

2019 Cane Productivity Services Biennial Conference

The 2019 Biennial Cane Productivity Services Conference was a great success and was a valuable experience for the 9 MAPS staff who attended. It was run from Cairns, hosted by the Wet Tropics Cane Productivity Services Group, and differed from previous conferences by moving to two full days of field trips.

With about 80 cane productivity staff attending, from NSW through to the Far North including MSF, it was a great networking opportunity for MAPS staff. At the meet and greet event on Tuesday evening, each Productivity Board highlighting the main challenges, opportunities and innovations they are encountering. This set the platform for more open and frank discussions over the following days. It is evident that the big issues; government regulations, aging growers, aging mills, extreme weather conditions and cost of production/sugar price are common concerns. It was also interesting that the mills are driving change in the MSF regions.

Day 1 consisted of a bus trip to the Tablelands with four stops and five guest speakers.

Stop 1: NQ Tropical Seeds and Profeed NQ - Maryann Salvetti

Sweet Farms - Gerard Puglisi

NQ Tropical seeds specialises in the production, grading, processing and wholesaling of premium quality Tropical Pasture Seeds. Maryann spoke about their journey, beginning as small cane growers, to now farming 800 hectares, producing sugar cane, grass seeds, legumes, soybeans, maize, wheat and hay. NQ Tropical Seeds is working on new soybean varieties to replace Stuart and Leichardt. The variety A6785 is a faster maturing (105 days compared to 126 & 135 days) and the Mossman variety has some tolerance to Sempra. Kuranda is the new replacement for Stuart which has some resistance to root knot nematodes.

Gerard Puglisi is a 4th generation Mossman cane farmer, owner of Daintree Estate Chocolates. Gerard runs both his cane farm and a cocoa plantation for Daintree Estates, covering the entire supply chain, from seedling production, cocoa production, and pod processing through to producing chocolate. He also manages a successful ecotourism business, Sweet Farm Tours.

While we don't all possess this entrepreneurial spirit, Maryann and Gerard's success shows what can be achieved with a drive for success, removing the emotion from management decisions, keeping up to date with R&D and being willing to adapt new production practices.



Figure 1 Meeting with Maryann Salvetti at NQ Tropical Seeds

Stop 2: Savannah Ag Consulting - Tony Matchett

Based at Walkamin, Tony is investigating a range of possible fallow crop options for Queensland sugar cane farming systems. We were introduced to crops outside the standard fallow options including sun hemp, sunflower, spring rice, sesame, sweet corn, chickpeas and camelina oilseed. Savannah Ag Consulting work on seed variety selection and development, cropping systems and rotational crop choices and best management practice development. They also work on adapting cropping systems in new or diverse environments, with an aim of developing robust, sustainable and diverse farming systems with enduring profitability. Tony is investigating the benefits of a multi-species fallow planting of sun hemp, sunflower and sweet corn. He hopes the interaction between the nitrogen fixing properties of sun hemp, deep root system of sweet corn and the soil biological conditioning of sunflower will be highly beneficial in the sugar industry. Tony was promoting the benefit of a 16 month fallow to grow several break crops as



Figure 2 Sun hemp



Figure 3 Rice



Figure 4 Cowpea

cash crops, while improving soil health. At present the focus is on propagating commercial volumes of sun hemp seed as currently all seed has to be imported.

Stop 3: MSF Sugar Farm - Rik Maatman

We visited an MSF farm on which sub-surface irrigation and fertigation, drainage and new monitoring technology had been installed to about 200ha of the total 2700ha. Rik Maatman talked us through the installation process and rough costings. This farm was chosen by MSF for the trickle system due to the poorer soils. The level of efficiency and control over the reticulation system was impressive, but not a cost-effective option at an estimated \$12000/ha.

Stop 4: Green Energy Power Plant (Co-Gen) MSF Sugar Mill

Last up for the day we went through the MSF Tableland Mill and Co-Gen facility. The mill is the newest in Australia being built in 1998 and the Green Energy Power Plant was completed in 2018 at a cost of \$75 million. At capacity it should generate 24 megawatts of electricity.



Figure 5 Tour through the Green Energy Power Plant (Co-Gen) MSF Sugar Mill

Day 2 was spent in the Gordonvale and Meringa areas south of Cairns.

Stop 1: Water quality projects in the Wet Tropics - Gavin Rodman (SRA) and Glen Anderson.

WTSIP - Jordan Villaruz

We visited Glen Anderson's farm at Fig Tree Creek. Gavin gave us a rundown on the Cane to Creek project which is similar to the Mackay RP161 Project that MAPS has been involved in since July 2018. Cane to Creek is assisting growers like Glen to make practice changes to improve nutrient management on farm to minimise inputs/costs, maximise production and reduce nutrient loads in runoff. These practice changes include retaining the trash blanket, nutrient plans in line with Six Easy Steps, controlled traffic and reduced tillage.

Jordan Villaruz is an extension officer with the Wet Tropics Sugar Industry Partnership (WTSIP). This partnership encompasses industry bodies, productivity services, sugar research, millers, natural resource management and government organisations and was formed to provide industry-led extension and training to growers in the Wet Tropics. They are currently helping the delivery of Reef Trust Phases III.



