, Mourilyan, South Johnstone, Bundaberg Sugar North, Tully)

Mossman

Mulgrave

Bundaberg Sugar North

Tully

Northern Tableland
(Tableland)

Herbert
(Victoria, Macknade, Herbert River Mills)

Burdekin
(Invicta, Pioneer, Kalamia, Inkerman, Burdekin Mills)

Central
(Proserpine, Farleigh, Racecourse, Pleystowe, Marian, Mackay Sugar Mills, Plane Creek)

Proserpine

Mackay Sugar Mills

Plane Creek

6. If you select only one or two years, the reports will appear as bar charts. If more than two years are selected you will get a line graph.

7. To copy the graph or pie chart into a document simply right click on your mouse while it is pointed at the report and select copy, then you can paste the report into your document. Please acknowledge that the report was obtained from QCANESelect™.

6.3 Regional varietal disease resistance status

1. Select diseases using the drop down list
2. Select the **Region or mill area using the drop down list**
3. Select the Disease of interest using the drop down list
4. Select the **Years From and To**
5. Click **Get Report**

Regional Reporting

What would you like to report on? 1 Years - From 4 To

Region 2

Disease of Concern 3

5

6. If you select only one or two years, the reports will appear as a pie charts and the percent of each variety in each disease resistance class will be shown below the graph. If more than two years are selected you will get a line graph with only the class percentages for each year shown below the graph.

7. To copy the graph or pie chart into a document simply right click on your mouse while it is pointed at the report and select copy, then you can paste the report into your document. Please acknowledge that the report was obtained from QCANESelect™.

6.4 REGIONAL REPORTING ACTIVITIES

In 2003 what was the difference in area harvested between the Herbert and the Burdekin?

What was the main variety grown in your region last year?

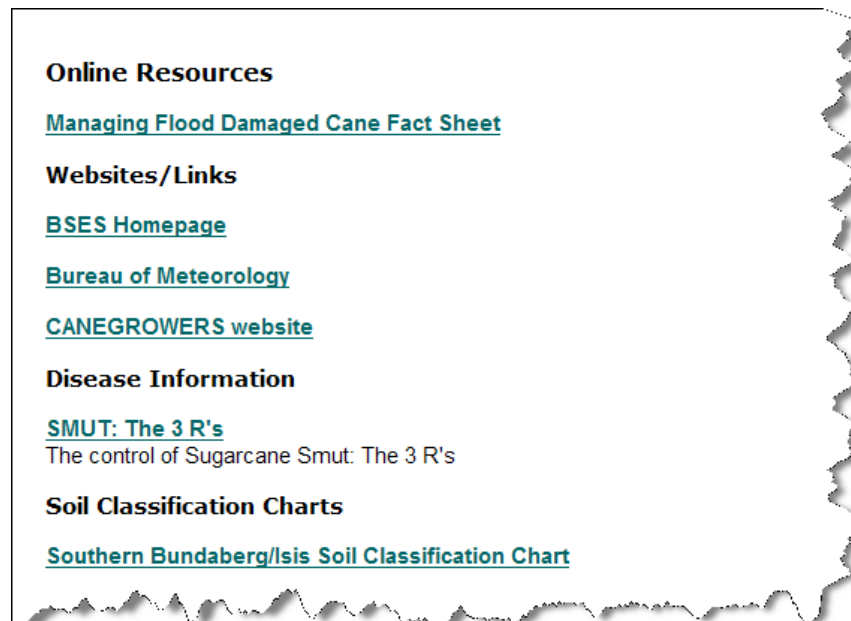
What was the percentage of smut resistant varieties in your region in 2006 and 2008?

7.0 ONLINE RESOURCES

To view [Online Resources](#), click on the **Online Resources** hyperlink on the home page of QCANESelect™.



In the online resources section use the hyperlinks to view further information and to be directed to other websites.



8.0 FEEDBACK

This feature of QCANESelect™ allows users to contact the Development team and local extension staff with any query they may have with QCANESelect™. If there is something within QCANESelect™ that you don't agree with or think there is something that can be done better, by using the Feedback form, your request is sent straight to BSES staff and is handled promptly.

To leave feedback from the home page, click on the **Feedback** hyperlink on the home page of QCANESelect™



Feedback

Your comments will be emailed to BSES staff in your local region.

Region

Mill Area

Comments

Do you wish to be contacted by BSES staff regarding these comments?

