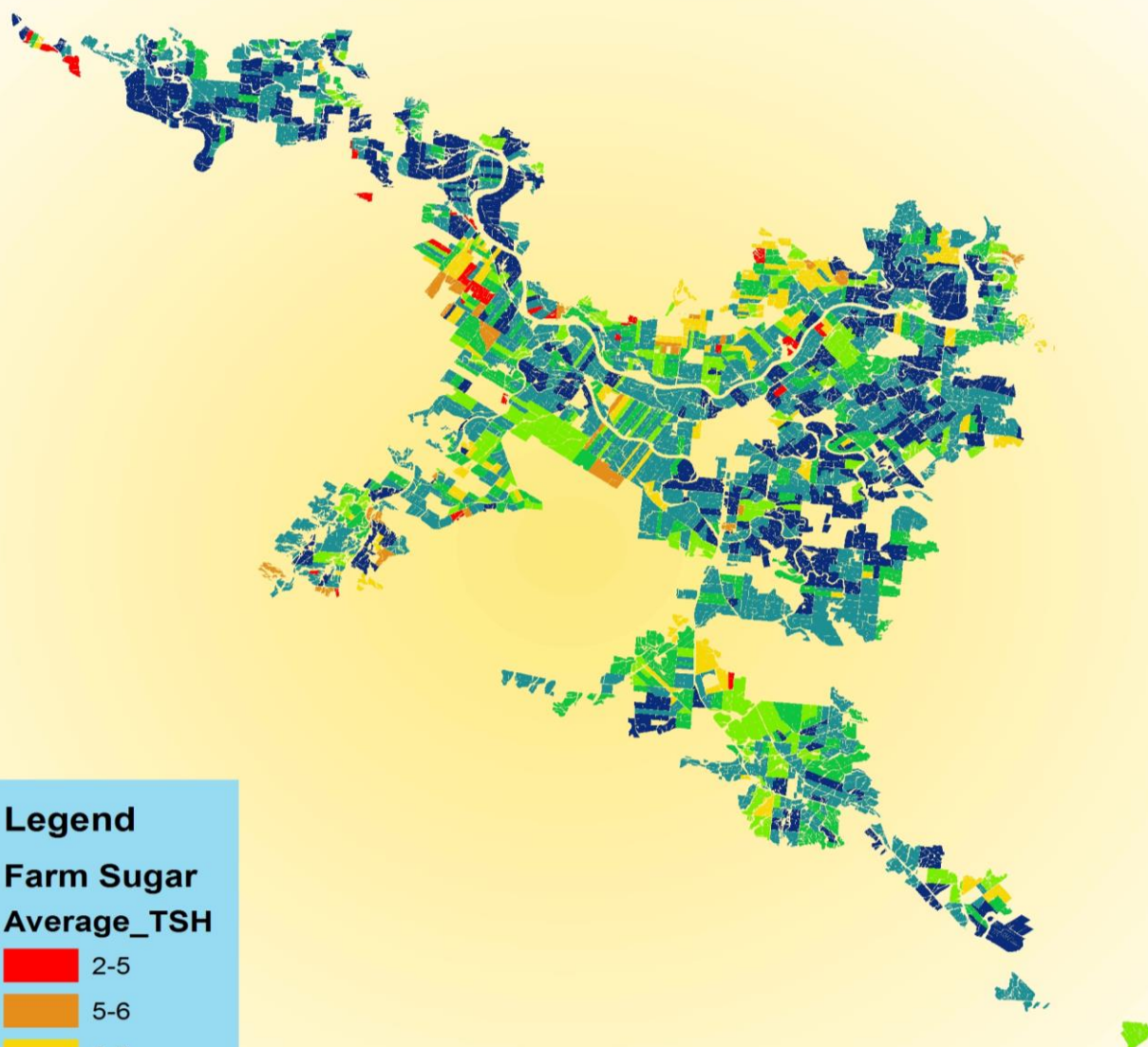
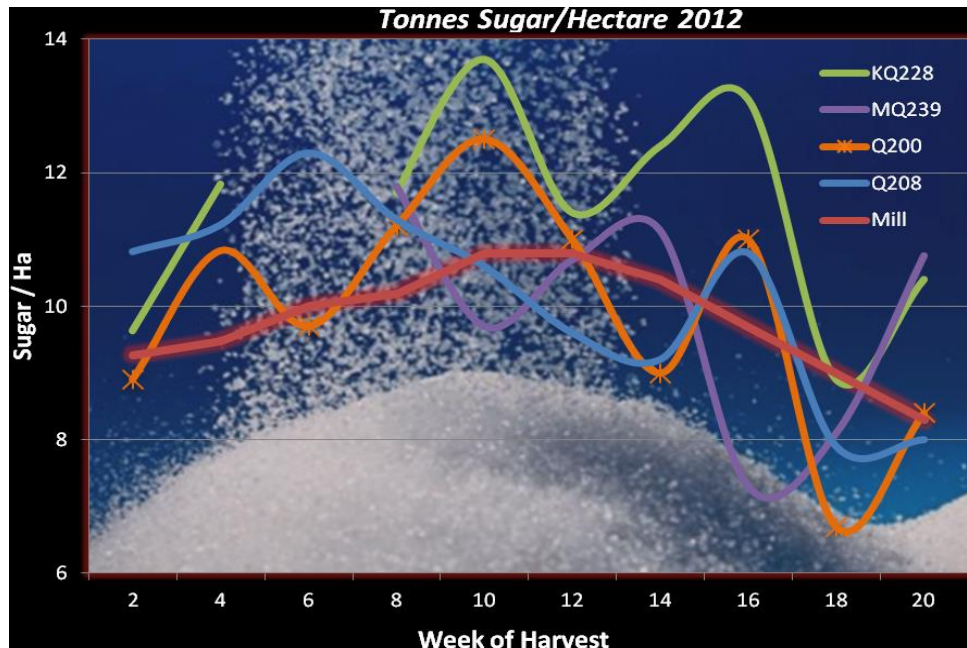




# HERBERT SUGAR INDUSTRY REPORT 2012

*Tonnes Sugar / Ha*



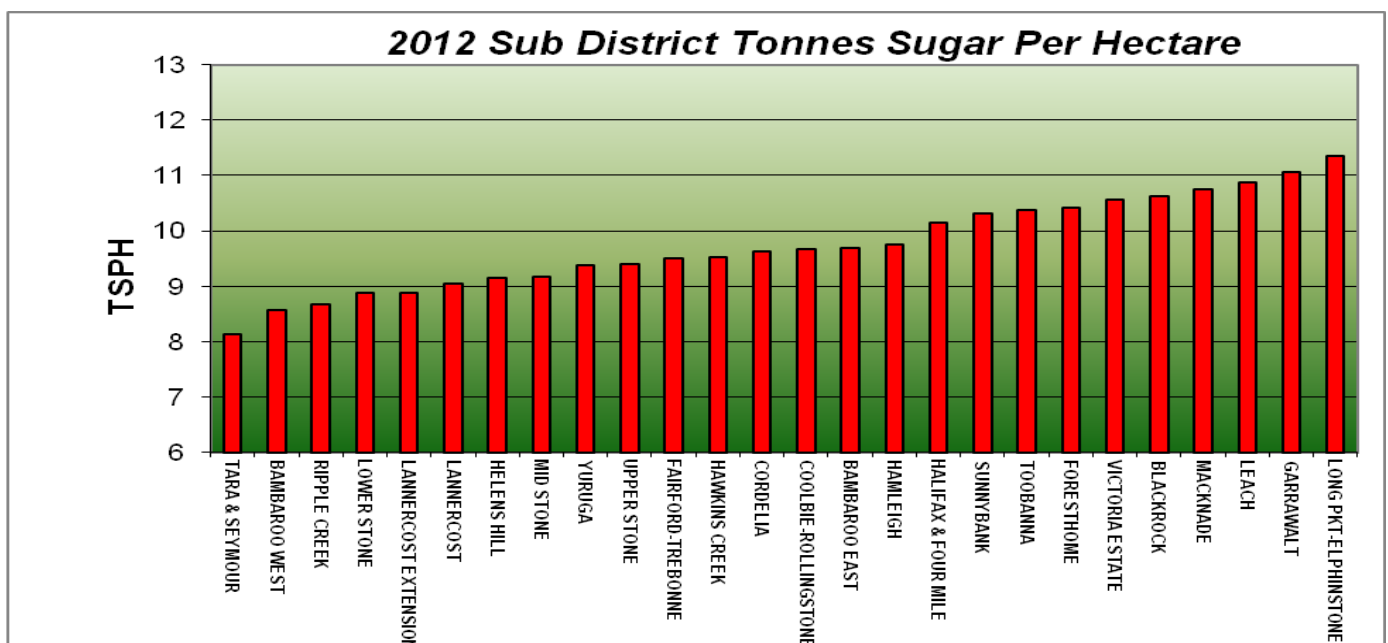


2012 was another disappointing year with a district average yield of 71.9 tcph and an average sugar yield of 9.77 tsph. The only positive was the seasonal average ccs of 13.58. The onset of the early wet season and overcast conditions had a severe impact on cane yield, in conjunction with the heavy crop flowering experienced. The Garrawalt, Leach and Long Pocket/Elphinstone areas had the highest tonnes cane and tonnes sugar per hectare figures due to the lower rainfall levels during the growing season, compared to the rest of the district. The major varieties KQ228<sup>h</sup>, Q208<sup>h</sup>, and to a lesser extent Q200<sup>h</sup> and MQ239<sup>h</sup> all flowered very heavily. Due to the heavy flowering in most parts of the district, crop grow on during the harvest season did not occur.