Figure 6 Jordan Villaruz speaking on WTSIP

Stop 2: Farming Systems, Project Uplift - MSF and Paul Gregory

Efficient Farming Systems - Calcagno Bros

Packers Camp was the next stop for the day which was run by Paul Gregory (grower) and Noel Wright (MSF). They shared their experience of Project Uplift and the changes Paul implemented to be in line with the modern farming system in a high rainfall environment. Project Uplift is an MSF initiative to help growers to adopt technology and well-established principles recommended in the SRA Farming System. It promotes four principles of sustainable sugarcane farming – controlled traffic, minimum tillage, break crops and green cane or trash blanket harvesting. Through the project, five-year interest-free loans are available for the purchase of new equipment suited to the SRA Farming System, such as GPS Guidance and minimum tillage equipment. Modifications to plant and equipment such as harvester elevator extensions, or widening of in-field implements are also eligible. Cash grants of up to 50 % of the cost of certain farm re-design and drainage improvements are also available.

Steven and Glen Calcagno (growers & harvester contractors) spoke about their farming system. Steve runs a 400ha farm and Glen contract harvests this and other farms in the area. They have implemented changes to benefit both operations, updating gear, increasing row spacings and changing from hand cut clean seed to full time tissue culture. Changing from 1.5m row spacings to 1.8m alone has saved them 1km/ha in distance travelled with no loss in production.

These farming systems are not new and the benefits (reduced compaction, moisture retention, soil condition) are well documented. With the average size of operation in Mackay being 100 ha, it is difficult for many growers to justify the changeover cost, particularly in the present economic environment.



Figure 8 The effects of good water management can be seen where irrigation did not reach the ends of this block (Q240 1R)



Figure 7 Discussions on Farming Systems

Stop 3: SRA Northern Plant Breeding Program - Jason Eglinton, Felicity Aitkin and Rhylee Pendridge

At Meringa we met plant breeders from the SRA Northern Program, with Jason, Felicity and Rhylee taking us through the program. They spoke about the variety selection process and challenges. One of the ongoing challenges is the varied rates and times of flowering between different varieties. Photo period sheds are used to regulate the change in day length to trigger the chosen varieties to flower concurrently. From here flowering stalks (male and female) are moved into crossing sheds and placed under 'lantern' covers to prevent contamination. Potential new varieties are screened for disease resistance by the pathology team. Each year 250 potential varieties (CATS) are distributed to each regional breeding team, located in Mulgrave, Babinda, Silkwood and Tully. In the Northern Region the time from initial crossing to



release of a new variety to the industry has been reduced from 12-13 years to 10-11 years.

Stop 4: Disease Screening and Biosecurity - Nicole Thomson (SRA), Rob Milla (BPS), Bianca Spannagle (IBCPS) Greg Shannon (Tully Sugar) and Michael Porter (MSF)

Nicole is the Principal Researcher how Quarantine based at Woodford. She spoke about the risk of new disease coming into Australia and potential new varieties advancing through the selection program. These

Figure 9 Photo Period Sheds

are screened for disease resistance to smut, Fiji leaf gall, leaf scald, mosaic, yellow spot, red rot at Woodford and for *Pachymetra* root rot in Tully by SRA pathologists. Of interest, over 50% of the *Pachymetra* assays received by the Tully lab are from MAPS. This shows the diligence of the MAPS staff in educating growers on the importance of knowing their spore counts in order to make informed decisions on variety selection and planting rotations.

Greg Shannon and Michael Porter gave a rundown on the variety trials being carried out. Tully Sugar and MSF are both engaging in trials that are helping fast track adoption and gain insight on variety selection for specific soil types etc. This process is very similar to that carried out by MAPS on observation plots on growers land, except that MAPS is aiming to have commercial data available the year the variety is released. The Regional Variety Group in northern districts have been instigated by the mills and are engaging with growers, mill engineers and chemists, SRA, harvesting and planting contractors and productivity boards to help commercialise new varieties.

We also heard from Rob Milla and Bianca Spannagle and their involvement with Biosecurity Queensland. A group discussion was made about how Biosecurity Queensland and Quarantine work here in our sugar industry, and also how we can improve our BQ efforts. It was decided that a media release would be sent to resellers reminding them that machinery inspections are compulsory when transporting farm equipment between biosecurity zones.

Still at Meringa Felicity Aitken and Rhylee Pendridge (SRA) did a short version of the identification workshop which gave us the basic tools and knowledge that are needed in the paddock when identifying a variety. We followed this with a walk through of some standing cane. This maturity of this crop made it challenging to pick all of the characteristic. It did highlight how varieties will present differently depending on time, maturity, location, etc. The handout from this session can be adapted for our region and could be



Figure 10 Variety Identification

useful for new field staff.

Closing session- Bianca Spannagle (IBCPS) and Matt Hession (MSF)

Lastly, Rob Magarey and Chuong Ngo (SRA) spoke about RSD project updates, sampling methods and laboratory performance in 2019. We are confident that the lab will run more smoothly in 2020 with improvements being made to receiving and handling of samples. The method used to analyse samples (qPCR) detects the presence of the specific bacteria responsible for RSD, making the test extremely sensitive. Chuong has implemented procedures to reduce the likelihood of false negatives and trigger checks to reduce reporting false positives. MAPS have always been ahead of other regions in the volume of RSD samples analysed each season, and this is reflected in the low levels of infection across the region. Some of the northern regions report up to 20 – 40% RSD, compared to the Mackay Sugar levels (1.4%).

Attending the conference allowed our staff the opportunity to network with the staff personnel from other productivity boards, allied industries and partners. It was also a valuable team building exercise. The trip emphasized the valuable work MAPS continues to do monitoring and controlling disease, distributing clean seed supply and collaborating with SRA trialling new seedlings in observation plots. Seeing the issues faced by the northern regions and the methods used to tackling them will help MAPS staff in their daily chore of instigating change in a challenging environment and reinforces the important role MAPS plays in improving productivity.