On the feedback form select your **Region** and **Mill area** using the drop down list boxes and then type your enquiry in the Comments field. If you would like BSES staff to contact you regarding your feedback, check the tick box and BSES staff you will be in touch. Then click **Send**

To leave feedback from the Block Recommendation page: From the Block Recommendation page click the **Feedback** button, this will take you to the Recommendation Feedback form. Information about your recommendation will be automatically recorded on the form, then enter your comment in the **Comments** field, then by using the tick box you can select if you would like to be contacted by BSES staff.

BSES QCANESelect™
variety selection made easy

View Block Recommendation Andrew Burrows

Home | Variety Information | **Block Recommendation** | Whole Farm Plan | Regional Reporting | My QCANESelect | Admin | Logout

[Comparison Report for Selected Varieties](#) | [Disclaimer & Warning](#) | [Printable Block Recommendation Report](#)

Block Recommendation

Note: This Recommendation does not consider whole of farm planning, productivity and risk management

Smut is spreading rapidly in the Bundaberg and Isis mill areas

Region	Soil Class	Date	Time	User
Southern Bundaberg-Isis	Red Forest	03/08/2009	9:25 AM	Andrew Burrows

Recommendations	1st	2nd	3rd	3rd
Variety	KQ228^D	Q208^D	Q240^D	Q235^D

Recommendation Feedback

Region	Soil Class	Date	Time	User
Southern Bundaberg-Isis	Red Forest	03/08/2009	9:25 AM	Andrew Burrows

Recommendation Criteria
 Early Sugar
 Cane Grub Tolerance
 Fast and Reliable Germination
 Frost Tolerance

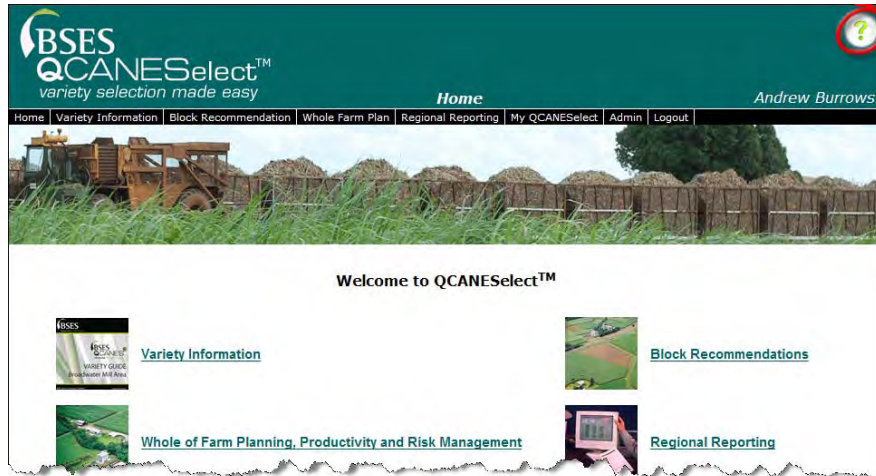
Your comments will be emailed to BSES staff in you local region.

Comments

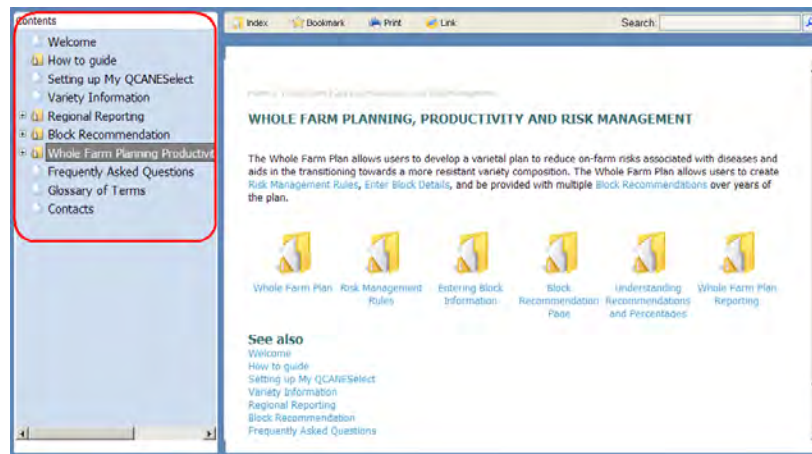
Do you wish to be contacted by BSES staff regarding these comments?

9.0 ONLINE HELP

QCANESelect™ also has an Online Help section. By clicking the help symbol in the top corner a new window will open, containing the online help for the page that you are on.