## HISTORICAL DATA

Year	Tonnes	Ha Harvested	CCS	Cane Yield	Sugar Yield
1993	3873973.78	44650.81	13.37	86.76	11.60
1994	3888137.31	46730.02	14.74	83.20	12.27
1995	4908214.85	50051.86	13.05	98.06	12.80
1996	5251285.67	53513.30	13.21	98.13	12.96
1997	5272421.61	57328.33	13.37	91.97	12.29
1998	4191272.31	48669.90	11.46	86.12	9.87
1999	4151741.51	59955.95	12.73	69.25	8.81
2000	2802049.39	58379.16	13.01	48.00	6.24
2001	3311004.97	56876.94	14.34	58.21	8.35
2002	4243591.27	54892.20	14.40	77.31	11.13

Year	Tonnes	Ha Harvested	CCS	Cane Yield	Sugar Yield
2003	4051558.05	56975.69	13.90	71.11	9.89
2004	4641372.86	56410.75	13.56	82.28	11.16
2005	5553359.05	57078.93	13.11	97.29	12.76
2006	4900084.45	57658.50	12.62	84.98	10.72
2007	4287010.73	57158.66	13.84	75.00	10.38
2008	4688595.64	55061.21	13.54	85.15	11.53
2009	3920941.21	51171.33	14.79	76.62	11.33
2010	3274402.07	39567.98	12.85	82.75	10.64
2011	2920400.98	52364.64	12.89	55.77	7.19
2012	3625680.08	50394.18	13.57	71.95	9.77



## SOIL BORNE PESTS AND DISEASES

Other than canegrubs, there are three other soil borne pests and diseases of significance that affect the roots of sugarcane in the Herbert. With soil borne pests and diseases believed to be on the rise, it is important that growers understand the importance of land management options for these pests and diseases.

**Pachymetra root rot** is a fungal disease found only in Australia. Pachymetra damages and reduces the root system of sugarcane, leading to reduced yields and stool tipping in severe cases. As Pachymetra spores are relatively long-lived, fallowing has little effect on this disease. However, a legume fallow will help to improve soil biology and may limit the diseases effect on the next crop. While soil tests are available to help identify the potential severity of Pachymetra within a cane block, the primary control is through the planting of resistant varieties.

**Nematodes** are tiny eel-like worms found in all soils. While some are actually beneficial, parasitic nematodes attack and feed on plant roots, including sugarcane. The two most damaging parasitic nematodes in the sugarcane industry are the Root knot and Lesion nematode. Nematode damaged roots are susceptible to attack from other secondary diseases, further reducing potential yields. While symptoms can often be seen on the roots of an affected crop, to properly identify and assess the problem a soil test is available. There are several management options during a fallow period that will help to reduce parasitic nematode populations within your sugarcane field.

- Avoid plough out and replant
- Fallow for as long as possible
- Maintain trash cover by spraying out rather than ploughing out your fallow (cultivation kills off beneficial nematodes).
- Make sure there are no volunteers in your fallow
- Plant a legume in your fallow (soybeans are especially good at reducing the numbers of parasitic nematodes).

**Symphylla** are small (5-8mm) arthropods found in all regions, including loamy soils across the Herbert. While Symphylla also attack ratoon cane, the greatest damage is usually seen in young plant cane. Symphylla attack sugarcane roots by eating the small growing points. This damage often results in poor or stunted root development and a stressed crop. While in most cases Symphylla damage tends to be patchy and limited, heavy infestations can cause crops to become gappy with reduced yields. Identification is generally done by inspecting damaged roots and looking for Symphylla in the soil. Control is best achieved during planting by application of Chlorpyrifos directly to and around the sugarcane sett.

For more info on soil borne pests and diseases, soil tests or to discuss management options, talk to your local HCPSL Extension Agronomist.

## GRUBS

Grub damage was recorded across most regions in 2012. The level of damage increased in the lower Herbert/Halifax and Upper Stone River areas, but due to extensive insecticide use in the Bambaroo and Abergowie districts, damage was minimal and restricted to farms where grub control measures were not used. The aerial survey in June followed by ground truthing of possible damage and feedback from growers allowed HCPSL to conduct growers meetings and send out treatment options as part of the Herbert Grub Management GGIP project.

## FERAL PIGS

Feral pigs continue to cause significant impact to the cane crop and cane farm infrastructure (like drains and headlands). The Herbert Feral Pig Management Program (HFPMP) was successful in removing in excess of 1300 pigs during a 12 month period. This program is co-funded by HCPSL, Terrain NRM, Hinchinbrook Shire Council, Forestry Industry and the Queensland Government.

The use of baiting techniques is now responsible for over 50% of the feral pig mortalities by the HFPMP. The use of 1080 baiting is regarded as a critical component of an integrated feral pig management program in the area. Doggers continue to disrupt both feral pig trapping and baiting efforts in the areas. In some cases doggers bluntly ignore trespassing and baiting signs allowing their dogs to come into contact with 1080 baits. The HFPMP believes that doggers have their place in a feral pig management program, however trespassing and interfering with trapping and baiting activities is not acceptable.

SRDC have funded a Grower Group project in the Lannercost/ Leach/ Hawkins Creek area to investigate alternative bait control and management methods for feral pig management in the Wet Tropics cane areas. The Grower Group are working with HCPSL, the HFPMP, QUT, Animal Control Technologies Australia and the CRC for Invertebrate Pests within the project. If you need assistance with feral pig management on your cane farm please contact David Bacchiella on 04587646600.

## RATS

The region once again saw high levels of rat damage to crop due to the prolonged wet season and growers' inability to control weeds in crop during the wet. The region also saw significant rat activity throughout November and December due to the very dry conditions and lack of grasses present causing rats to consume cane.

HCPSL staff continued regular crop monitoring of rat populations during the year; this was a State Government requirement to maintain the permit in place for the industry's "right" to bait. Both rat species that cause crop damage are native species, hence a permit is required to control them. Towards the end of 2012 Canegrowers (through Matt Keally), the Combined Productivity Services and the State Government negotiated a new permit for industry use. Some of the changes that are now in place are: the requirement for growers to report through their local Productivity Services rat damage and where and when rat baits were used. Failure of industry to provide this data to State Government will jeopardise any future opportunities for industry to obtain a permit to bait. At present the industry is only permitted to use RATTOFF and Racumin baits within a cane crop.

## WEEDS

Weed management plus optimising results with a range of herbicides during 2012 has proved challenging during 2012 due to the extended dry spells.

Most herbicides require incorporation (except for Balance) in the form of rainfall, irrigation, a light cultivation or to be applied to a very moist soil with no dry crust to achieve optimum pre-emergent results. Growers have had to delay the final applications of pre-emergent herbicides due to the extended dry spell, and with the ban on Diuron use from 1<sup>st</sup> December 2012 until the 31<sup>st</sup> March 2013, and realising there is a very large seed bank left from 2011, are faced with applying a range of herbicide mixtures not previously trialled for the first time.

Sour grass and Navua sedge continue to pose problems particularly in the wetter areas, however herbicide mixtures assessed in the 2011 trials are proving to be a major assistance.

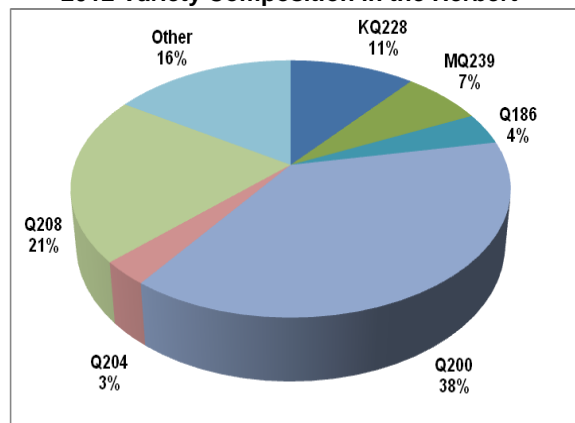


## VARIETY PERFORMANCE & RECOMMENDATIONS

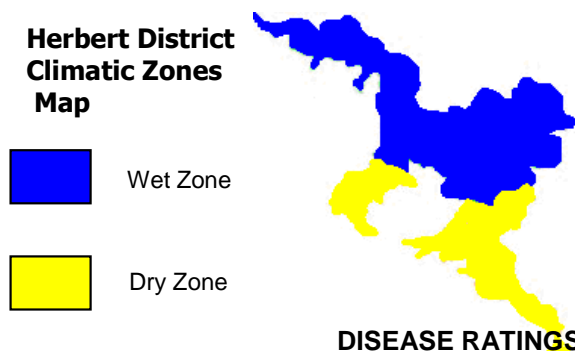
Yet again, 2012 turned out to be another disappointing year for the Herbert. Despite the early promise of a 4 million tonne crop, most varieties cut well under estimate across the district. One variety that did manage to buck the trend was Q183<sup>db</sup>, which performed well throughout the crush. On another positive note, CCS was again solid with Q200<sup>db</sup> and Q208<sup>db</sup> standouts. KQ228<sup>db</sup> once again proved to be disappointing, particularly in ratoons. While KQ228<sup>db</sup> performed quite well for growers in the Abergowrie area, in general growers who harvested KQ228<sup>db</sup> past the first round were disappointed with yield and CCS. The surprise packet for 2012 was MQ239<sup>db</sup> which posted CCS figures well above most predictions throughout the year.

