

SRDC Grower Group Innovation Project

Final Report

SRDC project number: GGP044

Project title: Enhancing nutrient placement: Sub surface application of cane specific compost

Group name: Advanced Nutrient Solutions Pty Ltd

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Due date for report: Final Report

Funding Statement: This project was conducted by Advanced Nutrient Solutions Pty Ltd in association with the Sugar Research and Development Corporation (SRDC). SRDC invests funds for sugar R&D derived from the sugar industry and the Australian Government.



The Advanced Nutrient Solutions Pty Ltd is not a partner, joint venturer, employee or agent of SRDC and has no authority to legally bind SRDC, in any publication of substantive details or results of this Project.

Body of Report

Executive Summary:

Historically composting of wastes is used to reduce waste volume by about 50% so that cartage to a landfill site is reduced or in farming provides economics in application to pasture or broad acre. Responding to waste disposal issues in livestock industries, many designs of truck or tractor and trailer muck spreaders are available which provide a blanket surface coverage of compost.

Sugar cane is considered a gross feeder of nutrient and has row spacings up to 2 metres apart. A surface broadcast application may be limited benefit to a young cane plant in its first six months of development if most of the application is in the interspace.

Environmental concerns over nutrient contamination of water aquifers and streams, particularly from surface runoff, will encourage legislation to restrict surface application of nutrient and industry wastes.

Our network of international compost consultants knew of no machine designed to drill through thick trash blankets and drop compost in the top 150mm of soil and leaving the field looking undisturbed.

This project undertakes to design, build and trial an applicator to satisfy the above issues. Advanced Nutrient Solutions Pty Ltd engaged a reputable Mackay agricultural equipment manufacturer, Hodge Industries, to assist with the design and construction of the applicator.



Photo 1: Prototype 1 of sub-surface applicator

Photo 2: Prototype 2 of sub-surface applicator

The Applicator

The applicator's bulk bin is designed to hold six cubic metres of compost which is elevated forward to four positions from where it is placed 150mm below the trash blanket and any surface material displaced is rolled back and firmed down with a press wheel.



Photo 3: Sub-surface applicator at BSES Field Day

Initially the loaded applicator's weight placed too great a downward pressure on the rear of the tractor making it difficult to steer the tractor on slopes. The applicator returned to Hodge Industries where the bin was re-balanced and moved forward one metre which overcame this problem. In further field trials a higher moisture content of some composts stressed drive chains and shafts and an upgrade of the feeder drives was required.



Photo 4: Sub-surface applicator with modifications

Despite these setbacks the upgraded machine is now working exactly as it was designed to and in our opinion is the perfect sub-surface compost applicator for use in row crops like sugar cane or perhaps corn and horticultural crops.



Photo 5: Sub-surface applicator October 2011 in trial block at Walkers

The foregoing alterations and re-trials limited the applicator's use in 2009 and early 2010. On top of this the unseasonably long wet season of 2010-11 totally prohibited its use for the 2011 crop.

During this period a one year only non-replicated trial comparison between mill mud and compost with both surface and sub-surface applications was established. One month prior to harvesting hand harvested and weighed sticks recorded 28% higher average productivity for sub-surface application of mill mud and compost. The commercial harvest resulted in a 4% greater tonnage in surface application of mud and compost. Due to difficult seasonal conditions resulting in a plant crop of only 74 TC/Ha and many variables, this trial is considered inconclusive and has been closed.

Hand Harvesting: mature stalk counts and weights

	Compost Surface		Mud/Ash Surface		Compost Sub.		Mud/Ash Sub.	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
North	127	92	130	150	132	166	125	182

South	156	118	158	110	146	125	143	124
Av.	142	105	144	130	139	146	134	153

sticks/10m row 29/7/10

Commercial Harvest

22/8/10	Compost Surface	Mud/Ash Surface	Compost Sub	Mud/Ash Sub
TC/ha	74.83	76.97	71.89	73.8
PRS	16.29	15.75	16.11	16.56
TS/ha	12.19	12.12	11.58	12.22

Table 1 – Hand Harvesting and Commercial harvesting results

Conclusions

Given the dry growing season, the poor soil type (low PAWC) and limited irrigation available; the plant cane yields are understandably low. There is unlikely to be any real difference in cane yields or PRS between the four treatments. Differences are likely the result of paddock variation.