To navigate through the Online Help, there is a table on contents on the left hand side of the screen, and also there are hyperlinks within the text, and at the bottom of the pages there is a section See also, which also contains hyperlinks to related topics.

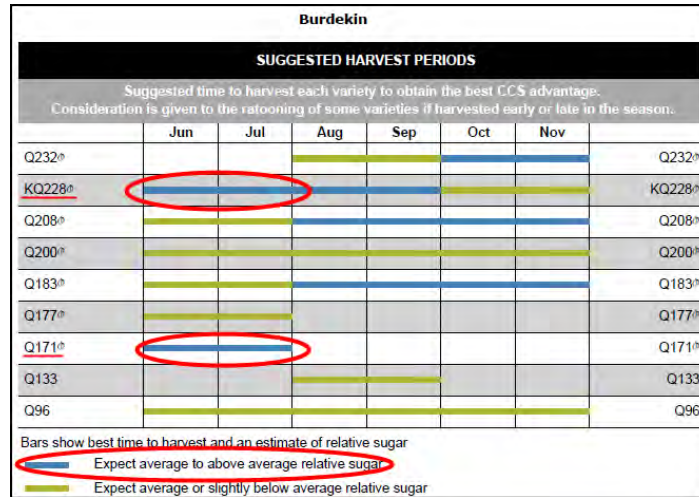


10.0 ACTIVITY ANSWERS

10.1 VARIETY INFORMATION

In your region which Varieties are best harvested early?

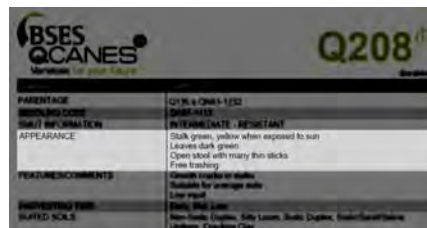
- This can be done by looking at the Suggested Harvest Period report, the varieties that are best harvested early are the ones with the blue line early in the season



Find two (2) ways to obtain a description or photograph to help you identify a variety?

- By opening up a Variety information sheet and looking at the description of the variety under the heading "Appearance" and the photograph of the variety, or by clicking on the "Links" and looking at the photographs of the variety.

1.



2.



10.2 BLOCK RECOMMENDATIONS

How do you get a comparison report for the top three (3) recommended varieties from a recommendation?

- On the recommendation page check the tick boxes of the 3 highest recommended varieties and click on the [Comparison Report for Selected Varieties](#) hyperlink.

Region	Soil Class	Date	Time	User
Southern Bundaberg Isis	Red Forest	12/06/2009	3:28 PM	Andrew Burrows

Recommendations	1st	2nd	3rd	4th
Variety	Q232 ^D	Q208 ^D	Q240	KQ228 ^D
Smut	Resistant	Intermediate - Resistant	Resistant	Resistant
Late Sugar	Good	Good	Good	Poor
Fast and Reliable Ratooning in Harsh Conditions	Average	Good	Unknown	Average
Include in Comparison Report	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Variety Links	Links	Links	Links	Links

Get a recommendation for a fallow block on your farm that you intend to plant this year or next year.

- Select your **Region** from the drop down list. If changing regions, wait for the new soil classes to be displayed
- Select the appropriate **Soil Class** for the block by clicking the radio button next to it (you must select a soil class)
- Check the tick boxes beside the **Diseases of Concern**, multiple diseases are allowed (Optional - we recommend that you restrict your choices to only the diseases that are of most concern)
- Click on appropriate **Seasonal Sugar** radio button (Optional – only one button can be selected)
- Check relevant **Management Issues** tick boxes (Optional - we recommend that you restrict your choices to only the management issues that are of most concern)
- Click on the **Get Recommendation** button

10.3 WHOLE FARM PLANNING PRODUCTIVITY AND RISK MANAGEMENT

Create a rule for 33% good early sugar?

