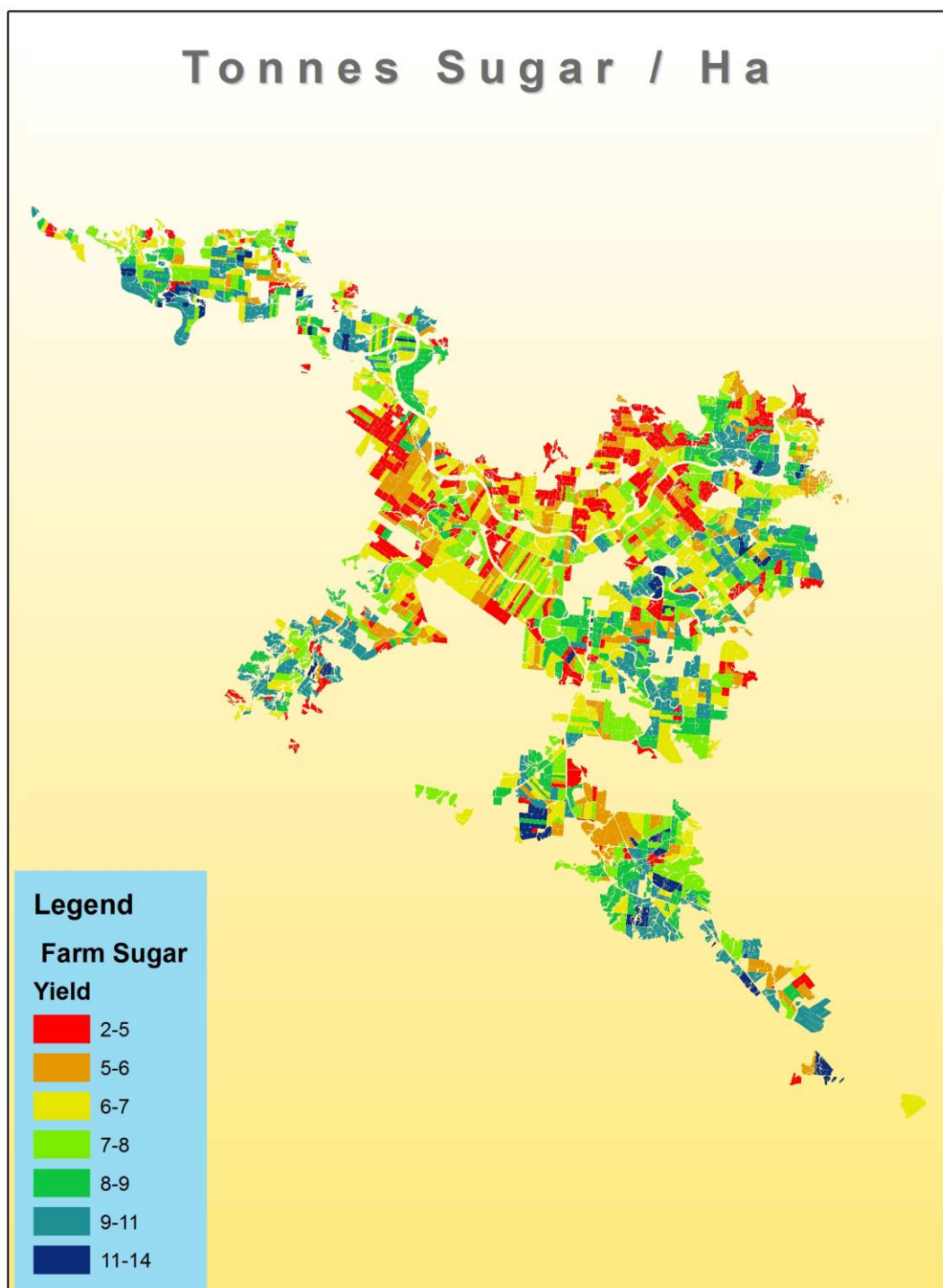
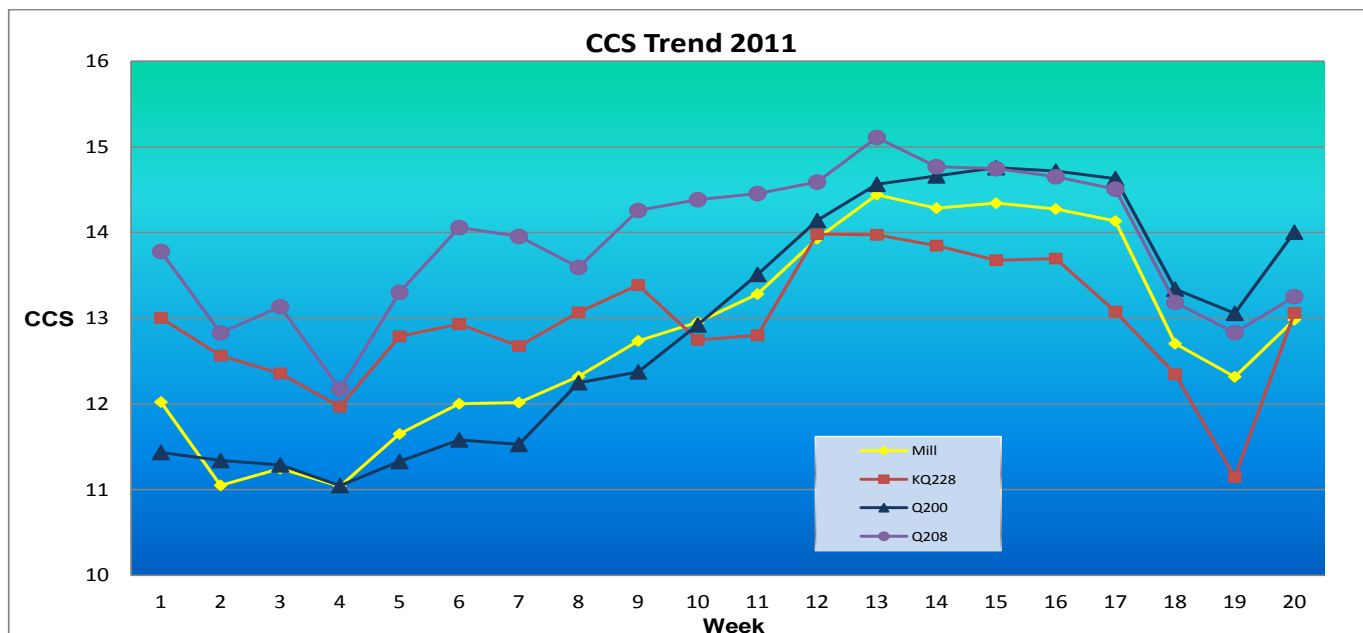




# HERBERT SUGAR INDUSTRY REPORT 2011



## CROP PERFORMANCE 2011

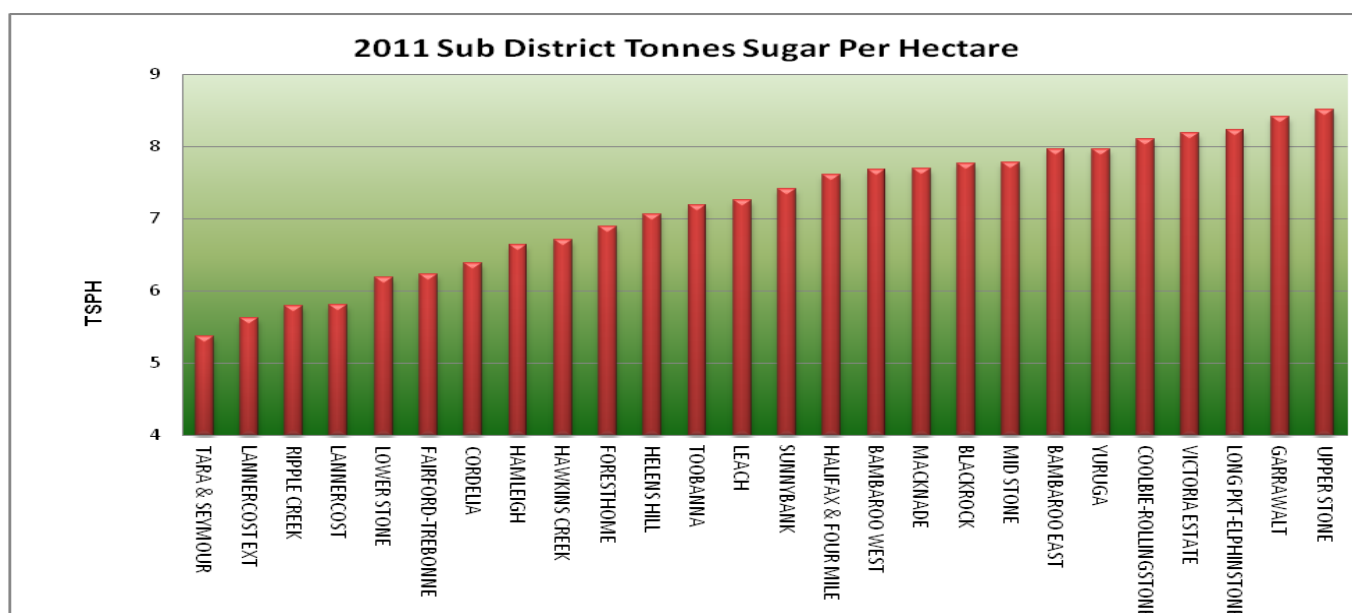


Mill CCS did not rise above 12 until week 8. This was due to the high proportion of standover cane cut in the early part of the season. KQ228<sup>®</sup> again demonstrated that it is suited to early season harvest whilst the ccs of Q200<sup>®</sup> came into its own towards the end of the season. Q208<sup>®</sup> had the highest ccs of the main varieties.