The original estimation of available nutrients from the mud/ash and compost treatments was probably conservative given the leaf tissue test results which indicated high-excess nitrogen and excess potassium in the plants. The imprecise rate of nutrient release and the concentration of ameliorants in bands (giving higher rates on a square meter basis) probably lead to luxury amounts of N and K being available. The dry growing conditions and smaller crop size may have concentrated nutrients further within the plants. Appendix 1 shows a recalculation of estimated available nutrients (from ameliorants) and total available nutrients (including fertiliser).

During 2011 enquiries were received from cane farmers at Mareeba and horticultural farmers in southern Queensland to trial the machine in their areas in 2012.

Background:

Intensive animal farming, dairy or feedlots or piggeries, all require a system for removing wastes off-site and preferable back to the pasture. Muck spreaders were built to broadcast large tonnages of animal wastes both wet and dry. Composting these wastes conserved most of the nutritional content but reduces bulk volume by 50% or more allowing larger areas to be covered at lower rates per hectare.

During the twentieth century sugar cane farms changed from mixed enterprises of cattle, dairy and sugar cane to a cane only monoculture as inorganic fertilisers, machinery and tractors replaced the use of animal power on farms. Late in that century green cane mechanical harvesting became the dominant harvesting practice leaving a trash blanket of 8 to 12 tonnes to the hectare of dry matter on top of the soil.

World-wide no one had developed a machine that could drill compost, or mill mud, through such a heavy blanket of organic matter.

Broadcast application of manures and compost is an accepted practice for pasture and broadacre grain cropping. The philosophy is to feed the soil and let the soil feed the plant as the plants in those industries are position by chance.

Around 2008 two events would change cane farming practices forever.

1. Inorganic fertiliser prices rose four fold to \$1800 per tonne.
2. Detection of excess nutrient levels in streams and water adjacent to the coastline and the Great Barrier Reef foreshadowed pending Queensland Government legislation to control chemical applications in agriculture.

These two points emphasised the need for farmers to have greater control over farm input costs, especially fertiliser, and to be pro-active in developing long term environmentally sustainable farming practices.

International advice was sought on the merits of drilling compost in a row crop where the rows may be 1.5 to 2 metres apart. Opinion was that drilling could be preferable over broadcasting, particularly in plant cane crops, as drilling should facilitate quicker uptake of nutrient earlier in the plants life.

This applicator design under GGP044 can drill compost or mill mud through a cane trash blanket on ratoons or in fallow prior to planting without the compost being dislodged by the planter. Hypothetically it should be effective in any minimum till operation. The applicator leaves the soil surface in an almost undisturbed state which would accommodate any legislative requirement.



Photo 6: Demonstration of sub-surface applicator

Aims:

The aim was to design, develop and trial a multi-row compost applicator capable of sub-surface drilling compost into either cultivated soil, zero till or trash blanketed fields. The benefits are:-

- minimises nutrient loss
- improves survival chances for compost biology
- comply with impending nutrient control legislation
- enhance early uptake of nutrient by plants
- investigate and test application methods, traditional surface application with sub-surface drilling, for improved plant access to nutrients that may improve productivity
- to improve soil health

Methodology

Members of Advanced Nutrient Solutions Pty Ltd met regularly to discuss design and configuration for the components of a prototype. The key components are:-

- trash penetration
- ground engaging delivery mechanism with no ratoon stool disturbance
- adjustable drill widths from 1.5 to 2 metres
- intermediate hopper to receive bulk compost and divide into four drop drill positions
- belt delivery and drive mechanisms
- bulk bin size and tracking issues
- compost delivery from bulk bin to intermediate hopper
- flow rate adjustment gates and drives
- bin and flow gate inspection access with foldable ladder
- security rails, protection from moving parts
- original soil surface recovery and compaction of any disturbed soil

A formal request was made to Hodge Industries to quote for design, support and construction. When component construction began each stage was inspected in the factory by ANS P/L members. Finally each stage of the prototype went to the field for a dry run for observation and adjustment.