Add Rules			%
Rank	Rule		
1st	% of any one variety limited to a maximum of		<input type="text"/>
1st	% of varieties rated <input type="text" value="Susceptible"/> for <input type="text" value="Smut"/> are <input type="text" value="At Most"/>		<input type="text"/>
1st	1 % of varieties rated Good for <input type="text" value="Early"/> Seasonal Sugar are At Least	2	<input type="text" value="33"/> 3

On the Risk Management Rule page, go to the section for **Add Rules**,

1. Ensure that the sugar drop down list box is “Early”
2. Enter in 33 to the percentage field
3. Click the [Add Rule](#) hyperlink

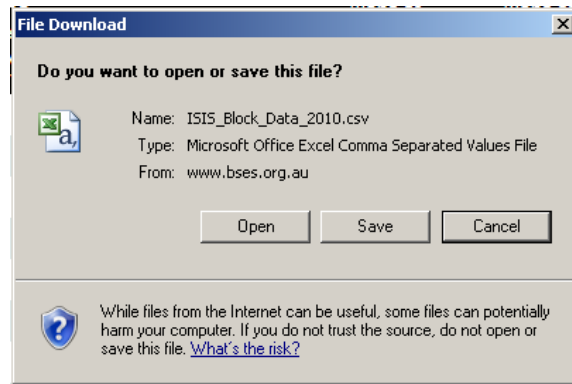
From the second (2nd) of your plan export you farm information to CSV file, so that you can use it again in another plan.

After completing the first year of your plan and go to the following year, you are taken to the Farm Blocks page, which contains your selections from the pervious year.

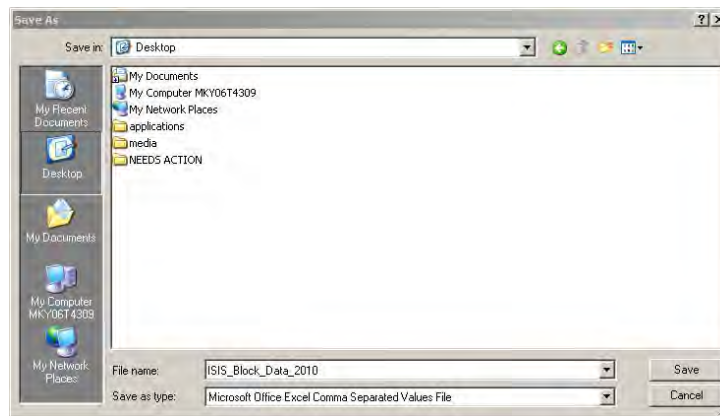
Farm Blocks 2010									
<< Back		Save					Next >>		
Export Block Data		Split Blocks (Save any changes before clicking to Export or Split)							
Farm	Block	Area (ha)	Planting Date (mm/yy or yy)	Variety in this block in 2010	Crop Class	Do you want to Plant this block in 2010?	Do you want to Fallow this block in 2010?	Will you stand this block over in 2010?	Your Planting Selection for 2010
15465	1	9.00		Q232 ⁰		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	2-1	4.00		KQ228 ⁰		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	2-2	4.00		KQ228 ⁰		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	2-3	1.00		KQ228 ⁰		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	3	9.00		Q208 ⁰		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	4	9.00		Q205 ⁰		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	5	9.00		Q205 ⁰		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
15465	6	9.00		Fallow		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
15465	7	9.00		Fallow		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	KQ228 ⁰
15465	8	9.00		Q232 ⁰		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15465	9	9.00	<input type="text" value="2009"/>	KQ228 ⁰	P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Clear existing 2010 Planting Selections?

Click on the **Export Block Data** hyperlink, a new window will open prompting you to either save or open a file which contains your farm block information.



To Save the file so that you can use it again, click the **Save** button. Again a new window will open asking you where you would like to save you Farm block file



Here select the location of where you want to save your file, and a file name, then click **Save**.

10.4 REGIONAL REPORTING

In 2003 what was the difference in area harvested between the Herbert and the Burdekin?

- 19,000 hectares. In the Regional Reporting function, select hectares, the Herbert and Burdekin regions by checking the tick boxes against them, and 2003 in both the From and To years, you will get the answer

Regional Reporting

What would you like to report: by Years - From To

Region: Select All

Northern Coastal
 (Blossman, Mulgrave, Babinda, Mourilyan, South Johnstone, Bundaberg Sugar North, Tully)

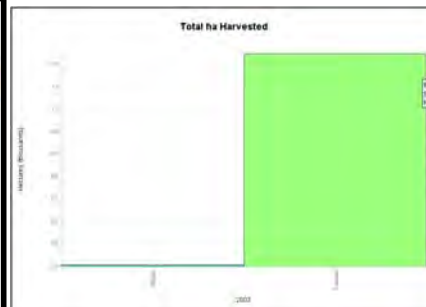
Mossman
 Mulgrave
 Bundaberg Sugar North
 Tully

Northern Tableland
 (Tableland)

Herbert
 (Victoria, Macknade, Herbert River Mills)

Burdekin
 (Invicta, Pioneer, Kalamia, Inkerman, Burdekin Mills)

Central
 (Proserpine, Farleigh, Racecourse, Playstowe, Marian, Mackay Sugar Mills, Pine Creek)



What was the main variety grown in your region last year?