The poorer than expected crop made choosing a variety to plant even more difficult in 2012. In general, most growers were keen to avoid over-planting of any one particular variety, which made variety selection even tougher. The better than expected performance of Q183<sup>db</sup> and MQ239<sup>db</sup> saw these two varieties, along with Q200<sup>db</sup> and Q208<sup>db</sup> top the planting list. While there are a number of new varieties up for release over the next few years, uncertainty of what to plant will likely continue for most growers as the effects of losing varieties such as Q157, Q158, Q174<sup>db</sup> and Q204<sup>db</sup> to smut still linger.

2012 Variety Composition in the Herbert



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> , Q237 <sup>db</sup> , Q238 <sup>db</sup> *, Q247 <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> *, Q247 <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> , Q237 <sup>db</sup> , Q238 <sup>db</sup> *, Q247 <sup>db</sup> *
Clay Soils	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> *	Terrace Loamy 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> *, Q247 <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> , Q238 <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> , Q238 <sup>db</sup> *
Varieties Displaying Tolerance of Sodic Soils		Q215 <sup>db</sup> , Q232 <sup>db</sup> *	

\* = Limited information available on this soil type.

DISEASE RATINGS FOR RECOMMENDED VARIETIES IN THE HERBERT

	Brown rust	Chlorotic streak	Leaf scald	Orange rust	Pachymetra root rot	RSD	Red rot	Smut	Yellow spot	
Q135	Resistant	Susceptible	Resistant	Resistant	Intermediate	Resistant	Susceptible	Resistant	Resistant	Q135
Q172	Resistant	Resistant	Resistant	Resistant	Intermediate	Susceptible	Resistant	Resistant	Resistant	Q172
Q183	Resistant	Resistant	Intermediate	Resistant	Resistant	Resistant	Susceptible	Resistant	Susceptible	Q183
Q190	Intermediate	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Susceptible	Q190
Q200	Resistant	Resistant	Resistant	Resistant	Intermediate	Resistant	Resistant	Resistant	Resistant	Q200
Q208	Resistant	Resistant	Resistant	Resistant	Intermediate	Resistant	Resistant	Resistant	Resistant	Q208
Q219	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Q219
KQ228	Resistant	Resistant	Resistant	Resistant	Intermediate	Susceptible	Resistant	Resistant	Resistant	KQ228
Q232	Resistant	Resistant	Resistant	Resistant	Intermediate	Resistant	Resistant	Resistant	Resistant	Q232
KQ236	Resistant	Resistant	Resistant	Resistant	Intermediate	Resistant	Resistant	Resistant	Resistant	KQ236
Q237	Resistant	Resistant	Intermediate	Resistant	Susceptible	Resistant	Resistant	Resistant	Resistant	Q237
Q238	Resistant	Susceptible	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Q238
MQ239	Resistant	Resistant	Resistant	Resistant	Intermediate	Resistant	Resistant	Resistant	Resistant	MQ239
Q247	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Q247
	Brown rust	Chlorotic streak	Leaf scald	Orange rust	Pachymetra root rot	RSD	Red rot	Smut	Yellow spot	



= Resistant



= Intermediate



= Susceptible



= Unknown/In Trial

## CROP MANAGEMENT - WEEDS

Weed growth will reduce cane tonnage in all crop classes. However plant cane in the first 3-4 months of growth is particularly susceptible to weed competition. Weeds compete for moisture as well as nutrients, so it is important, particularly under our dry land farming operations to be vigilant and keep weeds to a minimum whenever possible.

A good point to start is in the fallow, as a range of mechanical and herbicide options are available depending on the prevailing weather conditions to control weeds, prevent them from seeding and thus **“Break the Seeding Cycle”**. A legume fallow / break crop is very useful to help enhance variety performance providing weed management is applied to the legume crop. For blocks with heavy weed pressures, it is recommended that weed control be the priority over a legume fallow, and that legumes are not grown until weed pressures are reduced.

Weed management must then be a priority for all crop classes irrespective of the variety grown. Where Sour Grass is a problem, it is recommended that Q208<sup>®</sup> is not planted until the Sour Grass is brought under control as it seems to out compete this variety. On Sour Grass blocks it is recommended that a variety with heavy trash blanket plus a good canopy that closed early be used to avoid extensive crop losses.

## NEW VARIETIES

### Q240<sup>®</sup> (QN81-289 x SP78-3137)

2013 release Q240<sup>®</sup> comes from the Southern Plant Breeding Program and provides not only resistance to such diseases as Smut, RSD, Leaf Scald and Orange Rust but also offers a moderate CCS with moderate to high yields. Q240<sup>®</sup> in trials has been shown to be suited to a wide range of soil types and environments but is currently being recommended for average to better soils in both the wet and dry regions. Q240<sup>®</sup> is also intermediate to Pachymetra and CSD, therefore block rotation with a resistant Pachymetra variety is suggested and ensuring the use of clean seed material. Material will be available from HCPSL in 2013.

### Q242<sup>®</sup> (Q170<sup>®</sup> x Q150)

2013 release Q242<sup>®</sup> comes from the Southern Plant Breeding Program and 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. Q242<sup>®</sup> is resistant to Leaf Scald, Orange Rust and Pachymetra but is intermediate for Smut and RSD, therefore growers need to manage these diseases through seed material and hygiene. Material will be available from HCPSL in 2013.

### Q247<sup>®</sup> (Q120 x CP57-614)

2012 release Q247<sup>®</sup> comes from the Burdekin Plant Breeding Program and is recommended for the Herbert's fertile and free draining soils, though it has been seen to handle average soil types in trials with some waterlogging in both wet and dry regions. Q247<sup>®</sup> is currently resistant for most major diseases in the Herbert however ensuring the use of clean seed material is recommended. A slow germinator, Q247<sup>®</sup> has a high CCS throughout the year however it is recommended to harvest before heavy flowering occurs. Material will be available from HCPSL in 2013.

### Q238<sup>®</sup> (Q138 x Q155)

2011 release Q238<sup>®</sup> comes from the Central Plant Breeding Program and provides not only resistance to such diseases 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 intermediate to RSD and therefore growers need to manage this disease through seed material and hygiene. Material will be available from HCPSL in 2013.

### Q232<sup>®</sup> (QN80-3425 x QS72-732)

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 soil types and environments but due to poor CCS we recommend that with its vigor, it would be best on the Herbert marginal country. 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 and please note it is an intermediate for Pachymetra therefore block rotation with a resistant pachymetra variety is suggested. Material will be available from HCPSL in 2013.

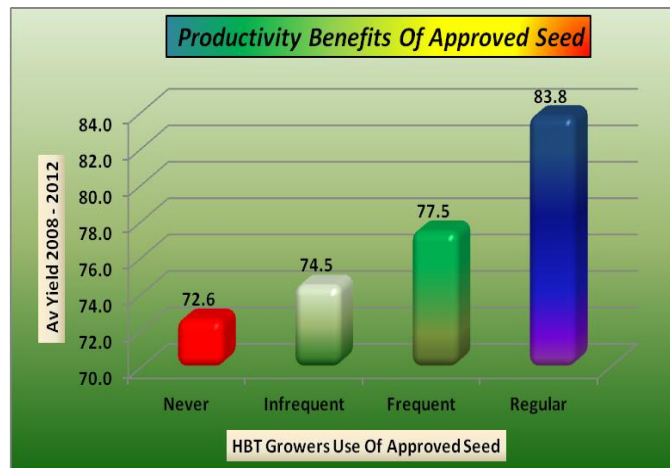
### Q237<sup>®</sup> (Q120 x CP57-614)

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 mid season. Material will be available from HCPSL in 2013.

## PROMISING VARIETIES FOR THE FUTURE

At the moment there are numerous varieties coming through the trials that show great promise as future commercial varieties for the Herbert Industry. Some of these come from other programs such as Q226<sup>®</sup>, Q250<sup>®</sup>, Q251<sup>®</sup>, Q246<sup>®</sup>, QA00-3093 and QA01-5153 but we also have some promising clones from the Herbert program such as QH02-1041.