The sugar yield for 2011 was only 7.19 tonnes sugar/hectare, the second lowest in the last 20 years after that in 2000. This reflected the very wet weather and adverse growing conditions from September 2010 to March 2011, when much of the district was continually waterlogged. The map on Page 1 shows the lowest yields in the Wet Belt from Lannercost to Hawkins Creek to the Seymour and the highest yields in Abergowrie, Upper Stone, Ingham Line and the coastal strip from Fourmile to Blackrock. Tara Seymour and Lannercost Extension were the sub-districts with the lowest sugar yields whilst Upper Stone and Garrawalt had the highest.

### HISTORICAL DATA

Year	Tonnes	Ha Harvested	CCS	Cane Yield	Sugar Yield	Year	Tonnes	Ha Harvested	CCS	Cane Yield	Sugar Yield
1992	3398465.82	42926.40	14.23	79.17	11.26	2002	4243591.27	54892.20	14.40	77.31	11.13
1993	3873973.78	44650.81	13.37	86.76	11.60	2003	4051558.05	56975.69	13.90	71.11	9.89
1994	3888137.31	46730.02	14.74	83.20	12.27	2004	4641372.86	56410.75	13.56	82.28	11.16
1995	4908214.85	50051.86	13.05	98.06	12.80	2005	5553359.05	57078.93	13.11	97.29	12.76
1996	5251285.67	53513.30	13.21	98.13	12.96	2006	4900084.45	57658.50	12.62	84.98	10.72
1997	5272421.61	57328.33	13.37	91.97	12.29	2007	4287010.73	57158.66	13.84	75.00	10.38
1998	4191272.31	48669.90	11.46	86.12	9.87	2008	4688595.64	55061.21	13.54	85.15	11.53
1999	4151741.51	59955.95	12.73	69.25	8.81	2009	3920941.21	51171.33	14.79	76.62	11.33
2000	2802049.39	58379.16	13.01	48.00	6.24	2010	3274402.07	39567.98	12.85	82.75	10.64
2001	3311004.97	56876.94	14.34	58.21	8.35	2011	2920400.98	52364.64	12.89	55.77	7.19



## DISEASES

### Chlorotic Streak Disease

Commonly found in flood prone areas, Chlorotic Streak is a widespread disease spread by planting material and soil water. The disease can be identified by an irregular white streak with indistinct margins on the leaves, which can develop into dead sections. The disease can be controlled through improving draining of blocks, planting Chlorotic Streak resistant varieties and hot water treating planting material. Weather conditions over the past 12 months have been favourable for the spread of this disease, with increased incidence being observed in a wider range of varieties. Q238<sup>®</sup> is one variety which has shown high susceptibility to the disease. Growers should avoid planting this variety in areas which have a history of Chlorotic Streak. Yield losses can be experienced with the disease. The severity will depend on level of infection and variety tolerance



### Pachymetra Root Rot

Over the last 12 months, several soil test results have shown high levels of Pachymetra Root Rot occurring in blocks. Growers are reminded when planning variety selection for blocks, to consider Pachymetra Ratings, and rotate varieties where possible.

### RSD

Not surprisingly, seed inspections increased sharply in 2011 with growers losing intended seed cane due to recent weather conditions. Growers were forced to rely on first ratoon cane as a seed source, or rely on neighbouring or fellow growers. Despite the increased level of inspections, very little RSD was found.

### Variety Distribution Plots and Hot Water Treatment

Challenging weather limited the availability of clean seed from the HCPSL seed plots, with 2 plots being closed early, and a third plot not being opened at all. To increase available seed material, first ratoon HCPSL seed plots were also relied on. 170 tonnes was released from these plots. Unfortunately, continuous wet weather late in 2010 affected the germination and growth of Q238<sup>®</sup>, resulting in only 20 tonnes being released from the BSES Release Plot. Q238<sup>®</sup> will be available in the HCPSL plots in 2012. Due to the lack of seed available, hot water treating significantly increased from 2010. 217 tonnes of cane passed through the tanks, with the dominant varieties again being Q208<sup>®</sup>, MQ239<sup>®</sup> and Q200<sup>®</sup>.

## WEEDS

Weed control has been very difficult to keep on top of in 2011. Excessive wet weather and damage from Cyclone Yasi have prevented access to blocks and headlands, interfering with spraying and slashing operations. As a result, weed populations have spread. Two of the commonly reported weeds for 2011 have been Sour Grass and Navua Sedge, in particular Navua Sedge in blocks alongside the highway. Trial work is currently being conducted to examine practical herbicide control of these species.

## GRUBS

Increased beetle flights were observed in some subdistricts late in 2010. Nevertheless, weather conditions early in 2011 made field inspections for cane grubs very difficult. Field inspections conducted for the GGIP project found fewer grubs than in 2010, however blocks were difficult to access. As a result, this project may be extended for another year.

## FERAL PIGS

Due to the prolonged wet season (causing access issues to farms) and the loss of banana bait supplies after Cyclone Yasi, it has been a difficult time to undertake effective feral pig management in the area. The Hinchinbrook Feral Pig Management Program would like to sincerely thank Coles, IGA and Pace Farming for providing fruit and vegetable scraps from their operations to act as a replacement bait supply when bananas were not available. Between October and December, bananas and mangoes were used to trap and bait feral pigs, with excellent success.

The program continues to experience problems with doggers who chase pigs away from areas where trapping and baiting activities are underway. Contrary to popular belief, dogging is the least effective method of feral pig control and baiting the most effective method (with mortality rates in excess of 20 pigs in one baiting activity not uncommon). Growers who are engaging trapping and baiting services are discouraged to allow dogging activities on farm. Dogging seriously compromises the effectiveness of the trapping and baiting activities.

Special thanks for the supporting agencies to this program being: HCPSL, Terrain NRM, Hinchinbrook Shire Council, DERM and DEEDI. The support and agreements in place allow feral pig management activities to occur throughout the whole Hinchinbrook Area. HCPSL also provided additional funding to the program to employ Ray Stallan for a period of time late in 2011 to assist David Bacchiella to undertake work on cane farms, post Yasi. If you are interested in undertaking feral pig baiting or trapping contact David Bacchiella on 0458764660.

## RATS

The region saw very high levels of rat damage to crop due to the prolonged wet season, standover cane and growers inability to control weeds in crop due to the wet. There were significant crop losses in some parts of the district and especially in standover cane. A rat baiting permit has been negotiated with DERM by CANEGROWERS, BSES and HCPSL for the application of RATTOFF and Racumin baits only to the cane crop.

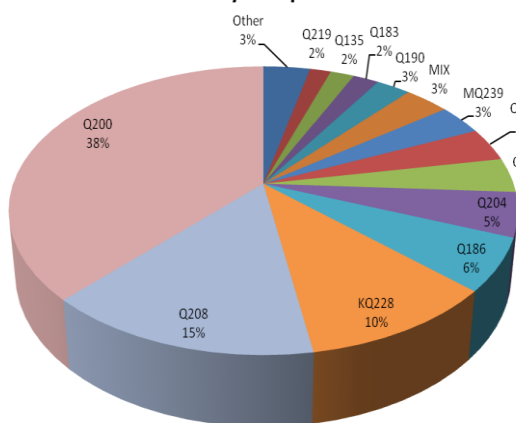
Growers applying these baits must notify HCPSL and provide crop loss data. HCPSL staff undertake regular crop monitoring of rat population numbers over a 9 month period during the year. The crop loss, monitoring data and application area data must be reported annually to DERM to maintain the permit and industry's "right" to bait. Grower assistance and co-operation is appreciated.

## VARIETY PERFORMANCE & RECOMMENDATIONS

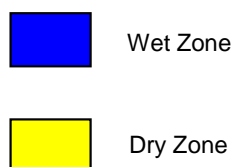
Unfortunately, 2011 was going to be another difficult year, with standover cane occurring from continuous wet weather late in 2010, and cyclone Yasi arriving in early 2011. As a result, growers were faced with the challenge of selecting varieties for planting, and trying to determine block order for harvesting.

Variety performance was going to be a great unknown, with current varieties existing as standover for the first time, and the majority of blocks affected by strong winds from the cyclone. In the plant cane, Q208<sup>db</sup> dominated as highest producing CCS variety for most of the crushing season, with KQ228<sup>db</sup> performing better earlier on and Q200<sup>db</sup> performing better in the final few weeks. In the standover varieties, the variety list was mixed, with several varieties giving the highest CCS at different stages of the season.