- First check the By Variety radio button, choose your region from the drop down list and check the Select All tick box, and finally set the From and To years to be last year, and have a look at the graph.

Regional Reporting

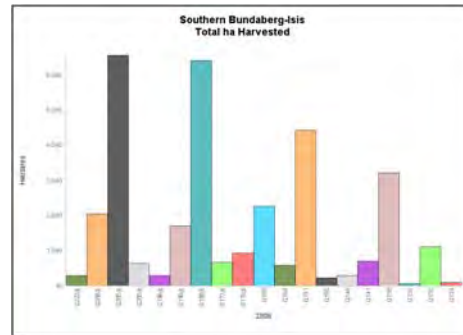
What would you like to report on: Hectares **By Variety** By Region

Years - From To

Region

Variety Select All

<input checked="" type="checkbox"/> Q240	<input checked="" type="checkbox"/> Q188	<input checked="" type="checkbox"/> Q141	<input checked="" type="checkbox"/> Q103
<input checked="" type="checkbox"/> Q235	<input checked="" type="checkbox"/> Q182	<input checked="" type="checkbox"/> Q138	<input checked="" type="checkbox"/> Q95
<input checked="" type="checkbox"/> Q232	<input checked="" type="checkbox"/> Q177	<input checked="" type="checkbox"/> Q137	<input checked="" type="checkbox"/> Q93
<input checked="" type="checkbox"/> KQ228	<input checked="" type="checkbox"/> Q171	<input checked="" type="checkbox"/> Q136	<input checked="" type="checkbox"/> Q90
<input checked="" type="checkbox"/> Q222	<input checked="" type="checkbox"/> Q170	<input checked="" type="checkbox"/> Q135	<input checked="" type="checkbox"/> Q87
<input checked="" type="checkbox"/> Q212	<input checked="" type="checkbox"/> Q155	<input checked="" type="checkbox"/> Q125	<input checked="" type="checkbox"/> Q86
<input checked="" type="checkbox"/> Q208	<input checked="" type="checkbox"/> Q154	<input checked="" type="checkbox"/> Q124	<input checked="" type="checkbox"/> NC0310
<input checked="" type="checkbox"/> Q205	<input checked="" type="checkbox"/> Q151	<input checked="" type="checkbox"/> Q111	<input checked="" type="checkbox"/> H56-752
<input checked="" type="checkbox"/> Q200	<input checked="" type="checkbox"/> Q150	<input checked="" type="checkbox"/> Q110	<input checked="" type="checkbox"/> CP51-21
<input checked="" type="checkbox"/> Q196	<input checked="" type="checkbox"/> Q147	<input checked="" type="checkbox"/> Q108	<input checked="" type="checkbox"/> CP44-101
<input checked="" type="checkbox"/> Q190	<input checked="" type="checkbox"/> Q146		



What was the percentage of smut resistant varieties in your region in 2006 and 2008?

- Select **Diseases** from the drop down list box for **What would you like to report on**. Choose your region from the drop down list, then select **Smut** from the list of **Diseases of Concern**, and finally set the From and To years to 2006. Finally click Get Report. To work out percentage of smut for 2008, set the **Years from and To**, to **2008**, and again click **Get Report**.

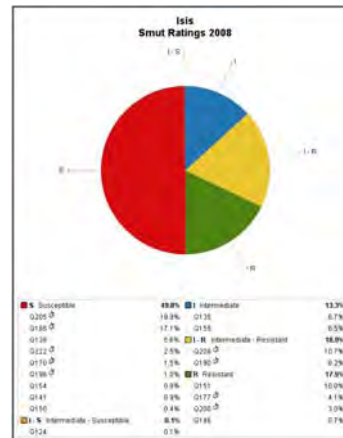
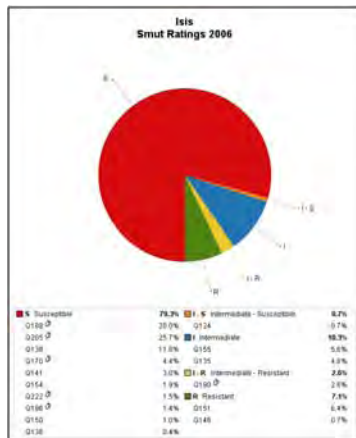
Regional Reporting