## THE IMPORTANCE OF USING APPROVED SEED



One of the ways of maximising a variety's full potential is to ensure it is clean. Unique multi-year data analysis at HCPSL has shown most growers could gain over 10 tonnes/ha by improving hygiene.

### HERBERT SUSTAINABLE FARMING SYSTEMS GROUP (HSFSG)

The HSFSG has 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 2012. The first group meeting was held at the HCPSL offices in Ingham and the second meeting was held in Tully with a field trip included as a part of the day. HSFSG meetings and functions are well attended with between 25-55 attending.

The activities 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 develop strategies to address issues if they occur.
- The Queensland Government Department of Agriculture, Forestry and Fisheries (DAFF) funded Extension and Education (E&E) pilot project. This project built industry capacity within the region and gave extension staff an opportunity to network with extension staff from other industries (like grazing, dairy, timber and mixed cropping) within the Herbert Catchment area.
- The DAFF funded Demo farm project.
- DAFF managed-alternative herbicides trials.
- The Everris Controlled Release fertiliser trials.
- Queensland Government funded project to investigate denitrification losses in a green cane trash blanket farming system.
- BSES harvester research into cane and sugar losses in field.
- The Woolworths funded Landcare project into better use of mill mud and ash.
- Field trip to the Tully cane industry in November to view equipment used in minimum tillage, controlled traffic farming systems and sugarcane plant tissue cultured plants.
- The GBRMPA Reef Guardian farm and schools programs.
- The Queensland Government funded rainfall simulation trials.
- Support for SRDC Grower Group projects:
  - Herbert cane growers strategic grub management implementing BSES decision making tools project.
  - Soybean variety trials for the Herbert, Burdekin and Central regions.
  - Improvement of internal soil drainage and yield on heavy clay soils in the Herbert.
  - Assessing the impact of compost and biochar in a cane farming system.
  - Investigating alternative feral pig baits and management strategies to manage feral pig populations.
- PA activities in relation to
  - Base station management and auto-steer
  - Yield map generation

All growers and other interested parties are welcome to attend or be involved in future group activities. For more information contact Lawrence Di Bella- 0448 084252.



Leanne Carr undertaking gas sampling for the denitrification losses project



### WOOLWORTHS FRESH FOOD FUTURE PROGRAM AND LANDCARE PROJECT

HCPSL is one of eleven farming groups across five states to have received a funding boost as a result of a series of recent grants offered in 2012, through the Woolworths and Landcare Australia partnership.

HCPSL aims to develop more robust sugarcane farming systems that use sugar mill by-products, such as mill mud and mill ash, more efficiently throughout the Herbert River cane growing region in northern Queensland. The project will also increase local industry awareness on best nutrient management using both organic by-products and inorganic fertilisers.

HCPSL will be working locally with the local SnE Plant Hire, Sucrogen, BSES and trial co- operators to deliver this project.

Three demonstration sites have been established throughout the district in late 2012. Lower rates of mill mud applied zonally to the row will be compared against high rates being applied to the interspace. Samples of mud and ash were also collected over a 3-4 month period during 2012 and sent away for analysis to gain a better understanding on nutrient content over a season.

Pat McEntee, Woolworths General Manager of Fresh Food, believes that the Fresh Food Future program is in an excellent way for Woolworths to continue investing into the Australian agricultural sector and enable Australian farmers improve their farm efficiency and reduce their input costs.

Further information about the Woolworths Fresh Food Future program and other recently funded projects can be found on [www.landcareonline.com.au](http://www.landcareonline.com.au)



## ISSCT WORKSHOP

The International Society of Sugarcane Technologists (ISSCT) Agronomy and Engineering Workshop was held in Townsville in September. Over 120 delegates registered for the conference with delegates coming from throughout the sugarcane growing regions of the world. Numerous research papers were presented and workshops held during the week to discuss sugarcane agronomy and engineering.

On the 13<sup>th</sup> of September the Herbert region hosted the delegates, showcasing the innovative research and development into controlled release fertilisers, environmental management, reduced tillage, liquid fertiliser application, harvesting, GIS and GPS technologies.

For some delegates it was the first time they had the opportunity to view mechanical harvesting operations. The mechanisation of the Australian industry was "mind blowing" for the delegates from the developing nations. Delegates praised the Australian and Herbert industry for its innovations and efficiencies to make the industry a world leader in sugarcane production and harvesting.



ISSCT Agronomy and Engineering workshop visit to the Herbert

## SUGAR INDUSTRY AWARDS NIGHT

The 2011 Industry Awards night was held in conjunction with the Greg Shannon and Kiri Low's farewell.

The 2011 award recipients were:

**Farmer of the Year:** G. Biasi and family

**CAMECO Farm Presentation for Harvesting:** V. Russo

**Herbert River CANEGROWERS Most Improved Farm Layout:** A. Covell

**QMCHA Harvesting Efficiency:** Q&R Harvesting

**BSES R&D On-farm Co-operation:** Girgenti Farming, Quabba Brothers Unit Trust, O. & A. Marino, F. & A. White and A. Pace

**Mangrove Jack Environment:** Herbert River CANEGROWERS for the Herbert Water Quality Project

**Outstanding Service to Industry:** Dr. A. Wood



Greg Shannon presenting the Biasi Family with the "Grower of the Year" Award

## 5TH. HINCHINBROOK NRM FORUM

The Hinchinbrook Natural Resource Management Forum was held on Tuesday 30<sup>th</sup> and Wednesday 31<sup>st</sup> October, at the TYTO Conference Centre, where over 50 participants were involved. NRM and pest control activities from catchment partners in the Hinchinbrook and plans for the future were of high importance to the participants at the event.

Terrain NRM staff facilitated discussions on topics from across broad areas of Natural Resource Management, starting from biodiversity, revegetation, aquatic ecology, feral animals, resilient landscapes and pest and weed control.

"It was good to see all the major stakeholders participating and supporting the forum by sharing their knowledge and ideas in the workshop sessions. These sessions have identified a number of potential project and partnership opportunities", said Hinchinbrook Operations Manager, Michael Nash.

Day one of the forum was dedicated to biodiversity issues including, priority areas for work and potential funding opportunities. The second day was focused on pests and weeds, with the opportunity to gain further knowledge and support on these issues.

Participants were updated on the draft Hinchinbrook Pest Management Plan with HSC which was released for public consultation late 2012. The plan, due to be approved by the Minister in the following months, is the main strategic document governing pest management in our Shire and is essential for assessing pest priorities across the region.

Participants of the 5<sup>th</sup> Hinchinbrook NRM Forum included staff from a wide range of organizations including the Hinchinbrook Shire Council, Terrain NRM, Bio-security Queensland, QPWS, FNQROC, Cane Industry, GBRMPA, Forestry Industries, DEHP, CSIRO, WPSQ and individual landholders from throughout the district.

For more information on the Hinchinbrook NRM Forums or potential projects for consideration in the Herbert Catchment, please contact Michael Nash on (07) 4776 0182 or [michaeln@terrain.org.au](mailto:michaeln@terrain.org.au)

## SOYBEAN VARIETY PROJECT

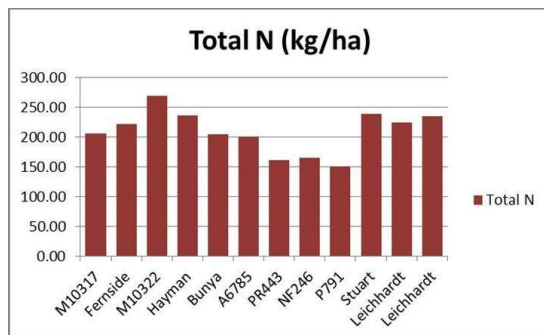
Thanks to a Grower Group led project, aimed at finding new soybean varieties for central and northern Queensland, the first round of soybean variety trials were harvested in the Herbert in 2012. Funded by SRDC, the project saw the first round of trials assessed in Mackay, Ayr and the Herbert. The trials included 10 potential new varieties as well as Leichardt, the current dominant commercial variety.

From these initial trials, six new varieties were selected to go into further assessment trials in 2013. In the Herbert these trials will be planted on two geographically different sites to gauge the performance over different environments.

Varieties are assessed on each site for,

- Seed yield
- Seed quality
- Biomass production
- Nitrogen production
- Season length, and
- General crop agronomy

For more information on the project contact Adam Royle – 0417 610446



Amount of nitrogen (kg/ha) produced by each variety in the 2012 trials



Fulvio Gori and Vince Blanco assisting with biomass sampling at the 2012 Gilbert trial site

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

This project was a SRDC funded Grower Group project for a 4 year period. Forty-one sugarcane blocks were used to monitor grub numbers and damage levels as well as to predict greyback cane grub numbers and potential damage across the Herbert district over three consecutive years (2010-2012).

During the project period, selected blocks were dug for grubs. All grubs found were identified and recorded and then raised in the laboratory in the Herbert and Meringa and regularly checked for diseases. The predictions and damage estimates that were generated for each season were discussed with growers at GrubPlan meetings and during one on one

discussion. Grower's actions for managing their farm's grub issues were recorded and compared to the BSES recommendations.