District Variety Composition 2011



Herbert District Climatic Zones Map



Herbert Recommended Varieties x Soil Type

Dry Zone		Wet Zone	
Terrace Loamy Soils	Q135, Q172 <sup>db</sup> , Q183 <sup>db</sup> , Q200 <sup>db</sup> , Q208 <sup>db</sup> , KQ228 <sup>db</sup> , KQ236 <sup>db</sup> , Q237 <sup>db</sup> , Q238 <sup>db*</sup>	Alluvial Soils	Q135, Q172 <sup>db</sup> , Q183 <sup>db</sup> , Q200 <sup>db</sup> , Q208 <sup>db</sup> , KQ228 <sup>db</sup> , Q237 <sup>db</sup> , Q238 <sup>db*</sup>
	Q190 <sup>db</sup> , Q200 <sup>db</sup> , Q208 <sup>db</sup> , Q219 <sup>db</sup> , Q232 <sup>db</sup> , KQ228 <sup>db</sup> , MQ239 <sup>db</sup> , Q238 <sup>db*</sup>		Q135, Q172 <sup>db</sup> , Q183 <sup>db</sup> , Q200 <sup>db</sup> , Q208 <sup>db</sup> , KQ228 <sup>db</sup> , KQ236 <sup>db</sup> , Q237 <sup>db</sup> , Q238 <sup>db*</sup>
Sandy Soils	Q200 <sup>db</sup> , Q208 <sup>db</sup> , Q219 <sup>db</sup> , Q232 <sup>db</sup> , MQ239 <sup>db</sup> , Q238 <sup>db*</sup>	Clay Soils	Q183 <sup>db</sup> , Q190 <sup>db</sup> , Q200 <sup>db</sup> , Q208 <sup>db</sup> , KQ228 <sup>db</sup> , Q232 <sup>db</sup> , MQ239 <sup>db</sup>
Hill Slope Soils	Q200 <sup>db</sup> , Q208 <sup>db</sup> , Q219 <sup>db</sup> , Q232 <sup>db</sup> , MQ239 <sup>db</sup> , Q238 <sup>db*</sup>	Seymour Soils	Q190 <sup>db</sup> , Q200 <sup>db</sup> , Q208 <sup>db</sup> , Q219 <sup>db</sup> , KQ228 <sup>db</sup> , Q232 <sup>db</sup> , MQ239 <sup>db</sup>
Varieties Displaying Tolerance of Sodic Soils		Q208 <sup>db</sup> , Q215 <sup>db</sup> , Q232 <sup>db*</sup>	

\* = Limited information available on this soil type.

RECOMMENDED VARIETIES IN THE HERBERT

	Brown rust	Chlorotic streak	Leaf scald	Orange rust	Pachymetra root rot	RSD	Red rot	Smut	Yellow spot	
Q135										Q135
Q172 <sup>db</sup>										Q172 <sup>db</sup>
Q183 <sup>db</sup>										Q183 <sup>db</sup>
Q190 <sup>db</sup>										Q190 <sup>db</sup>
Q200 <sup>db</sup>										Q200 <sup>db</sup>
Q208 <sup>db</sup>										Q208 <sup>db</sup>
Q219 <sup>db</sup>										Q219 <sup>db</sup>
KQ228 <sup>db</sup>										KQ228 <sup>db</sup>
Q232 <sup>db</sup>										Q232 <sup>db</sup>
KQ236 <sup>db</sup>										KQ236 <sup>db</sup>
Q237 <sup>db</sup>										Q237 <sup>db</sup>
Q238 <sup>db</sup>										Q238 <sup>db</sup>
MQ239 <sup>db</sup>										MQ239 <sup>db</sup>
	Brown rust	Chlorotic streak	Leaf scald	Orange rust	Pachymetra root rot	RSD	Red rot	Smut	Yellow spot	



= Resistant



= Intermediate



= Susceptible



= Unknown/In Trial



## NEW VARIETIES

### Q238<sup>®</sup>

2011 release Q238<sup>®</sup> comes from the Central Plant Breeding Program and provides not only resistance to such disease as smut, Pachymetra, leaf scald and orange rust but also offers a moderate CCS with moderate to high yields. Q238<sup>®</sup> in trials has been shown to be suited to a wide range of soil types and environments but due to susceptibility to chlorotic streak it is not being recommended for soil types prone to flooding or long term waterlogging. Q238<sup>®</sup> is also susceptible to RSD and therefore growers need to manage this disease through clean seed material and hygiene. Material will be available from HCPSL in 2012.

### Q232<sup>®</sup>

2010 release Q232<sup>®</sup> comes from the Southern Plant Breeding Program and has shown to be suited in the Herbert to a wide range of soils types and environments. Due to poor CCS we recommend that with its vigour it would be best suited to poorer soils in the Herbert. With Q232<sup>®</sup> growers will need to monitor its flowering intensity as its CCS drops off once it has flowered, though we consider it a mid-season variety. Material will be available from HCPSL in 2012.

### Q237<sup>®</sup>

2010 release Q237<sup>®</sup> comes from the Northern Plant Breeding Program and is recommended for the Herbert's fertile and free draining soils, though it has been seen to tolerate some waterlogging. Q237<sup>®</sup> is intermediate for most major disease in the Herbert however block rotation with a resistant Pachymetra variety is suggested. A good germinator, Q237<sup>®</sup> has a high CCS and is suggested to be harvested in the mid-late season. Material will be available from HCPSL in 2012.

## MORE PRODUCTIVE VARIETIES THROUGH BETTER NUTRIENT MANAGEMENT

The weather plays a critical role in the development of our sugarcane crop. Too much rain... not enough rain, and the threat of seasonal cyclones and storms, all play havoc on crops in North Queensland.

Another often over-looked factor that has cropped up in a number of soil tests in 2011 are nutrients. Calcium, Magnesium, Copper, Zinc and Sulphur often take a back seat to Nitrogen, Phosphorus and Potassium, but these nutrients can often be the difference between a productive crop and an unhealthy, poor crop.

Application methods for these nutrients are varied. Calcium and Magnesium are more commonly supplied by applications of lime or a Magnesium-Calcium blend, such as Lime and Dolomite. Zinc and Copper can be applied through custom fertiliser blends or mixed with water and sprayed over the crop or bare ground. Sulfur is commonly found in standard plant or ratoon fertilisers, so is a little easier to apply.

The take-home message is that yield losses from inadequate nutrient levels around the Herbert are on the rise. While some varieties seem to be suffering more than others from these deficiencies, the best defence against loss of production is to take regular soil tests and consult your local Productivity Services Field Officer for advice.

## PROMISING VARIETIES FOR THE FUTURE

At the moment there are no recommendations for release in the Herbert in 2012 however there are numerous varieties coming through the trials that show promise as future commercial varieties for the Herbert Industry. Two of these come from the Southern Plant Breeding Program and they are Q240<sup>®</sup> and Q242<sup>®</sup>. Q240<sup>®</sup> is on track to be considered as a variety for a wide range of soil types and environments as it has shown in almost all trials to have high tonnes and above average CCS in the mid-late season. Q242<sup>®</sup> has done well in our wet zone trial sites and could possibly suit our wet clays where it shows above average tonnes but average to below average CCS.

Other possible future recommendations for release in the Herbert include from the Northern Plant Breeding Program QN00-1511 and QN01-1551 which will be released in the north in 2012 and from the Burdekin Plant Breeding Program Q247<sup>®</sup>, QA00-3093 and QA01-5153.



Calcium Deficiency



Magnesium Deficiency



Sulphur Deficiency

### HERBERT SUSTAINABLE FARMING SYSTEMS GROUP (HSFSG)

The HSFSG have become the leading group in the district to bring industry, researchers, extension staff, agribusiness, funding providers, and education staff and associated government agencies together to discuss, provide direction, investigate and drive programs and projects focussing on sustainable farming practices appropriate to the Herbert region. The Group encourages innovation and open dialogue between all members, with the aim of ensuring a sustainable Herbert cane industry into the future. The group met twice during 2011.

The incentives and projects that the Group were involved with were:

- The Herbert Water Quality Monitoring Project. The HSFSG is the cane industry reference group for this project, reviewing data and to develop strategies to address issues if they occur.
- The DEEDI Extension and Education (E&E) Pilot program. The HSFSG acts as the cane reference group in the Lower Herbert region of this program.
- Analysis of regional soil testing.
- Riparian revegetation.
- Continuation of the BSES variety x row spacing trials.
- DEEDI funded Demo farm project.
- The GBRMPA Reef Guardian farm and schools programs.
- PA activities in relation to:
  - Base station management and auto-steer
  - Yield map generation
- Support for SRDC Grower Group projects:
  - SECMAPPER project- investigating opportunities to utilise Veris 3100 equipment to map soils in the Herbert and Burdekin
  - Herbert Cane growers strategic grub management implementing BSES decision making tools project.
  - Electronic record keeping project
  - Soybean variety trials for the Herbert, Burdekin and Central regions
  - Lumps Grower Group project- investigating different farming practices to increase yields on heavy clay soils
  - Feral pig project- investigating alternative feral pig baits and management practices to manage feral pig populations
  - Compost/ biochar project- investigating what opportunities these products offer to the Herbert cane industry

On the morning of the 2<sup>nd</sup> of December the Group held a farm walk to view:

- The Everris Controlled Release fertiliser trials, at Hamleigh.
- The Herbert Demo Farm site, at Trebonne.
- Inspect the Lumps Grower Group project- investigating different farming practices to increase yields on heavy clay soils, at Trebonne.