What would you like to report on: Hectares **Diseases** By Region

Years - From To

Region

Disease of Concern



APPENDIX 10 – Major BSES Bulletin articles

BSES Bulletin – Croft B, Cox M, Millard D, Burrows A (2009) QCANESelect™ takes the guesswork out of variety selection. Vol. 22 p10-13

10 bees bulletin

QCANESelect™ takes the guesswork out of variety selection

BSES Director and Burdekin cane grower, Paul Sgarbossa officially launched QCANESelect™, the new web-based variety information and whole-farm variety planning tool, in the Burdekin on the 18 May 2009. Barry Croft, Mike Cox, Dave Millard and Andrew Burrows from BSES, who developed this tool, give readers an overview of the system.

Growers need up-to-date information on new varieties. Finding the right variety to suit blocks with different soil types, disease/pest problems and environmental stresses while meeting the grower's expectations can be a complex task. QCANESelect™ is an exciting new way for growers and other users to get this information on-line. All sectors of the sugar industry will benefit from using QCANESelect™ to access the extensive sugarcane variety information held in the BSES Variety Improvement database. Growers were intimately involved at all stages of the development of QCANESelect™. The system is simple to use, even for those with limited computer skills.

QCANESelect™ free to all

Although QCANESelect™ is freely available to all users, a user must register prior to use. To do this, simply go to the BSES website (bSES.org.au) then click on the QCANESelect™ link located in the left margin (Figure 1). The Login page will appear (Figure 2). Click on the Register link in the centre window, or alternatively access the site through the other two options available. The Registration page will appear (Figure 3). You only need to register once; after that the system will recognise you when you enter the site next time.



Figure 1: BSES website.



Figure 2: Login page.



Figure 3: Registration page.

The QCANESelect™ home page (Figure 4) allows users to access:

1. Variety information.
2. Block recommendation.
3. Whole-farm planning, productivity and risk management.
4. Regional reporting.
5. Online resources.
6. Feedback form.



Figure 4: QCANESelect™ home page.

1. Variety Information

This section contains the most up-to-date information on varieties and diseases available to growers and industry groups (Figure 5). The data are sourced from SPIDNet (BSES Variety Improvement database) with QCANESelect™ acting as a point-and-click user interface, allowing for easy navigation and information retrieval.



Figure 5: Variety information page.

The **Variety Information** page contains links to:

1. **Variety guides:** With the click of a mouse you can get an entire, up-to-date variety guide – these guides are the same as the paper versions previously distributed by BSES.
2. **Variety information sheets:** Users can obtain information on a single variety (Figure 6). This is useful with the release of a new variety(s).
3. **Variety links:** The links provide further information on varieties, including variety photographs (Figure 7).
4. **Variety comparison reports:** By using the tick boxes, QCANESelect™ can produce variety information in an easy-to-follow format to compare different varieties. (This information is the same as the Variety Information sheets.)
5. **Suggested harvest periods for varieties:** This feature gives users the opportunities to make informed decisions on crop harvest times and obtain the best CCS advantage from a specific variety (Figure 8).
6. **Soil recommendation tables:** This table provides information on a variety's suitability and performance on different soil class.
7. **Rating reports:** The rating reports allow users to select diseases, management issues or seasonal sugar and download a table with the ratings for the selected feature for all varieties in a region.



Figure 6: Sample variety information sheet.

Variety Links

KQ228[®]

Document	Description	File Size
KQ228	Field Habit	956 KB
KQ228 photo	photo of identification 1	431 KB
KQ228 stalks	KQ228 photo of identification 2	115 KB

Figure 7: The Variety Links page with KQ228[®] photo choices (above), and field habit photo selected (right).

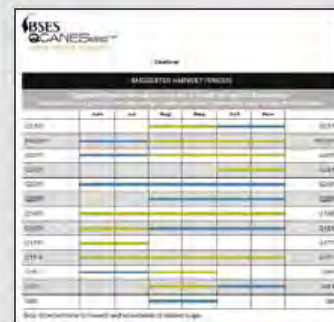


Figure 8: Sample variety comparison report.

12 bses bulletin

2. Block Recommendations

The [Block Recommendation](#) page (Figure 9) assists users when making variety selection decisions. By clicking a soil class, disease of concern, preferred seasonal sugar and management issues, QCANESelect™ then generates recommended varieties based on suitability to the simulated situation.