Strip trials with new product formulations, and comparing existing products were undertaken after discussions with the growers.

This project proved to be very successful as it engaged the growers in a planned approach to grub management, reinforced the need for continual monitoring of population dynamics, and also raised the profile and awareness of grub levels and damage across the whole Herbert region. Previous to this, management tended to be reactionary with the rise and fall in insecticide treatment following the rise and fall in area damaged. This project has led to growers and indeed whole of districts treating to prevent grub damage, based on the predictions of increasing grub damage. Most Herbert growers can see the benefits of the current project in assisting to predict grub damage as well as assist in selecting areas at highest risk to treat, and want a continuing program to be a part of the district work program.

For more information on the project contact Ash Benson - 0400 544301.

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

SRDC funded the Lumps 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. The trial site was planted between the 4<sup>th</sup> and 5<sup>th</sup> of August, 2012 with KQ228<sup>cl</sup>. The trial consists of the following treatments:

1. Conventional land prep, 2. Ash filled slot and mounded pre-wet season on GPS, 3. Mound pre-wet season and zonal tillage on GPS, 4. Ash broadcast, 5. Mole drain prior to planting at a depth below row, with Bioactivate™ (a soil amendment applied).

The trial will be monitored for germination, establishment, water quality, cane yield and CCS. The plant crop will be harvested in 2013. To date there is a noticeable difference in plant cane germination and establishment of mill ash treatments (2 and 4).

For more information on the project contact Vince Russo - 0427 164025.



Broadcast mill ash treatment on the right and conventional land preparation on the left after planting



## INTEGRATED FERAL PIG MANAGEMENT FOR THE HERBERT CANE AREA - (Here Piggy Piggy!)

In May, 2012 the Grower Group formalised its membership with growers signing up and becoming members of the Grower Group and project. The growers in the project paid a membership fee to be a part of the group. The monies go towards paying for feral pig banana baits and employment of a field officer. Ray Stallan was appointed by the project members to undertake the field research activities and to coordinate activities undertaken by the project.

The project, which is funded by SRDC, seeks to achieve the following:

- Bring together growers to focus on managing a feral pig population through collective action and developing a regional specific integrated pest management program. Management of a pest population such as feral pigs requires a coordinated approach. Individual farms attempting control have minimal impact on a population.
- Assess "Hog Gone" (sodium nitrite) baits as an alternative to 1080 baiting, as a part of an IPM program.
- Investigate feral pig genetics to determine the structure of feral pig populations and whether there are source areas of feral pig populations.
- Reduce the significant financial losses (greater than \$570,000 annually) and environmental impacts caused by feral pigs.

The Grower Group is working with the Herbert Feral Pig Management Program, HCPSSL, QUT, Animal Control Technologies Australia and the CRC for Invertebrate Pests within the project. For more information concerning this project please contact Ian Kemp - 0418771617.



Feral pig baiting in the Lannercost area, as part of the SRDC Project

## ASSESSING THE IMPACT OF COMPOST AND BIOCHAR IN A CANE FARMING SYSTEM

This project has brought together the Grower Group, Herbert Cane Productivity Services Limited (HCPSSL), James Cook University (JCU) - Cairns campus, SITA Organics and Renewable Carbon Resources Australia. A project site has been established at Geoff Morley's farm at Lannercost in September, 2012. SRDC has funded the project.

The aim of the project is to:

- Assess the impact of compost and biochar amendment on low CEC soils, which are subject to significant potential nitrogen losses and are generally low in general soil nutrition.
- Investigate the opportunity for carbon sequestration associated with biochar and the opportunities that may arise if a "carbon trading" program is introduced into agriculture.
- Investigate the opportunity to produce biochar from locally sourced materials.

PhD student Amy Beavan from JCU-Cairns is using the site as a part of her studies. Amy will be assessing the potential benefits of composting with biochar with a particular focus on green-house gas emissions, carbon dioxide, methane and nitrous oxide from the various treatments.



Amy Beavan  
(JCU PhD student)  
undertaking  
gas sampling  
at the trial  
site

## HERBERT WATER QUALITY MONITORING PROJECT

Between 1 July 2011 and 30 June 2012 sampling was undertaken at 16 sites within the Herbert Catchment as part of the Herbert Water Quality Monitoring Project (HWQMP). The aim of the project was to identify contaminants in the various sub-catchments with varying land use practices contributing to concentrations and loads within the Herbert River.

The 16 monitoring sites covered the dominant land uses within the Herbert Catchment – rainforest, mixed cropping, urban, dairy, mining and grazing in the upper catchment, plus sugarcane, rainforest and urban in the lower catchment.

The results show detectable concentrations of sediments, nutrients and pesticides in catchment waterways which at times exceed existing Australian water quality guidelines. These results have been obtained from only the first year of a three year monitoring program.

This data and that to be collected over subsequent years will then provide "land use specific" water quality information. The results will inform and assist in tailoring extension activities for specific industries to improve Best Management Practices within the Herbert Catchment to improve the long term sustainability of all land-use based industries on which these communities rely.

### HERBERT DEMONSTRATION FARM UPDATE 2011-12

The Herbert demonstration farm was established in 2009 on the Marino Family's property in Trebonne. The project is monitoring agronomic, economic and water quality aspects of two different farming systems. Located side by side, the first system is based on Best Management Practice (BMP) and the second is a system based on conventional practice. The project has now gone through two harvest cycles and monitoring will continue throughout the 2012-13 season.

The 2011-12 wet season saw climatic conditions move back towards district average with approximately 2560mm of rain falling over the Trebonne demonstration farm from July 2011 to June 2012.

In regards to crop nutrition, both the BMP block and the conventional block were fertilised 27.10.11 (~2 months after harvest) with 560kg/ha of Nitra King, providing 150kgN/ha, 92kgK/ha and 19kgS/ha. The BMP block was stool split, while the conventional block was side dressed beside the stool.

Due to the light trash cover and subsequent higher weed pressure, herbicide was applied in late November 2011 to control small grasses and broadleaf weeds. A tank mix of Diurex (0.5kg/ha), Amicide 625 (0.8L/ha) and Gramoxone 250 (1.3L/ha) was applied on the conventional block, while Flame (400mL/ha), Amicide 625 (0.8L/ha) and Gramoxone 250 (1.3L/ha) was applied to the BMP block. Comparatively, the Flame tank mix provided greater grass control than the standard tank mix applied on the conventional site throughout the season.

Both sites were harvested in August 2012. Results saw the BMP site harvest 87t/ha with an average CCS of 14.2. The conventional site harvested 74.t/ha with an average CCS of 14.0. However this huge yield increase is a reflection of the very poor yields (~50t/ha) resulting from the wet spring of 2010 and Cyclone Yasi. Economic assessments will also be conducted to investigate the financial costs and benefits of the two management systems.

Whilst these results show a greater yield from the BMP site for this year, both blocks need to be monitored throughout the whole crop cycle to better understand the agronomic, economic and water quality differences between the two management systems.

The Herbert demonstration farm continues to be a valuable extension tool to demonstrate new farming methods, stimulate discussion about farming systems issues and importantly, educate the wider public about the issues faced by sugarcane growers and work that is being conducted to overcome them.

In September 2012 a presentation was given at the demonstration farm to delegates attending the International Society of Sugar Cane Technologists (ISSCT) conference. The cooperating growers providing the demonstration farm blocks, Orazio and Anthony Marino kindly provided their zonal ripper rotary hoe and spray boom to demonstrate some of the equipment used on the site. The presentation generated a lot of interest from delegates, who were particularly interested in the water quality monitoring design and equipment.

The Herbert Demonstration Farm is funded by the Department of Agriculture, Fisheries and Forestry with support from Terrain NRM and HCPSL. For further information please contact Rebecca Walther on 0477 301419

### BEST MANAGEMENT PRACTICE WORK IN THE HERBERT

Working in the Herbert with the help of local sugarcane growers, Extension Officer Mark Whitten (Department of Agriculture Fisheries and Forestry), has been busy running trials and demonstrations relating to cane best management practice. These trials are aimed at helping growers undertake on-farm testing of alternative herbicides, optimal nutrient applications, fallow management and better use of mill by-products.

Herbicide demonstrations have focused on alternative products to the regulated residual PSII herbicides: Diuron, Ametryn, Atrazine and Hexazinone. Late last year, Mark ran a number of spot spray and early plant cane demonstrations and prior to Christmas, established two demonstrations in Out Of Hand (OOH) cane.

Assessment of the spot spray demonstrations showed good results using Velpar K4, Daconate / Balance and Daconate / Diuron mixes. However, while the Balance / Daconate treatments provided good results, much of the cane around the treated areas displayed phototoxic symptoms. Both of the OOH demonstrations will be assessed in January 2013.

Nutrient trials and demonstrations have concentrated on nitrogen management, including reduced rates, allowing for legume nitrogen contribution and alternative nitrogen products. These trials and demonstrations will be harvested and assessed for sugar yield.