***All growers and other interested parties are welcome to attend and be involved in future Group activities.***



Everris Controlled Release Fertiliser



Tour of Demo Farm at Trebonne



Applying mill ash on heavy clay soil at Trebonne

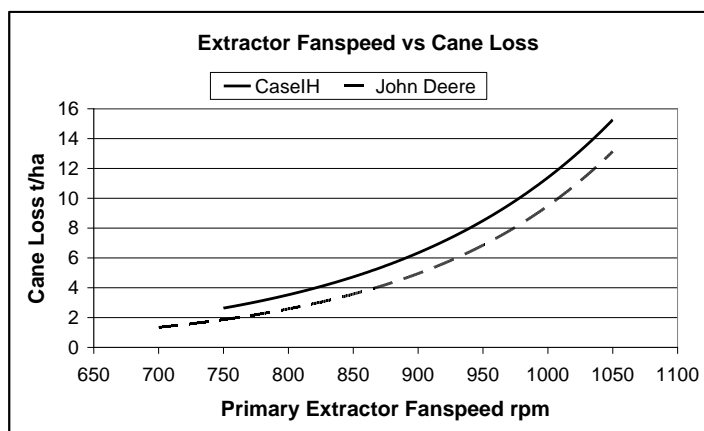


## HARVESTING BEST PRACTICE TEAM

The BSES engineering team based in the Burdekin have been developing Harvesting Best Practice guidelines for current model harvesters using a new sugar loss measurement technique. To achieve this, harvester trials have been conducted from Mareeba to NSW over the past few seasons to collect field residue (trash blanket) and extraneous matter (trash level) samples from new Case IH and John Deere harvesters. Data from these trials provides an understanding of the relationships between cane loss/cane cleaning for current machines. With infield losses worth over \$1000/ha being measured it is important the industry understands current harvester performance.

Unlike the inaccurate blue tarp method or the time consuming mass balance process, this new method involves sampling all the material left in the field (trash, billet fragments, etc), mulching it, blending with water to obtain a liquid extract and then analysing that extract to determine the total sugar loss per hectare. To date this method has proven reliable in accurately measuring sugar loss, unlike the traditional tarp method which significantly underestimates cane loss.

Results so far have shown that when green cane harvesting at today's high pour rates, the cleaning systems perform much like earlier models, with cane loss increasing dramatically towards the upper end of the fanspeed range. The difference with current extractors is that these excessive losses tend to occur at much lower fanspeeds than older machines. The graph below shows the expected cane loss at different fanspeeds for current machines. Between 850rpm and 1050rpm losses increase by around 10 t/ha whilst trash levels would only reduce by around 2% from trial results.



### 2011 Herbert Trials:

BSES researchers Cam Whiteing and Luke Giddy have developed a mobile system to measure harvesting losses in the field to provide same-day feedback to operators. Three trials were conducted in the Herbert during October. Sugar loss was measured at fanspeeds between 600rpm and 900rpm with losses ranging from 0.2T sugar/Ha (\$100/Ha) up to 1.0T sugar/Ha (\$500/Ha). The operations tested were running fanspeeds much lower than the average throughout the rest of the industry (where losses of up to 3T sugar/Ha, \$1500/Ha were measured), possibly due to the information flowing from research to industry.

We thank the harvester crews, growers, millers, productivity services and BSES staff involved in the project. This work has been possible through an SRDC funded project which is focused solely on the loss measurement system development. In order to expand this work to develop more useful information on harvester performance BSES Limited has provided additional funds to allow more extensive trials to be conducted.

## VARIETY ADOPTION

The Variety Adoption Committee met twice in 2011. Committee members, including two new grower reps, discussed and worked on a number of issues and activities including;

- the approval of Q238<sup>®</sup> for official distribution and management of the release plot
- a review of the current approved and recommended variety lists for the Herbert
- assisting with establishment and monitoring of variety strip trials and observation plots, including lime, nitrogen and variety identification plots
- assist with updates and further development of QCANESelect™
- assisting with the organisation of the grower bus tour of BSES's Meringa research station



Growers collecting Q238<sup>®</sup> after treatment for Chlorotic Streak



New Release Variety – Q238<sup>®</sup>

## HERBERT GROWERS TAKE ON ELECTRONIC RECORDING

Herbert sugarcane growers are taking part in an innovative project that demonstrates the importance of record keeping to help a farming business' efficiency. The SRDC funded project is centred on the integration of electronic record keeping into existing business.

The project, which includes 15 growers from across the Herbert, is helping farmers move away from onerous and often repetitive paper based recording systems and moving into a much more efficient and effective electronic recording systems. Assistance is also provided to the grower group through a project steering committee comprising of DEEDI, HCPSSL, BSES, Sucrogen, Canegrowers, HRIC and Terrain representatives.

The grower group project delivers a strong focus on people development through improved knowledge and experience in using electronic records for farm management purposes. Group members are continuing to make progress on using the electronic record keeping program, with varying levels of use within the group. Many of the grower group members are learning new computer skills and developing their knowledge in using electronic records to improve farm business management.

Meetings have been well attended and networking between growers on farm management issues is a beneficial component of the project. The project steering group has also been actively involved in organising activities with the group members and administering the project budget and reporting requirements. Some of the activities undertaken in 2010 include a Townsville/Burdekin Field Tour, review and selection of electronic record keeping program, training sessions, collection of farm paddock information and development of farm management reports. Several group members are also looking at using the FarmWorks program for yield mapping and variable rate fertiliser application.

The project was due for completion late in 2011. More information can be found by contacting Mark Poggio on (07) 47763907 or Mark Whitten (07) 47 601 585



Electronic Recording Training Workshop



Demonstration of Farm Works Record Keeping System

## IMPROVEMENT OF INTERNAL SOIL DRAINAGE AND YIELD ON HEAVY CLAY SOILS IN THE HERBERT

SRDC have funded a Grower Group project in the Trebonne/Hamleigh area to assess different farming practices to improve the internal soil drainage and cane yields on heavy clay soils.

Some treatments were established during the 2011-12 fallow period. The trial will assess the following treatments:

- Conventional farming practices currently undertaken in the area.
- Mounding of the block, prior to the wet season.
- Creating an ash filled slot in a mound, prior to the wet season.
- Zonal ripping, prior to planting.
- Mole draining under the row on GPS, prior to planting.

This trial will be planted to cane in 2012 and harvested in subsequent years.



Creating an ash filled slot in a mound



## SOIL ELECTRICAL CONDUCTIVITY MAPPING PROJECT

The SRDC funded Grower Group SECMAPPER project was completed in 2011, after 2 years of testing and monitoring. The Grower Group consisted of growers from both the Herbert and Burdekin areas.

The main objective of the project was to design and build a modified VERIS 3100 (SECMAPPER) soil electromagnetic mapping machine, that will be a stand-alone, tractor-mounted or trailer unit for collecting soil conductivity data below thick trash or stubble residue layers. The purpose of the unit is to map soils using electro-conductivity (EC) readings.



**VERIS 3100 (SECMAPPER) Machine**

The research results indicate that the modification to the unit did not impact on the EC readings taken by the unit and that the unit could be used under a number of different high residue situations.

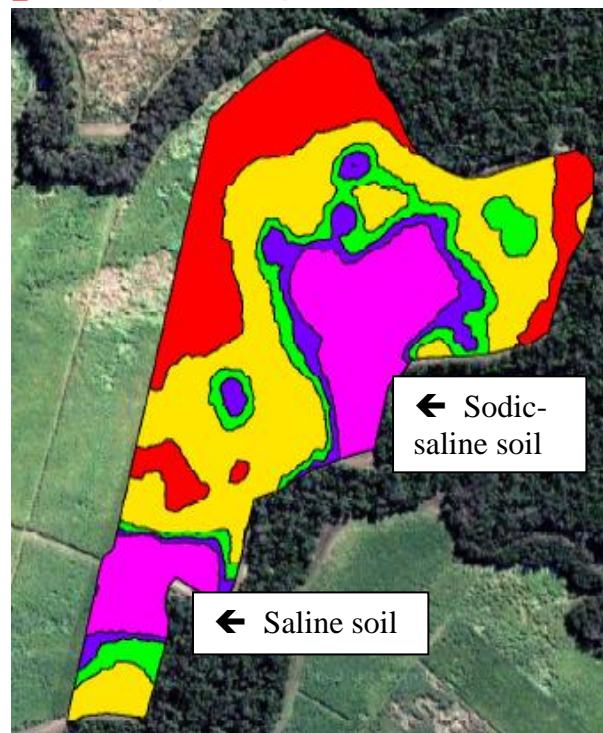
The project increased the industry's confidence in the VERIS 3100 systems to effectively map areas of sodic and saline soils in cane growing regions of Australia. Soil testing should be used to validate areas of sodic and saline soils once mapping has occurred.