Figure 9: Block recommendation page.

How to get a Block Recommendation:

1. Select your Region.
2. Select the appropriate Soil Class for the block.
3. Tick the boxes beside the Disease of Concern, multiple diseases are allowed (if applicable to situation).
4. Select Seasonal Sugar.
5. Tick relevant Management Issues, if necessary select multiple issues.
6. Then click the Get Recommendation button.

When the system generates the recommendation the varieties will appear as 1st, 2nd, 3rd, etc based on their performance on a [Soil Class](#), in conjunction with their reaction to [Diseases](#), and suitability towards selected Management Issues.

From the Recommendation page users are then able to view [Variety Information Sheets](#), [Variety Links](#) and [Comparison Reports](#). Recommendations can also be saved so users can refer back to them at any time.



Figure 10: Whole farm planning, productivity and risk management page.

3. Whole Farm Planning, Productivity and Risk Management

This section helps growers plan to maximize productivity while reducing on-farm risk associated with diseases (Figure 10). It allows users to create management rules, enter farm block details, and get multiple recommendations over multiple years.

Risk Management Rules

These are a set of user-defined guidelines, which set out the basis for block recommendations throughout the Whole Farm Plan. Rules can be set for varieties, diseases and seasonal sugar. These rules are the single most important factor in any plan; by simply using the drop-down boxes you can create personalised rules to suit your situation.

Entering Block Information

Farm details need to be entered when a farm is created, but this only has to be done once. Required information includes: block name or number, the area of the block in hectares, the planting date (crops planted in current year), the variety and crop class. The block details can be imported from a file created in another program (save file as a .csv comma delimited file) Then just tick whether you want to fallow, plant or stand a block over.

Block Recommendations

When users select Soil Class, Disease of Concern and Management Issue, QCANESelect™ supplies them with a list of recommended varieties based around these variables, ranking them 1st, 2nd, 3rd, etc.

Understanding 'Recommendations'

The Recommendations page in the Whole Farm Plan takes into consideration the Risk Management rules that are set at the start of the plan. Some varieties may be 'greyed out' because they exceed the grower's rules. However, a grower can still select this variety by ticking the "Select a variety that exceeds a rule" box.

This page also displays a brief report on each rule and other features selected for the block. The grower must select a variety before continuing to the next block in the plan.

Farm Plans

This function allows users to print out plans, including graphs and charts that relate back to their management rules.

Whole Farm Plan Reporting

This section allows users to run reports for their specific plan. They can report on any of the following aspects: varieties, diseases, management issues, seasonal sugar, harvest periods and crop classes.

4. Regional Reporting

The Regional Reporting function allows for the comparison of varieties within a growing region or mill area, and also for comparing regions with each other (Figure 11). The system uses milling data and statistics stored in SPIDNet.

Reports can be generated on:

- Crop size including area and tonnes.
- Tonnes of sugar per hectare (TSH).
- Tonnes of cane per hectare (TCH) (Figure 12).
- CCS of major regional varieties (Figure 13).
- Proportion of crop resistant to major diseases.

Reports run by variety:

1. Select what you want to report on.
2. Select Variety.
3. Select your Region.
4. Use the Tick boxes to select the varieties.
5. Select the Year (To and From).
6. Click the Get Report button.

Reports run by region (Figure 14):

1. Select what you want to report on.
2. Select Region.
3. Use the Tick boxes to select the regions.
4. Select the Year (To and From).
5. Click on the Get Report button.

5. Online Resources

Online Resources is a page where information sheets, links to other websites, and other useful resources can be listed.

6. Feedback form

If you have any comments or enquiries you can enter these in the feedback form and automatically email the form to your local BSES staff member. A tick box is available if you wish local BSES staff to contact you.

Sponsorship: BSES, the Sugar Research and Development Corporation and Queensland Primary Industries and Fisheries provided funding for the development of QCANESelect™.



Figure 11: Regional reporting page.

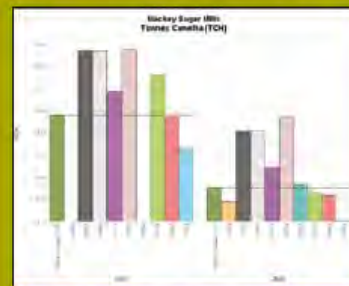


Figure 12: Sample tonnes cane/ha (TCH) report.