Due to the dry weather in late 2012, only one fallow management demonstration was put in place at Yuruga, examining Meringa cowpeas and Leichardt soybeans planted on mounds.

This work is funded by the Queensland Government, as part of the Reefocus Extension project, a Reef Plan initiative to improve farm productivity, profitability and water quality in the Great Barrier Reef. If you want to trial any of these practices on your farm or would like further information, please contact Rebecca Walther on 0477301419



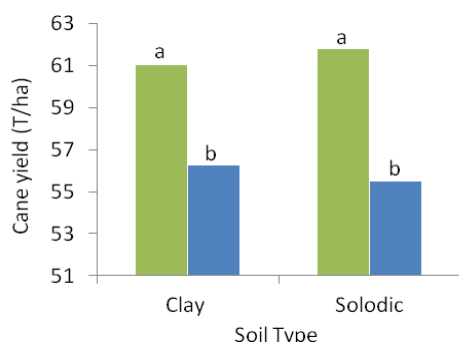
**Mark Whitten**  
explaining the  
operation of the water  
quality monitoring  
equipment

## CONTROLLED RELEASE FERTILISER TRIALS

The USA based fertiliser company Everris™ approached HCPSL to assess its products in the Australian cane industry in mid 2011. HCPSL staff established 5 controlled release nitrogen and 2 controlled release potassium trials across the Herbert in 2011. An Australian industry group (consisting of Lawrence Di Bella, Ash Benson, Greg Shannon, Peter Mc Donnell, Mark and Allan Poggio) also had the opportunity to review research trial and commercial use in Florida in February, 2012 on their agricultural study tour.

### Comparisons between nitrogen treatments

Significant nitrogen responses were measured on all three soil types. Averaged across all N rates, Agrocote significantly increased cane yield by 5 and 6 t/ha on clay and solodic soils respectively (**Figure 1**). Sugar yield was also significantly increased by Agrocote on both soil types (**Table 1**).

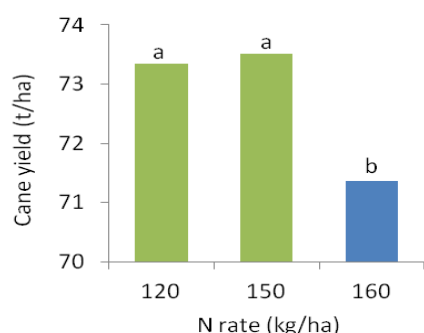


**Figure 1** Average sugarcane yield (t/ha) following controlled release N (■) or urea (■) application at similar N rates. Letters indicate significant difference ( $P \leq 0.05$ ).

	Clay soil		Solodic soil	
Agrocote	8.25	a	8.54	a
Urea	7.89	b	8.03	b
LSD (10%)	0.36		0.47	

**Table 1** Sugar yield (TS/ha) with Agrocote and Urea application on clay and sandy-loam soils.

Commercially, Agrocote will most often be applied as a component of fertiliser blends. The trial at Macknade measured crop response to blends of controlled release N and urea, where 25% of the nitrogen was coated. In this trial, all controlled release treatments significantly increased cane yield compared to uncoated urea (**Figure 2**). Further trial work has been established in the Herbert, Burdekin and Mackay cane growing regions, during 2012-13, to quantify the efficiency of controlled release nitrogen when applied in blends.



**Figure 2** Cane yield following the application of blended controlled release fertiliser (CRF). Treatments were 25% CRF-N + 75% urea-N (■) and 100% urea N (■). Letters indicate significant difference ( $P \leq 0.1$ ).

	Clay	Sandy-loam	Blended N (25% Controlled release)
Urea	14.1 a	14.2 a	14.0
Agrocote	13.6 b	13.8 b	14.0
LSD 10%	0.5	0.2	ns

**Table 2** Commercial cane sugar (CCS) following urea and Agrocote application.

### Comparison between potassium treatments

There were no clear differences in the performance of controlled release and conventional K fertilisers in ratoon crops.

For further information concerning the Everris controlled release fertiliser products, contact Sam Stacey (Everris) - 0409970695.



**Industry group reviewing Everris controlled release fertiliser use in Florida (USA) cane and horticultural industries**



## PROJECT CATALYST

2012 saw the expansion of Project Catalyst in the Terrain Area, now with ten growers in the Herbert, six growers in Tully & four in the Mulgrave / Babinda area.

All growers now have their projects underway with some collecting their first year's data this year.

Examples of projects being undertaken by growers are;

- Skip row farming system
- Efficient legume establishment
- Evaluating methods of preparing existing 1.9m controlled traffic beds for planting using dual row double disc opener planter
- Variable rate nutrient application
- Profitability of slower harvester speeds
- Profitability of corn as a rotation crop
- Different ways of improving sodic soils
- Benefits of single row double disc mound planting
- Trialling legume types in preformed mounds
- Benefits of precision application of Mill by-products on plant establishment

For further information contact Michael Waring on 0428771361



## RAINFALL SIMULATION TRIAL

Little was known of the potential for the use of different fertiliser forms in combination with fertiliser position (surface or sub-surface) and placement methods (band or broadcast) to reduce runoff losses in the Australian sugar industry. The Queensland Government funded the project with Queensland Government partnering with HCPSL, BSES, JCU and Terrain NRM to undertake the trial.

The trial was established at Abergowrie on a clay loam soil.

In this study simulated rainfall was used to compare and quantify runoff nutrient loss (nitrogen, phosphorus and sulphur) from the following treatments:

- Surface applied granule fertiliser on row
- Stool split sub-surface applied granule fertiliser
- Broadcast granular fertiliser
- Surface applied liquid fertiliser
- Stool split sub-surface applied liquid fertiliser

Cane yield was compared across these five treatments in a first ratoon crop. Additionally, nutrient loss comparisons were made with a trash removed treatment on two surface granular application treatments.

### Nutrient losses caused by runoff

The trials found that sub-surface fertiliser application methods (either liquid or granule) were the best methods to reduce nitrogen and phosphorus losses from a cane field associated with runoff losses. Surface applied liquid was found to be the best surface fertiliser application method to reduce runoff losses compared to surface applied granule fertiliser on row and broadcast methods.

### Harvest Results

Treatment	Av. CCS	Av. TCPH	Av TSPH
Surface liquid	13.03 A	108.55 AB	8.33 AB
Sub-surface granule	13.1 A	112.05 A	8.55 A
Sub-surface liquid	12.9 A	112.85 A	8.75 A
Surface granule	13.05 A	115.03 A	8.81 A
Broadcast granule (5 rows)	13.2 A	103.75 B	7.85 B

Letters A and B indicate significant differences between treatments

### Economics

A FEAT analysis was undertaken to calculate estimated variable costs associated with fertiliser application. The estimated variable costs were based upon information supplied by fertiliser contractors surveyed, within the Herbert cane growing region in 2012. The analysis considered the various fertiliser placement options and various options for the number of rows treated during an application. These figures are indicative of costs associated with fertiliser application methods found within the Australian cane industry. A comparison of the variable costs for fertiliser application machinery suited to a typical Herbert cane farm (120ha) shows the additional expense of operating with improved application practices.

### Estimated variable costs associated with fertiliser application

Machinery Item	Average speed of application (km/hr)	Work rate (ha/hr)	Variable cost + labour (\$/ha)
Surface liquid application (3 row)	15	3.7	13.59
Sub-surface granule (3 row) - stool split	11	2.4	24.40
Sub-surface liquid (3 row) - stool split	11	2.7	22.29
Surface granule (3 row) on stool	15	3.7	13.99
Broadcast (5 row)	15	7.3	6.71

Assumptions: Labour - \$30/hr; Fuel - \$1/L; Tractor size - 120 hp; Repairs and maintenance based upon industry knowledge; Total farm size - 120 hectares. Disclaimer: Calculations may vary on individual circumstances.

For more information on the trial contact Bruce Cowie (Queensland Government) - 0428 709 126, Lawrence Di Bella (HCPSL) - 0448 084252

## WEED RESEARCH

### Sour grass management

Sour grass continues to be a major problem in the wetter parts of the district particularly on clay to heavy clay soils. It seems to thrive in blocks of Q208<sup>+</sup> particularly over the past few seasons with the poorer crops, as this variety has an open growing habit and a lighter trash cover after harvest. A range of herbicide mixtures are being trialled in early 2013 to further fine tune possible mixtures for controlling Sour grass in ratoons.

Recommendations to date:

- When Sour grass is actively growing treat with Krismat @ 2kg/ha + Daconate @ 3L/ha
- Follow up when there is a flush of new growth with Daconate @ 6L/ha
- When dry conditions prevail, cultivate ratoons with ratooning discs to set the sour grass back to allow the cane to ratoon
- When sour grass regrows then treat with the Krismat+ Daconate mixture
- Do not plant Q208<sup>+</sup> in blocks that have had a heavy sour grass infestation until the block has been cleared of this pest
- Plant varieties with a good crop canopy, early canopy closure and with a heavy trash blanket after harvest into blocks prone to sour grass competition
- Manage fallow blocks using Glyphosphate options



**Sour Grass competition in Q208<sup>+</sup> ratoons**

## HARVEST MANAGEMENT SYSTEM

Thanks to Santiago (from Solinftec/TechAgro) for keeping the fleet of GPS equipment functioning. Santiago has experience with harvesting both here and in Brazil. It is important to support him in this challenging role and almost all groups are supportive and understand the benefits of new technology.