The Grower Group project made the following recommendations on the conclusion of the project:

- The Herbert cane industry investigate opportunities to map the cane area south and west of Ingham where there are potential sodic soils present.
- The Burdekin cane area continues to utilise EC mapping equipment to assist in the management of sodic and saline soils.
- Further research and farming systems development be undertaken in dryland farming areas like the Herbert and Central cane growing areas where sodic soils are limiting cane yield potential. The management of sodic soils in irrigated farming areas like the Burdekin are well developed, however this is not the case in dryland farmed areas.
- Investigate further opportunities to adopt precision agricultural techniques (like variable rate technology) to fully utilise the data generated by EC mapping processes.
- Establish EC mapping protocols similar to those being developed for yield mapping processes.

The Grower Group would like to thank the following for their support and involvement in the project: SRDC, HCPSSL, BSES, Soil Horizons, Terrain NRM, ADS Ag Data Solutions, Rabobank and Farmacist.

EC Deep (ds/m)		
57.08 - 279.89	(2.88 ha - 20.1%)	
42.38 - 57.08	(1.12 ha - 7.8%)	
30.38 - 42.38	(1.64 ha - 11.4%)	
10.48 - 30.38	(5.45 ha - 38.0%)	
1.37 - 10.48	(3.27 ha - 22.8%)	



**Example of an EC map for a block at Yuruga**

## HERBERT CANE GROWERS STRATEGIC GRUB MANAGEMENT IMPLEMENTING BSES DECISION-MAKING TOOLS

This project is a SRDC Grower Group funded project funded for a 3 year period. Annually 40 cane blocks are inspected for grub damage early in the year, with some blocks showing moderate to high levels of grub activity. As a part of this project, the district was flown by plane in June – July, to seek blocks impacted by cane grubs. The areas where the greatest damage caused by grubs and increasing populations was found to be in the Upper Stone, Bambaroo West and parts of the Abergowrie areas.

The data from the inspections was entered into a BSES model to predict grub activity in the following year. A series of grower meetings were conducted prior to November to inform growers of the monitoring results and to implement grub management strategies, prior to the on-set of the next cane beetle flights, prior to Christmas.



**A grub affected block at Stone River**

## CONTROLLED RELEASE FERTILISER TRIALS

The US based fertiliser company Everris™ approached HCPSL to assess its product in the Australian cane industry in mid 2011. Everris™ currently produces controlled release fertilisers for the horticulture industry globally (Osmocote® being one of its most well known products) and has been conducting trials in the USA sugar cane industry for a number of years. To date the US data appears very promising, hence the interest to assess the product in the Australian industry.

HCPSL, DEEDI and BSES staff have jointly established 5 controlled release nitrogen trials and 2 controlled release potassium trials across the Herbert in 2011. The controlled release fertiliser is being compared to currently available non controlled release products. The results of these trials will be available in late 2012.

It is proposed that a local industry group will travel to the USA in February, 2012 to review US trials and conduct further discussions with the scientific team from the University of Florida and Everris™, who have developed the controlled release fertiliser products.



Anthony Castorina with the controlled release fertiliser

## Harvest Results

The following table is a **draft** economic comparison of plant cane treatments. Monitoring into ratoons will continue to see if this trend changes.

	Treatment 2 Conventional "C Class"	Treatment 1 Improved "B Class"
Price per tonne sugar	\$400/t	\$400/t
Average yield cane	61.09 t/ha	52.68 t/ha
CCS	15.9	15.54
Revenue per hectare	\$2614/ha	\$2186/ha
Growing costs per ha (ex labour)	\$2892/ha	\$2817/ha
Harvesting costs per ha	\$464/ha	\$400/ha
Gross margin per ha (ex labour)	-\$742/ha	-\$1031/ha
Tractor labour @ \$30/hr	\$263/ha	\$218/ha
Gross margin per ha (inc labour)	-\$1005/ha	-\$1249/ha

## Site Visits

The Herbert demonstration farm has been host to a number of site visits. These have included a study group of Innisfail cane growers, Gilroy Santa Maria College year 11 class, HRIC GIS Forum and a presentation to SAI platform, who are the main food industry initiative supporting the development of sustainable agriculture worldwide.

## 2011/12 Season

Since harvest in late August, GF554 fertiliser was applied at 600kg in late October. The BMP site was stool split, while the conventional site was banded over the stool. Due to the thin trash cover and subsequent higher weed pressures, herbicide was applied in late November. Diuron, 2,4-D and Gramoxone was applied on the conventional site, while Flame, 2,4-D and Gramoxone was used on the BMP site. Different residual herbicides were applied on the sites as the BMP site is attempting to demonstrate options to using legislated residual herbicides. Current reports indicate a healthy crop, however to date, runoff sampling opportunities have been limited due to an unusually dry Christmas break.

## HERBERT DEMONSTRATION FARM PROJECT

### Rainfall

Annual total rainfall across the Ingham farming district greatly exceeded long-term averages for the region, including an early onset of major wet season rain. Approximately 5170mm of total rain was recorded at the Hawkins Creek BOM station, far above the long-term annual average of 2476 mm/year for the area. With the exception of January, all months exhibited monthly totals significantly above long-term averages.

### Water Quality Monitoring

This was the first sampling season for the site. A total of 35 nutrient samples and 21 pesticide samples across both Ingham Demonstration Farm sites were analysed for paddock runoff water quality during the 2010-2011 monitoring period. Budget, resource and technical constraints played a big part in limiting the amount of samples obtained and analysed; as a result, the data set obtained is quite small and occasionally inconsistent.

Nutrient and herbicide concentrations in runoff were similar through the sampling period. The exception to this was the first rainfall event in September. In this event the BMP site had much greater runoff, probably due to the hardened interspaces and mounded inter-rows. This led to higher nitrogen and ametryn runoff concentrations being recorded.



HERBERT DEMONSTRATION FARM PROJECT



## RAINFALL SIMULATION TRIAL

HCPSSL, BSES, DERM, DEEDI, JCU and Terrain NRM staff has been recently working together on a trial in the Abergowrie area to compare fertiliser placement methods for cane yield, CCS, potential sediment, nutrient and herbicide runoff.

A rainfall simulator was used to simulate rainfall on the field to investigate potential sediment, nutrient and herbicide runoff from areas under a trash blanket system and without a trash blanket.

The trial consists of the following fertiliser application treatments:

- Surface applied granular fertiliser
- Stool split sub-surface applied granular fertiliser
- Broadcast granular fertiliser
- Surface applied liquid fertiliser
- Stool split sub-surface applied liquid fertiliser

The trial also investigated potential runoff of the following herbicides:

- Gramoxone
- Velpar K4
- Gesapax Combi
- Soccer
- 2,4-D
- Starane
- Dual Gold
- Atrazine

During the period the rainfall simulation was undertaken, growers and school students observed first-hand the rainfall simulator in action.

The field will be harvested in 2012 for cane yield and CCS. Water quality samples are currently being analysed and results of the trial will be presented to industry when it becomes available.



Applying fertiliser for the rainfall simulation trial

## WEED RESEARCH

### Navua Sedge

Navua Sedge was first reported in the Cairns region in the late 1980's and has since spread throughout all the cane growing regions of the wet tropics. In an effort to develop herbicide management strategies for in crop control a herbicide trial was established by BSES and HCPSSL staff in a block of ratoon Q204<sup>h</sup> on the 26/10/11. Li 700 at 2% concentration was used as the wetting agent.

Herbicide treatments –

- Sempra 130g/ha
- Sempra 100g/ha + Starane advanced 1L/ha + MSMA 3L/ha
- Sempra 100g/ha + 2,4-D advance 700 1.2L/ha
- Hero 250g/ha + Actril DS 1.5L/ha
- Krismat 2kg/ha + 2,4-D advance 700 1.2L/ha
- Krismat 2kg/ha + diuron 1kg/ha
- Krismat 2kg/ha + diuron 1kg/ha + MSMA 3L/ha
- Velpar K4 2kg/ha + MSMA 3L/ha
- Asulam 8.5L/ha + Actril DS 1.5L/ha + MSMA 3L/ha
- MSMA 3L/ha + Actril DS 1.5L/ha
- MSMA 6L/ha
- Amigan 4.6kg/ha + MSMA 3L/ha
- Hero 250g/ha
- Control

Results to date show an excellent knockdown effect with the addition of MSMA to the treatments being trialed. Sempra and Hero treatments are slowly having an effect on the Navua sedge. Krismat plus diuron and MSMA would be the pick of the treatments to date with the high rate of MSMA @ 6L/ha also proving a very effective knockdown treatment. Further ratings will be carried out to gauge the total control of the Navua sedge at all sizes encountered in the trial.

### Sour Grass

Sour grass is a perennial grassy weed that has taken hold in the wetter areas of the Herbert district over the past few seasons. As the name suggests it tends to grow in wet compacted (sour) areas of blocks. A herbicide screening trial was established in ratoon Q208<sup>h</sup> on 29/09/11 to develop management strategies. The following treatments were applied.