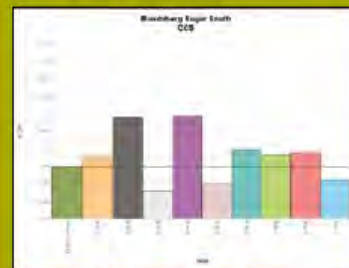


Figure 13: Sample CCS of major regional varieties report.



Figure 14: Sample of report generated on 2008 Fiji leaf gall ratings in the Central region.



BSES Bulletin – (2008) Pilot release of QCANESelect™ announced. No 19 p27

bSES bulletin 27

Pilot release of QCANESelect announced

Distribution of the latest sugarcane variety and disease resistance information will become more straightforward with the announcement by BSES Limited of a pilot release program for the QCANESelect tool. Eve McDonald based at BSES Indooroopilly interviews the QCANESelect team leader Dave Millard based at BSES Burdekin to find out more.

What is QCANESelect?

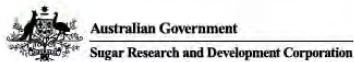
QCANESelect is a one-stop, web-based decision support tool that provides variety information, variety recommendations, regional reports on variety performance and whole-farm variety plans to maximise productivity while managing risks from pest and disease outbreaks.

What do you mean by 'pilot release'?

The final release date for QCANESelect is scheduled for early 2009, but to allow access to the variety information and block recommendation elements already developed we are making these components of the system available now.

What do people need to do to get access to QCANESelect in this pilot release?

BSES service-fee payers with a username and password to the BSES website can access QCANESelect using the same login details. Any service-fee payers without a username and password can gain access by contacting me (Dave Millard) at BSES Burdekin on 4783 8619, Michaela Alexander at BSES Mackay on 4963 6823 or Eve McDonald at BSES Brisbane on 3331 3340. Non service-fee payers can access the resource on a fee-for-service basis.



When people have their user ID and password, what do they do?

To access QCANESelect users can go to www.bses.org.au and click on the QCANESelect link located in the left navigation toolbar. They will be presented with a login page where the username and password are entered and the login button clicked (see Figure 1).



Figure 1: QCANESelect login page.

Then what?

Then all the variety information, block recommendation and feedback functionality will be available to them (see Figure 2).



Figure 2: Once you have logged in you can access the various resources offered by QCANESelect.

And if people have questions?

If people have any questions on the use of the system, they should contact me (Dave Millard) on 4783 8619 or Michaela Alexander at BSES Mackay on 4963 6823.

APPENDIX 12 – Abstract of ISSCT presentation**QCANESelect™: A WEB-BASED VARIETY MANAGEMENT AND INFORMATION RESOURCE FOR THE AUSTRALIAN SUGAR INDUSTRY.**

B. Croft¹, D. Millard², M. Cox³, and A. Burrows³.

¹BSES Limited Woodford, ²BSES Limited Burdekin, ³BSES Limited Bundaberg.

E-mail: bcroft@bses.org.au

Keywords: sugarcane, internet, decision support, risk management, cultivar, variety

QCANESelect™ is an innovative new web-based variety information and decision support tool that delivers up-to-date variety recommendations and information in an easy to use and intuitive way. It provides specific block recommendations based on grower-defined characteristics of a block and will develop a whole-farm plan for varieties. The whole-farm plan aims to maximise productivity while managing risks associated with over reliance on one or two varieties. Growers and advisors can also obtain graphical reports on variety adoption, productivity and disease resistance for their region.

QCANESelect™ was developed after extensive consultation with grower focus groups, extension, Productivity Service, and mill staff. The data used to provide the information and make recommendations are held in the BSES Variety Improvement database SPIDNet. QCANESelect™ provides growers access to this database in a grower friendly format. The productivity of varieties for each soil type in each region was assessed by a group of experts who assigned a yield score for that soil type. Yield scores are adjusted for disease resistance, seasonal sugar content, plant, and management characteristics depending on what issues a grower nominates for the block of interest. The yield scores will be updated annually as more information becomes available about varieties.

Variety adoption and management can significantly affect the productivity of a region. Growers are faced with many complex decisions when deciding on which variety to plant. Their decision affects the productivity of that field for a crop cycle of 4-5 years. Over-reliance on one or two varieties or varieties with a narrow genetic base has resulted in major epidemics in many countries including Australia. QCANESelect™ will help growers to better manage varieties by providing specific recommendations and a broad range of information on varieties.