It is important to note that all growers have signed a legal contract to supply consignment data, along with GPS points.

The Solinftec /TechAgro On-Board Computers (OBC) harvesting technology employed in the Herbert generally performed well with most harvest data flowing through to the server without delay. Some parts of the district have less than optimal coverage and additional high gain antennas have been ordered to further improve the systems data transmission times.

Although the system has improved since the original trial on Rob Lyon's machine six years ago, this system is simply a tool to assist with the harvest and still requires the cooperation, input and good will of the farming and harvesting community to operate successfully.

To understand the scale of the technology globally, Brazil has ordered an additional 2000 green TechAgro on board computers that we have in our harvesters as a tool to manage their fleet. This is good robust technology for harvesting fleets and comes with technical support.

The harvest system has now reached a point where it is more than simply marking off areas and has become a valuable tool with the ability to transform our business.

The HRIC server and underlying spatial technology makes all our real time and web systems work. Should this side of things fail, then the on board computers, tracking and all other integrated time systems and reports would cease to function. Currently the HRIC is funded by Sucrogen Canegrowers HCPSL and Terrain NRM.

Current Value adding includes:

- Yield monitoring
- Harvest performance and progress reports
- The traffic office is using the system to assist with loco scheduling and bin deliveries.
- Mobile mapping and navigation (not auto steer)
- Potential for electronic consignment.
- Ability to analyse data for productivity
- Improved consignment data

Potential Value adding includes:

- Evaluation of harvester extractor fan speed on the economics of the supply chain.
- Fuel usage maps and reports.
- Possibility of full integration with Sucrogen's databases.
- Reporting for farm managers
- Ability to analyse the data for harvest efficiency
- Expert systems
- Messaging systems regarding cane quality and mill performance.
- Siding booking possibilities

## Estimates

Unfortunately the final 2012 crop of 3.62 M tonnes ultimately fell well short of the estimate. Although the harvesting system overall worked well, in addition to the falling estimate and the fact that some seed areas were not captured until too late as well as reports of tampering with GPS equipment, led to tonnes remaining on the books at the end when farms had cut out. Several groups provided great feedback and these issues were addressed.

Although most stakeholders thought the crop was better, there were some signs indicated by crop cut and weigh trials done in April that the crop was light from the start. It is likely that given the need to quantify the crop estimate more accurately for budgeting and marketing purposes, that this method developed in the Herbert may be deployed in other regions.

## Harvesting

Last year in the 2011 Productivity report, harvesting was put in the spotlight as a productivity factor. The issues surrounding economics, grouping, contracts, capacity, throughput, deliveries, and impact on ratoons, not to mention cane loss and bin weight, are serious issues which are now impacting on all parts of the value chain. The sustainability of harvesters, growers and millers is now contingent upon sorting out harvesting issues as much as any other productivity drivers. The district must now face these challenges in a united and mature way if we are to support the sector which is not attracting new entrants, is not seen as an integrated stakeholder and is primarily volume rather than customer, quality driven.

## Remote Sensing

HCPSL has been working with Dr Andrew Robson (CSIRO) on a remote sensing project to evaluate and improve the output from satellite imagery. HCPSL are optimistic that the work holds further benefits and that grub damage identification can also add value.



Typical Auto-Steer/Precision Ag screen installed in close to 200 machines in the Herbert

## PRECISION AGRICULTURE

HCPSL has in the past year worked on several elements of precision agriculture.

### Data Analysis

The analysis of productivity data from various degrees of spatial resolution has allowed us to provide Dr Alan Garside with unique data and information not seen before. By providing graphs, spatial data and reports he has been able to provide an in-depth picture of productivity issues in the Herbert. The report will be out mid-year.

### Auto Steer

The rapid uptake of this technology continues and growers obviously see a benefit. Auto steer in itself will not steer planters straight, ground preparation and implement setup are essential. In order to grow more cane it also needs to be used for more than simply steering straight.

Some emerging measurable yield productivity benefits growers see in autosteer are strategic / zonal tillage and the placement of for example ash or trace elements in narrow bands which never change. Zonal tillage can also reduce compaction.

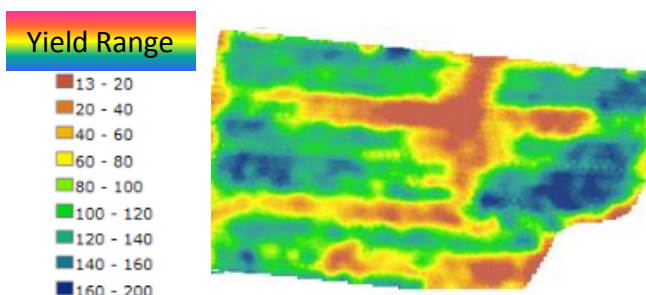
### GPS Base Stations

The base station network in the Herbert will continue to be maintained this year with the possible addition of some improved antennas and relocation of one of the repeaters. Last year upgrades and improvements in the Abergowrie and Bambaroo areas resulted in some significant improvements to signal strength and quality.

This year all frequencies in the bases and rovers will need to be changed due to Government communications and media regulations, (ACMA) and HCPSL will work with guidance vendors to minimise disruptions as we transition to the new frequencies. Herbert growers interested in Precision Ag now have the option of purchasing Topcon, FarmScanAg, Trimble, GpsAg and John Deere. Topcon is a new entrant here and Russo & Vella Machinery are now the Ingham dealers. Their systems are compatible with the HCPSL owned and operated CMR+ community base station network.

### World First Yield Monitoring

HCPSL works closely with leaders in the field of Precision Ag with experts from CSIRO and USQ validating and ground truthing our current yield monitoring technology. This year a new style of yield maps were developed here in the Herbert. More of a yield variation map than a yield map, these near real time (as seen below) maps are displayed on the web portal and appear automatically within a week after harvest. Although still in development it is believed that the scale and speed of delivery of the yield maps has not been replicated anywhere else in the sugar world and possibly even PA world – this real time technology is reliant on a sophisticated GIS server operated by the HRIC.



## HRIC

The HRIC is the organization that seamlessly sits in the background and underpins the success of many of the districts systems that we now take for granted.



The HRIC server and powerful geographic engine provide the data storage and analysis for real time and web based systems for the harvest system and sugar industry.

In January 2012, Michael Sefton, Peter Allen and Raymond De Lai travelled to Adelaide to consult for Treasury Wines. This company is interested in our technology.

In 2013 a large pilot trial was conducted for Treasury Wine Estates (TWE) in South Australia using both TechAgro and HRIC based technology. The successful trial at McLaren Vale and Langhorne Creek showcased local supply chain technology. Technical issues were sorted out after several long days and nights of debugging. This involved GPS tracking of the harvest and transport system establishment of a web portal and the spatial integration of the TWE's corporate database called "Grange". The tool developed assists both schedulers and winemakers. It is certainly remarkable and a great honour to be acknowledged from outside the Sugar Industry by such a large Global player in the wine business.

Other successful projects included a rollout of a similar tracking and harvesting system at Invicta Mill and the rollout of our Green Sheet recording system for the Proserpine Productivity Board.

The automated creation of yield maps may be a world first. Usually these maps cost around \$30 per hectare to produce and take weeks or months before they are processed. The automated system allows industry the opportunity to access these maps more readily.

Refinements to the spatial software on the server this year increased the speed however the server is now ageing and up for replacement. A strategic review of the HRIC is now under way. Apart from the funding and structure of the system, the software licensing and issues surrounding the Cloud are also relevant considerations.

The HRIC provide technical and strategic advice on both desktop and Enterprise GIS.



Mike Sefton presenting in the field to ISSCT delegates



## INTEGRATED WEED MANAGEMENT

HCPSL were contracted by Terrain NRM to continue the Integrated Weed Management (IWM) workshops for canegrowers from the Herbert-north. The workshops cover all aspects of weed management, including herbicides registered for use in cane, mixtures for all stages of weed management, application equipment, nozzles, herbicide resistance, wetting agents, management of drift, record keeping plus many other useful aspects of getting the best out of your herbicides.