Herbicide Treatments -

- MSMA 3L/ha + Soccer 2.2kg/ha + wetter
- Soccer 2.2kg/ha + Actril DS 1.5L/ha + wetter
- Asulam 8.5L/ha + Actril DS 1.5L/ha + wetter
- Soccer 2.2kg/ha + Balance 100g/ha + Sprayseed 3L/ha + wetter
- Soccer 2.2kg/ha + Balance 200g/ha + Sprayseed 3L/ha + wetter
- Velpar K4 2kg/ha + MSMA 3L/ha + wetter
- Krismat 2kg/ha + MSMA 3L/ha + wetter
- Flame 300ml/ha + Soccer 2.2kg + MSMA 3L/ha + wetter
- Glyphosate 4L/ha + 2,4-D advance 700- 1.2L/ha + wetter
- Glyphosate 6L/ha + 2,4-D advance 700- 1.2L/ha + wetter
- Verdict 500ml/ha + wetter
- Fusilade 1L/ha + wetter
- Amigan 4kg/ha + MSMA 3L/ha + wetter

NB: Glyphosate used was Roundup PowerMAX 540g/L. The wetting agent used was Li700 at the 2% rate.

Results to date show both Glyphosate treatments with the addition of 2,4-D Advance 700 gave excellent control. MSMA (Daconate) provided an excellent knockdown effect with all herbicides it was trialed with.

Regrowth of sour grass has occurred in all plots with the exception of glyphosate. The only treatment that could be recommended as a directed application for reasonable in crop sour grass management at this stage would be Krismat@ 2kg/ha plus MSMA @ 3L/ha. Further screening of products will be carried out in fallow fields during the coming wet season.

## HCPSL BASE STATIONS

HCPSL owns and operates 5 GPS base stations and 6 repeaters. These bases transmit a language called CMR+ and also have Glonass (Russian) in addition to the GPS (American) satellites. They transmit 35 Watts of power in the 450 – 470 MHZ range. This system was chosen for the Herbert for its ability to penetrate vegetation and maximise satellite availability in difficult terrain. Growers purchasing systems which can pick up this signal do not need their own base station.

The same system employed by HCPSL is used in the mining and surveying industries and a large percentage of agriculture. The drainage surveys (Tony McClintock's Land Cruiser) also uses HCPSL's Base Station network to obtain height data and create designs. Future levelling equipment may also use the GPS and Glonass signals instead of Laser Beams – thereby potentially improving efficiency. HCPSL uses Topcon satellite receivers and Pacific Crest radios.

In 2012 HCPSL was fortunate to obtain the services of a radio consultant, who tested the radio signal strength of the base stations using some advanced communications equipment and software.

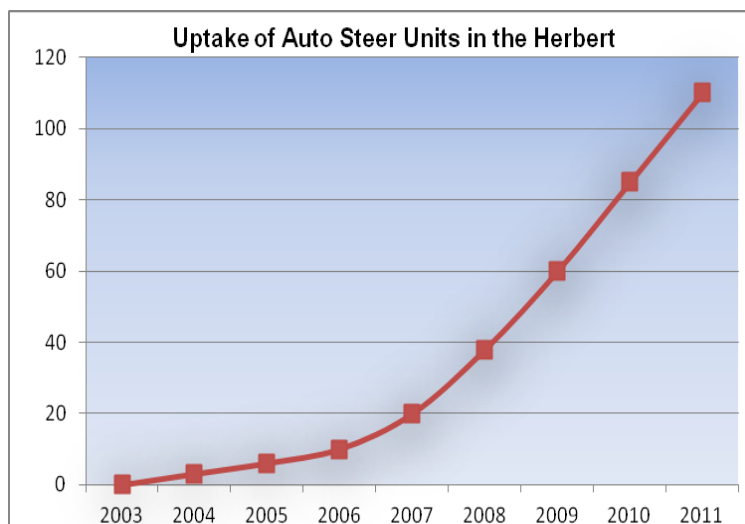
### Report Findings

- Some testing of a new specially tuned Laird antenna installed in November 2011 on Pinnacle Hill showed vastly improved signal strength.
- The network provides good coverage to around 90% of the district and there is some redundancy built into the network. In other words there is a chance that if one base station was to "go down" then the operator could switch channels and continue operating - obtaining adequate signal from an alternative base station.
- Radio interference affecting one base station was also detected having a potentially adverse affect on auto steer – this has since been rectified through the Australian Communications and Media Authority.
- Some changes to the repeater configuration may also improve the signal and these changes will be implemented in 2012.
- BMS (Trimble) operate an independent base station using the CMR+ protocol. This base compliments and works seamlessly with the HCPSL network and could be further integrated through the addition of Glonass.
- The best practice survey standard of the HCPSL base stations allows for the transfer of **AB** lines between different tractors within the CMR+ network. Unless other non HCPSL base stations are surveyed in properly, their AB lines may not be interchangeable with the community network.
- A detailed strength map is being developed as part of the report.

**TIP** – HCPSL has two mobile repeaters for growers to borrow. When setting up repeaters, aim to get some height and place them where they can receive the base's signal – the signal will then be boosted. Growers placing a repeater down the end of a block against trees where there is no signal will find there is no signal strength to boost and the repeater will not work.

## Trends

The amazing trend in graph of the uptake of auto steer units in the Herbert tells a story of confident and innovative growers who have faith in the industry. Several more growers have ordered systems for this year. Looking at the graph we can see how reliant we have become on the technology. Although we had none of this technology for the first 100 years of growing cane, some growers are now saying they can't do without it.



### Changes to Frequencies

Due to changes in government regulation, HCPSL and other users in the 450 – 470 MHZ range have been advised by the Australian Communications and Media Authority to switch to new frequencies by the end of 2012. This will require all tractors using the HCPSL CMR+ network to have their radios set up with all new frequencies. This change will affect all FarmScanAg, Trimble and some GpsAg tractors. HCPSL has already applied for new radio frequencies and will communicate the timing and nature of the changes to the guidance companies. This is a major change and we are mindful of the need to minimise disruption whilst complying with legislation.

## GREEN SHEET

For many years HCPSL entered farm forecast data into an Access data base which had no link back to the farm land itself.

This year HCPSL will enter grower's data using the internet into a secure Geographic Information data base. The forecast data can be entered by multiple users and in the future growers may even be able to enter their own data.

Known locally as the Green Sheet it will be invaluable in analysing best practice farming practices and will give Herbert growers a competitive advantage by having this detailed geographic knowledge about sugar cane. Some of the things we will now be able to do for example is to display all zonal tillage or all blocks that had beans or mud / ash applied. This information can then be analysed at various scales / levels and can be made to line up with yield monitor data to create a whole new insight into Precision Agriculture and productivity analysis.



## HARVEST MANAGEMENT

We thank the harvest crews for their hard work covering the flood and cyclone damaged area in one of the most challenging years on record. Cane consignment was particularly difficult this year due to mixing standover and this also added to the daily issues faced by our harvesters.

The district's harvest tracking system performed well this year marking off harvested areas accurately. However due to the nature of the crop, larger than expected areas were unharvested by a number of harvest groups. Some of this unharvested cane was of a reasonable yield but had no CCS, some had deteriorated and was rat eaten and some was flood damaged. Thanks to Santiago for keeping all the Solinftec equipment working well and installing new Motorola modems into the on board computers.

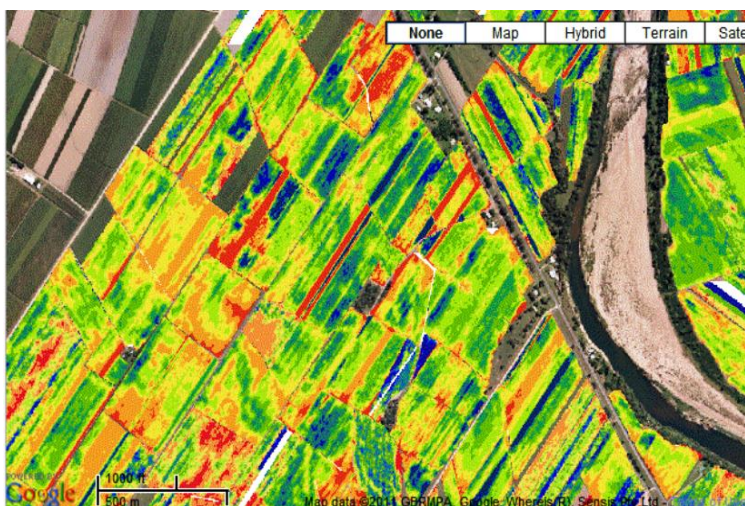
Having gone from excess capacity in harvesting in the early 90's, the number of machines has now halved. The continued rationalisation of harvesters subsequent to the poor crop means that in 2012 our district will operate with a daily fleet (after RDOs) of around 50 machines. The issues surrounding manning, economics, grouping, quality and capacity are now critical issues affecting the profit margins of both farmers and millers. Therefore harvesting issues needs to be embedded in our district's strategies as we jointly look for innovative solutions.

## YIELD MONITORING

This year we saw all the yield data sent via the Next G system and via the on board computers. Previous years have seen the data stored on compact flash cards which had to be collected and swapped over periodically. Yield monitoring is a complex task and HCPSL has made yield monitoring work on a large scale of around 20,000 hectares. Several growers are now using their yield maps to gauge the effectiveness of various practices and recent examples include:

- a grower putting ash on half a block the previous year and seeing a substantial yield response decided it was economical to put ash on similar soils
- a grower did some strip trials with lime and noticed a marked and unexpectedly large yield response
- a grower seeking extension advice after seeing visually on a yield map an uneconomic section of a block
- variable nutrient rate trials.

Screen Shot from Web Portal



Yield maps show farmers if they are on the right track. Drainage decisions may also become apparent after analysing the yield variations within blocks. Growers interested in yield mapping are encouraged to contact HCPSL.

## HERBERT RESOURCE INFORMATION CENTRE



The Herbert Resource Information Centre (HRIC), a partnership that includes HCPSL; Sucrogen; CANEGROWERS; BSES Limited; Hinchinbrook Shire Council; and Terrain NRM, had a particularly busy and successful year in 2011. The Herbert Information Portal (HIP) use has continued to grow and expand to meet the needs and demands of the Herbert sugar community. 2011 started off with Cyclone Yasi and a number of flood events. The HIP was used extensively by emergency services, the Red Cross, and the army to help with the clean up. Within weeks of Cyclone Yasi crossing the coast, we were able to display aerial photography of the damage at a 5cm resolution for all the towns affected. Following on from this, a Smart Phone application was developed for Hinchinbrook Shire Council staff to map damage to infrastructure, with the points being displayed in the HIP.

In a joint project with the State Government, updated aerial photography was collected last year. For the entire Herbert cane region, we now have aerial photography with a resolution of 50cm. For the towns, the resolution is 15cm. By doing this in partnership with the State Government, the cost of this aerial photography was less than \$20,000 for this community. HCPSL, in particular, has made great use of this photography with staff able to check and update the cane block mapping resulting in much greater accuracy of the cane areas. The latest aerial photography is able to be viewed on the web portal.

HCPSL conducted a review of its operations in 2011, including a review into the HRIC and GIS platforms utilised. One of the interesting statistics to emerge from this review is that the cost of managing and operating the mapping, estimating, consignment error checking, and harvest monitoring processes in the Herbert is a fraction of the costs of some other regions.

One of the things that make the HIP valuable to the Herbert sugar region is how location based information collected (from GPS) can be collated and presented back to decision makers. Other than the maps which you are able to see on the HIP, we have provided tools for the Mill Traffic Officers that show a harvester's status, estimated tonnes cut, estimated bins filled, etc. This is displayed in a report which is updated every 30 minutes. This year we are also putting in 'dashboards' which, instead of just displaying the information in a table/report, the information is displayed as graphics.

Last year I made two visits to see the GIS operations of Wilmar International in Indonesia, and present on the HIP at a conference in Jakarta. Both Wilmar and HRIC operate the same kind of GIS system. We are now fielding enquiries into our system from other agricultural industries, both nationally and internationally. The HRIC has signed a contract with another large industry player (in another industry) to undertake a feasibility analysis into how they could benefit from using the same kind of technology that we are using in the Herbert.

### VISITORS TO THE INDUSTRY

During the past 12 months there has been considerable interest in the sustainable and precision agricultural cane practices undertaken in the Herbert area. The following groups have viewed first-hand the industry at work:

- Students from local primary schools involved with the GBRMPA organised Environment Day- Students were given an introduction to the sugarcane industry integrated pest management and water quality monitoring programs, in July.
- The Herbert Resource Information Centre (HRIC)- Spatial Community in Action 2 day workshop was well attended with the regions GIS and precision agricultural systems on display, in August.
- Visit by the Gilroy Santa Maria Year 11 Biology Field Trip in August.



**Glen Park talking to the Year 11 Biology Class**

- DERM research staff involved in rainfall simulation trials conducted in Abergowrie, in September.



**DERM Staff conducting rainfall simulation trial**

- SAI Platform visit in October to review the industry's approach to sustainable sugarcane production. The SAI Platform group consists of major food manufacturing and agribusiness companies with a keen interest in sustainable agricultural systems.



**SAI Platform Visit**

- Indonesian sugarcane industry delegation in November. This group was interested in Australian cane production and milling systems.
- Brazilian sugarcane industry delegation in November. This group was very interested in cane production systems, precision agriculture and the HRIC systems.
- Local school students presented their Herbert regional water quality research at the Hinchinbrook NRM forum to the stakeholders group, in November. The student's presentations and research were of a high standard. This research will be integrated in the Herbert Water Quality Monitoring Project.



**Local school students at the Hinchinbrook NRM Forum**

- Everris fertiliser company representatives reviewed Herbert fertiliser practices and the industry in August, with a follow up visit in December. Both Australian and USA Everris representatives visited.

The region should be proud of its achievements. The industry is highly regarded globally in relation to sustainable sugarcane production, industry mechanisation, GIS capability and precision agricultural systems.



## REEF RESCUE

Reef Rescue has helped farmers to farm more sustainably since 2008, by providing funding incentives to reduce nutrient, pesticide and soil loss from their land. Since this initiative began, 1,191 projects have been funded in the Wet Tropics region, involving over 1,117 farmers.

Reef Rescue is one of the Australian Governments most successful initiatives, a five year, \$200 million investment in improved farming practices. Its success lies in the high level of engagement and support to the farming community. Landholders in the Great Barrier Reef catchment are supported to adopt better farming systems that will improve water quality and protect the environment.

An Impact Statement issued in 2011 reporting the achievements of Reef Rescue shows that over 90% of the five year target to engage farmers, and 70% of the target for the grazing industry has been met after only three years. The 2013 target to engage 1300 farmers and 650 graziers, is well on its way to being exceeded. The impact statement surmises that Reef Rescue is having an immediate and effective impact on reducing runoff from farms. Terrain NRM has met 90% of its five-year target for the wet tropics region, engaging 488 farmers in three years.

The Statement reveals that more than 500,000 ha of farmland are under improved management as a result of Reef Rescue and 2.7 million ha of grazing land, or about 71% of the five-year target.

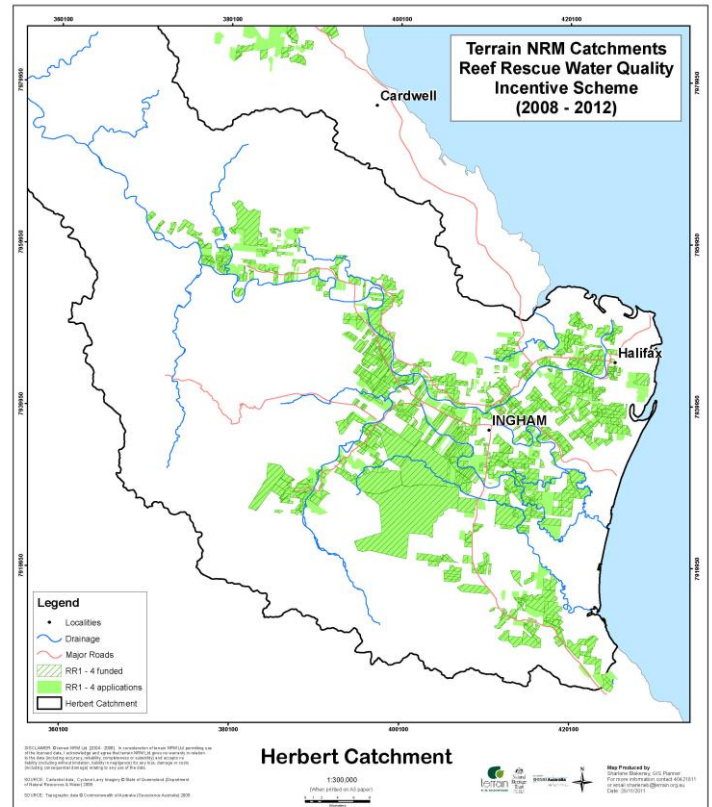
Terrain NRM is one of the six Regional Natural Resource Management Groups together with four Industry Groups that are partners in delivering Reef Rescue, including: Burnett Mary Regional Group for Natural Resource Management, Cape York Sustainable Futures, CANEGROWERS, Growcom, Queensland Dairyfarmer's Organisation, NQ Dry Tropics, Terrain NRM, Reef Catchments Mackay-Whitsunday, Fitzroy Basin Association and AgForce.

"Terrain has awarded \$14.3 million in the last four years to farmers to improve water quality flowing to the Great Barrier Reef. This has been added to by farmers with cash and effort, to the value of \$22.8 million". "This is a massive investment by landholders and shows their commitment to improved farming practices which will ensure the future of the Reef", John Reghenzani commented.

This year is the last opportunity for farmers to apply for Reef Rescue grants as the five year program is coming to an end. "The funding round opened on 30 January earlier so that projects and reporting can be completed by June 2013," said John. "We are encouraging farmers, particularly those who have not applied for funding before, to start talking to industry Extension Officers and Catchment Coordinators now about what farm management changes can be made to improve water quality."