### Diuron Update

The current Diuron review has been completed and the following rules and restrictions now apply to Diuron and Diuron/ Hexazinone mixtures in the wet tropics -

- Diuron and Diuron/Hexazinone mixtures with the old label on the product cannot be used between 1<sup>st</sup> December 2012 and 31<sup>st</sup> March 2013 in the wet tropics.
- APVMA has issued a permit (number 13874) which each grower must have a copy of to cover the use of the old stocks of Diuron & Diuron/Hexazinone products from 1<sup>st</sup> April until 28<sup>th</sup> November 2013
- Growers may apply NO MORE than 1.8kg a.i./ha of Diuron per hectare in 12 calendar months (e.g. 2kg/ha of 900g/kg Diuron or 3.8kg/ha of Velpark4)
- When this stock runs out Diuron @ 2kg/ha (900g/kg) or Velpar K4 @ 3.8kg/ha is then banned in the wet tropics. (Wet tropics goes from Crystal Creek in the south to the Bloomfield River in the North)

New rules for the Wet Tropics for the use of Diuron either with the new labels or after the 28<sup>th</sup> November 2013 -

- New APVMA approved labels will have the 5 digit product code followed by the identification 1112 (e.g. Velpar K4 45909/1112)
- Diuron/Hexazinone mixtures (with the new changes on the label) may be applied all year round through an Irvin leg or similar equipment at up to 900g of product /ha when mixed with 1.2-1.6L/ha of Gramoxone
- Diuron/Hexazinone mixtures (e.g. Velpark4) may be used for spot spraying Guinea grass at 1L/100L of spray tank volume. No more than 5% of the total farm area may be spot sprayed.
- Diuron at up to 450g a.i./ha may be applied all year round when mixed with Gramoxone provided that this use has been added to a new section in the new approved labels.
- New labels are being issued for all products containing Diuron with all changes and requirements listed e.g. buffer zones, record keeping requirements etc, so the new labels will have to read fully.

Contact HCPSL for more information.

## REEF RESCUE

Reef Rescue Phase 1 programme is drawing to a close. The programme is one of the Australian Government's most successful initiatives. The five year, \$200 million investment in improved farming practices, success lies in the high level of engagement & 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.

The Wet Tropics region (Great Barrier Reef Catchment) extends from the north side of Crystal Creek to Bloomfield River in the North & as far west to include most of the Atherton Tablelands. The incentive funding covered a variety of different industries including: cane, grazing, bananas, pawpaws, fruit trees, dairy, multicropping & forestry. In the Herbert our focus was the cane industry. Reef Rescue has helped farmers since 2008, by providing funding incentives to reduce nutrient, pesticide and soil loss from their land.

There were three major areas of investment in the cane industry, which are:

1. Placement of fertilisers sub surface (priority investment 1).
2. Use of improved spray technology (priority investment 2).
3. Adoption of new farming systems (priority investment 3).

The Herbert has been successful with its application process in "Phase 1 of Reef Rescue", as the figures show below:

2008 - 2009 - Year 1 - 62 Project Applications - 24 Approved

2009 - 2010 - Year 2 - 85 Project Applications - 46 Approved

2010 - 2011 - Year 3 - 77 Project Applications - 52 Approved

2011 - 2012 - Year 4 - 75 Project Applications - 31 Approved

2012 - 2013 - Year 5 - 119 Project Applications - 80 Approved

### Phase 2 of Reef Rescue

The Australian Government have committed to fund a second phase of Reef Rescue which will build on the last five years, with a stronger focus on extension work. No details have been released about the size or scope of this proposal, although we expect the details will be announced in 2013 as part of a broader announcement on the second five years of the Caring for our Country initiative.



A 3 row stool splitting sub surface fertiliser applicator

## PRODUCTIVITY REVIEW

In late 2012, HCPSL commissioned a Productivity Review to investigate what are the major drivers of productivity for the Herbert. SRDC have funded HCPSL to undertake the activity. HCPSL have contracted Dr. Alan Garside to undertake the review. The findings of the review will be reported back to industry mid 2013.

## GROWER PRODUCTIVITY FORUMS

Three forums were held during 2012 which were once again well attended.

The first grower forum was held the 11<sup>th</sup> of April with approximately 150 attending. The forum consisted of presentations and a farm walk on the following topics:

- The results from the Herbert Water Quality Monitoring project
- Fallow management options
- New varieties
- Feral pig and rat management
- The Queensland Government funded Extension & Education Herbert pilot project
- SRDC Grower Group project to investigate new soybean varieties for North Queensland

On the 16<sup>th</sup> May 2012, over 100 growers and industry representatives attended a field tour of the Macknade research station farm. The tour was aimed at highlighting new research and technology being conducted in the Herbert. The day concluded with a BBQ lunch at the Macknade golf club, thanks to Rabobank, Herbert River Canegrowers and HCPSL. Topics for presentations and demonstrations included –

- farm record keeping
- new varieties
- improved farming systems research
- spray technology
- new zonal tillage equipment
- plant breeding introgression trials

The third grower forum was held the 19<sup>th</sup> and 20<sup>th</sup> of September, with approximately 125 attending. The topics covered were:

- Cane grub management
- Correct placement of Confidor
- Managing herbicide use
- QSL marketing options
- Fertiliser placement and rainfall simulation trial results.
- A presentation on water quality monitoring undertaken by local school children



Glen Park presenting farming systems research findings



Phil Jackson (CSIRO) discussing introgression research



Wavey disc cultivator being demonstrated at Macknade Research Farm



Bed renovator being demonstrated at Macknade Research Farm



## QSL VALUE PROPOSITION

As we look towards the 2013/14 season, it is a good time to reflect on the role QSL plays within the Queensland sugar industry, and why we do the things that we do. Our number one priority is to maximise returns for our members and we have a plan for doing this across the business. QSL's business can be broadly reflected in four key areas – Pricing, Logistics, Financing and Marketing. The table below provides a summary of our business priorities across these four key business areas.

PRICING	LOGISTICS	FINANCING	MARKETING
<ul style="list-style-type: none"> <li>Outperform benchmark market returns</li> <li>Increase range of pricing options</li> <li>Increase pricing flexibility</li> </ul>	<ul style="list-style-type: none"> <li>Safety and efficiency in all operations</li> <li>Customer focus</li> <li>Storing and shipping other products at terminals where it makes sense to do so</li> </ul>	<ul style="list-style-type: none"> <li>Access to long-term pricing at competitive rates</li> <li>Ability to price five years ahead using QSL</li> <li>Low-cost financing</li> </ul>	<ul style="list-style-type: none"> <li>Maximise returns through optimising sales timing and customer premiums</li> <li>Customer focus</li> <li>Reduce marketing costs through supply of other origin sugar</li> </ul>

For the upcoming season QSL will continue to focus strongly on:

- Continuing to build and foster stronger ties with our grower members through improving education and communication, especially regarding their pooling and pricing options;
- Further strengthening the long-term relationships we have with our Asian customers and matching the quality we deliver to their specific needs so that we provide them with greater value and maximise our premium;
- Offering a suite of pools that give the industry the confidence to expand their production;
- Operating the terminals efficiently and negotiating cost effective chartering so that the costs you see through the shared pool are as low as possible;
- Developing activities such as buying and selling other origin sugar and using the surplus terminal capacity to generate other income to offset our marketing costs; and
- Building our relationship with our banking syndicate and maintaining our strong credit rating so the advances program is competitively priced.

QSL's Industry Relationship Manager, Carla Keith, can be contacted on 0409 372 305 or at [Carla.Keith@qsl.com.au](mailto:Carla.Keith@qsl.com.au).

## CHANGES AT HCPSL AND BSES

Sugar Poll 2012 saw the industry vote in changes concerning the delivery of research, development and extension in the industry. These changes saw BSES no longer deliver one on one extension activities to growers in the Herbert. HCPSL took on the sole role of providing local one on one extension activities in the Herbert region. Early in 2012 saw Herbert BSES staff Ash Benson, Sam Sellick, Adam and Melissa Royle come across to HCPSL. HCPSL now offers a wide range of localised extension, precision agriculture, harvest, and pest and disease management services to the Herbert cane industry.

BSES will continue to deliver extension services through its cross regional Professional Extension and Communications (PEC) Unit. It is proposed that BSES, SRI and SRDC will be rolled together into a newly formed company called Sugar Research Australia (SRA) sometime in 2013.



HCPSL Manager, Lawrence Di Bella presenting BSES staff with their new HCPSL shirts

## SAYING GOOD-BYE

In 2012 we said good-bye to Dr. Andrew Wood (Sucrogen), Greg Shannon (BSES) and Kirrily Low (BSES).

Andrew Wood retired from Sucrogen in late 2012. Andrew worked and resided within the Herbert district for 28 years. Andrew was world recognised for his agronomy knowledge and experience. During his employment with CSR and later Sucrogen, Andrew held numerous roles like: Technical Field Services Manager, Cane Productivity Manager and Sucrogen Herbert Farms Manager. Andrew will always be remembered for his positive, gentle nature and in-depth knowledge of sugarcane agronomy and soils. The industry will always recognise Andrew for his significant contribution to establishing green cane harvested trash blanket agronomy systems in the Herbert industry.



Greg Shannon resigned from BSES to take up a position with Tully Sugar. Greg serviced the Herbert industry for 16 years as a BSES Extension Officer, BSES Officer in Charge and BSES Northern Extension Leader. Greg will always be remembered for his passion for football, his Herbert River Express column (Shanno's round up) and his commitment to the local community.

Kirrily Low left BSES to start a new chapter in her life by seeking employment at the Hinchinbrook Shire Council.