342 projects have been funded in the Herbert catchment in 4 years; 299 of these are cane projects. This amounts to a total of \$5,042,132 grants delivered to the Herbert catchment (Upper and Lower).

Terrain NRM is a community-based not-for-profit organisation supporting natural resource management in the Wet Tropics and facilitates sustainable farming to reduce adverse impacts on the region's land and water assets. More information on Reef Rescue can be obtained by viewing the web site ([www.terrain.org.au](http://www.terrain.org.au)) or by phoning 40438000.



## REEF REGULATION UPDATE

### Reef Regulation audits

DERM Reef Protection Officers (RPO's) will be continuing their 100 reviews of cane properties across the regulated catchments as part of the Reef Regulations program. The reviews were due to be completed by December 2011, however only 55 were finalised at that time. DERM have also advised that a total of 300 reviews will be undertaken by December 2012. Information from these reviews will be aggregated and used to inform the Paddock to Reef monitoring program.

### ERMP annual reporting

Growers who had their ERMP accredited by DERM before 30 September 2011 are required to submit an annual report about the implementation of the ERMP. This needs to be completed by and returned to DERM by 31 March 2012. The following information will be required:

- Any changes to property or contact details.
- Any substantial changes to management system.
- Progress made under the action plan.

After the annual report is submitted, a reef protection officer will review the annual report and the grower's progress against the action plan. The RPO may contact the grower for clarification of the information. DERM have not explicitly outlined what happens after that. Growers who had their ERMP accredited after 30 September 2011 are not required to submit an annual report in 2012.

### E&E Strategy

DERM Reef Protection Unit is conducting further education and extension (E&E) showcases and forums for E&E providers to share knowledge, develop links and identify synergies and gaps that relate to water quality outcomes. CANEGROWERS will continue to advocate that DERM's E&E project aligns with the sugar industry R,D&E strategy and funding be directed to extension.

## PRODUCTIVITY FORUMS

Three forums were held during 2011 which were well attended considering the impact and additional work load associated with the Cyclone Yasi clean up.

The first productivity forum was held on the 18<sup>th</sup> of April with approximately 65 attending. The forum was a joint initiative of the Sustainable Farming Systems Group and SRDC. The results of a number of completed SRDC projects were presented during the half day event. The Herbert Water Quality Monitoring Project was officially launched at the forum.



**Burnt Standover Cane**

The second round of forums were held on the 10<sup>th</sup> and 11<sup>th</sup> of May with 124 attending. The following topics were discussed with the speakers given in brackets:

- New varieties for release- Q238<sup>th</sup> (Adam Royle - BSES)
- Approved seed plots (Graeme Holzberger and Lawrence Di Bella - HCPSL)
- Q-Cane Select (Adam Royle - BSES)
- Agronomy and nutrition required for varieties (Ash Benson - BSES)
- Harvest management (Mike Sefton - HCPSL)
- Management of cyclone affected cane and standover (Ash Benson - BSES)



**A feral pig captured in the Lannercost Area**

The third round of forums were held on the 19<sup>th</sup> and 20<sup>th</sup> of September with 75 attending. The topics discussed with the speakers given in brackets:

- Feral pig management (David Bacchiella - Hinchinbrook Feral Pig Management Program)
- Rat management (Lawrence Di Bella - HCPSL)
- Cane grub management (Nader Sallam - BSES)
- The ERMP process and auditing (Craig Cruickshank - DERM)
- Changes with 2,4-D (Mark Rantucci - Nufarm)
- What is the DEEDI E&E pilot? (Carla Wegscheidl - DEEDI)
- The proposed Herbert DERM nitrogen rate trials (Greg Shannon - BSES)

## TOUR OF MERINGA RESEARCH STATION

On the 25<sup>th</sup> May 2011, 24 Herbert growers and industry representatives loaded onto a bus bound for BSES's Meringa research station. Joined by growers from Babinda, Innisfail and Mulgrave, the group was treated to a guided tour of the sugarcane breeding facilities.

Topics such as sugarcane breeding, seed collection and storage, and seedling raising were all presented to highlight the work being carried out by BSES Limited in improving productivity through conventional breeding practices.

Greeted by senior researcher Xianming Wei, the tour started with an overview of the BSES plant breeding program before moving on to live demonstrations from BSES technical and research staff.

The group immersed themselves in a series of demonstrations, including how new sugarcane crosses are chosen by firstly assessing whether flowers are male or female. Preceding this were further demonstrations showing how male and female flowers are crossed, and how the seed produced from these crosses is collected, stored and planted to produce a new variety.

The day ended with a general discussion involving staff from the Meringa station and a BBQ lunch, provided by Rabobank and Herbert River Canegrowers, before returning to Ingham.



**Project leader and farm manager Jeff Smith runs through the process of collecting and preparing flowers for crossing**



## MANAGEMENT OF WATER WAYS

### Right Trees in the Right Place

Recent floods and cyclones have highlighted the necessity to improve stabilization of river banks, even where rock work has been installed. Rock works are often designed to handle above average flows, but in extreme events such as with TC Yasi and the floods of 2009, the limitations of these structures have largely been exposed by some structures collapsing once a few rocks become displaced by excessive hydraulic forces.

Examples where batters of greater than 2:1 (preferably 3:1) where native vegetation was either planted or allowed to establish, fared much better than those that were regularly poisoned to expose the rock or just covered in noxious grass. Preventing the establishment of trees with large trunks between rocks can be important in maintaining the integrity of the rock structure, but by allowing groundcover and trees with complex root systems to grow over the top of, and secure these structures adds much needed resilience in extreme events. With the increasing likelihood of extreme weather events in the future, it would be well worth managing these areas actively to minimize damage in the longer term.

### Water Resource Plan (WRP)

Since the Moratorium on Water which was announced by the State Government early 2009, DERM has been developing a Water Resource Plan (WRP) for the Wet Tropics region which includes the Herbert Catchment. Under the WRP, water resources are likely to be managed in such a way to meet the changing social, environmental and industrial requirements of a growing population in the Far North. While the exact details for the Herbert Catchment still won't be clear until the Draft Water Resource Plan is released in early 2012, there are considerable implications for existing water entitlement holders and the future of water allocations in the Herbert. Although Terrain NRM, The Herbert River Catchment Group and Industry Groups have been involved in consultation with DERM at the community meetings and have written submissions on a number of pressing issues, greater community involvement is necessary to ensure that a balanced and sustainable outcome is secured for our Shire's future.

### Herbert Water Quality Monitoring Program

The HWQMP was a Cane Industry initiative in response to the Paddock to Reef Monitoring and Modelling Program led by DERM and others to assess the impacts of Reefplan, 2009 and the effects of land use on the water quality entering the Great Barrier Reef. Originally a Lower Catchment project looking largely at nutrient and sediment contribution from Sugarcane, Forestry and Urban runoff, the project now includes a number of commodities in the Upper Catchment including, Grazing, Mixed Cropping and abandoned Tin Mining which also contribute to the Water Quality in the Herbert River.

This program is expected to run for at least 3 years and is funded by a number of partners including, SRDC, DEEDI DERM, Hinchinbrook Shire Council, Tablelands Regional Council and managed by Terrain NRM.

## THE IMPACT OF CYCLONE YASI

At around midnight on February 2<sup>nd</sup> 2011, Cyclone Yasi smashed into the Queensland coast on a scale most people had never seen before. The effects from this natural disaster were felt right across the north as the massive system moved inland dumping torrential rain in its path.

Not to be spared, the Herbert felt much of Yasi's fury as the cyclone's eye crossed the coast a mere 50km to our north. As a result of both Yasi and heavy flooding, before and after the event, the Herbert was estimated to have lost approximately 1 million tonnes of its potential sugarcane crop.

Early inspections by BSES Extension officers Ash Benson and Adam Royle indicated that most areas in the Herbert had avoided major wind damage. However, an industry report conducted by David Calcino (Principal BSES Extension officer), Alan Hurney (Senior BSES Agronomist, ret.) and several other BSES Extension officers, indicated that pre and post Yasi flooding had a significant effect on the 2011 crop throughout the north of the state.

These and further inspections also highlighted the subsequent damage caused by pests such as rats and pigs, particularly in the wetter parts of the district where control was virtually impossible. Varietal differences were also highlighted with Q208<sup>+</sup>, MQ239<sup>+</sup> and Q200<sup>+</sup> displaying much more tolerance to the severe weather events. Varieties worst hit included KQ228<sup>+</sup> and Q174<sup>+</sup>.

Overall, the Herbert crushed a little over 2.9 million tonnes of cane, much lower than the 4 million tonne estimate in late 2010. With good quality seed cane in rare supply, many farms did not finish planting in 2011 and there will no doubt be a question over the disease status of some of the seed used for planting in 2011. With this in mind, the impact of Cyclone Yasi on the Herbert sugarcane industry will no doubt be felt for several years to come.



The BSES Building after Cyclone Yasi



Discussing the Water Quality Monitoring Project