Photo 7: Prototype being trialed at McLennans Farm

Operating under full field conditions in 2009-10 some modifications and upgrades were required. The applicator was twice returned to the factory where Hodge Industries performed required alterations as part of their development cost.

The machine is operating successfully in 2011.

Results and Outputs

Compost and Mud/Ash Trial 2009

23/2/11

Aim:

Compare pre-plant compost and mill mud/ash applied at low rates on the soil surface versus sub-surface to determine practicality and effect on productivity, profitability and nutrient content in runoff.

Introduction:

A compost and mud/ash trial was established on Werner's farm 3019A in block 18-2 in August 2009. This block grew a poor green manure legume crop of Ebony cowpea which was to be baled for cow feed in May 2009.

Soil samples were taken of top soil on 9/6/09 to determine pachymetra and nematode levels as well as nutrient status.

Ground preparation commenced in June using one pass each with offsets, ripper, and rotary hoe. Irrigation of the block with high pressure overhead was necessary pre-planting. The block was marked out and both surface and subsurface products applied pre-planting (14/8/09). Surface treatments were applied directly on the plant line, in a 50cm band, using a home-made applicator and incorporated by zonal hoe pre-planting.

Sub-surface treatments were applied to a depth of approximately 12cm using the new Advanced Nutrient Solutions group machine.

Q208 was planted (18/8/09) on 1.8m single (wide-Shute) rows with a modified Moller billet planter supplying 8 t/ha. The planting fertiliser was CK55(S) at 140kg/ha (N18, P20, K17 & S9 kg/ha). The balance of nutrients (inorganic granular) will be applied by side-dressing. Apart from the usual agronomic measurements by MAPS, Reef Catchments will carry out some water quality measurements in the first ratoon crop.

Treatments:

- Block treated with dolomite (Ca 33%, Mg 11% & n.v. 90%) at 5t/ha in July.
- Soil test nutrient requirements: N150, P30, K100 & S25
- 1. Compost surface applied pre-plant at approximately 22 wet (10.3 dry) t/ha and incorporated with zonal hoe.
- Total macronutrients supplied in kilograms per hectare (based on analysis on 5/8/09): Compost- N95, P50, K40, S15. Estimated nutrients available- N20, P25, K20, S3
- Side-dress requirement (kg/ha): N112, P0, K63 & S13 (e.g. nitraking (s) at 400kg/ha)
- 2. Mill Mud/Ash surface applied pre-plant at 26 wet (9.6 dry) t/ha (incorporated with zonal hoe)
 - Estimated total macronutrients supplied per hectare: Mud-N95, P85, K60, and S15 (estimate 20% N & S and 60% K readily available. All P available). Nutrients available- N20, P85, K35, S3
 - Side-dress requirement (kg/ha): N112, P0, K50 & S13 (e.g. nitraking (s) at 400kg/ha)
- 3. Compost sub-surface applied at 22 (10.3 dry)wet t/ha. Inorganic fertiliser details are the same as treatment 1. Cane is planted at a depth slightly above the main slug of compost to avoid compost being scraped put by planter boards.
- 4. Mud/Ash sub-surface applied at 25 (9.3 dry)wet t/ha. Inorganic fertiliser details are the same as treatment 2. Cane is planted at a depth slightly above the main slug of mud to avoid mud being scraped put by planter boards

Trial Plan: block 18-2

North end

T1 Compost surface	T2 Mud surface	T3 Compost sub- surface	T4 Mud sub- surface
12 rows x 1.8m	12 rows x 1.8m	11 rows x 1.8m	11 rows x 1.8m



Row length approximately 347m on west & 300m on east side.
Note: row between T3 & T4 non-weigh as mix of two treatments

Measurements:

- Moisture content of mud/ash & compost
 - Nutrient analyses of both products
1. Shoot Counts- the number of shoots present in 10m marked sections of row at top, middle and bottom of each treatment recorded once/week from first emergence until January 2010.
 2. Growth Measurements- plant height to top visible dewlap in 10 marked stalks in 10m sections of row at top, middle and bottom of each treatment recorded once/week from December 2009.
 3. Millable stalk count- the number of millable stalks present in 10m marked sections of row at top, middle and bottom of each treatment recorded 1 month prior to mechanical harvest.
 4. Nutrients in Runoff-Flumes will be installed in each of the four treatments and if Reef Catchment budget allows, then automatic samplers will be commissioned. Alternatively ANS members will be required to manually collect water samples & measure flow rates during runoff events. Reef Catchments will cover the following analyses: Total Suspended Solids & conductivity, Total Nitrogen & Phosphorus, Total Organic Carbon and Dissolved Nutrients (Dissolved Inorganic Nitrogen, Filterable Reactive Phosphorus and Total Dissolved Nitrogen & Phosphorus). The number of run-off events to be monitored is unknown at this time.
 5. Leaf Tissue Tests in March 2010-collection of the third fully-expanded leaf from minimum of 30 random stalks in each treatment. Leaf blades separated from mid-rib and dried at 65degrees Celsius prior to nutrient analysis by BSES Limited.
 6. Mill tonnes cane/ha and PRS.

Moisture Content of products at application:

Product	Wet Weight (g)	Dry Weight (g)	Moisture %
Mud/Ash	2175	806	63
Compost	1557	730	53

Nutrient Content of Compost (analysis 5/8/09)

Nutrient	Total Nitrogen	Total Phosphorus	Total Potassium	Total Sulfur
Analysis	0.9%	4667 ppm	3747 ppm	1100 ppm
Estimated Nutrients Applied* (kg/ha)	95	50	40	15
Estimated Nutrients Available# (kg/ha)	20	25	20	3

*Based on 10.3 t/ha dry weight applied

based on estimate 20% N & S and 50% P & K readily available to 1st crop

Nutrient Content of Mud/Ash (analysis 27/8/09)

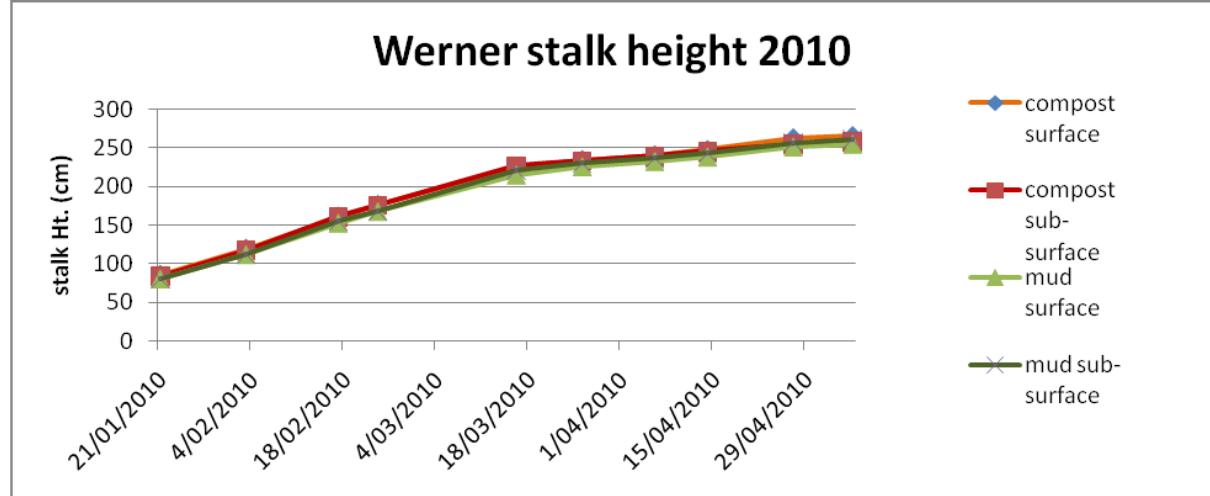
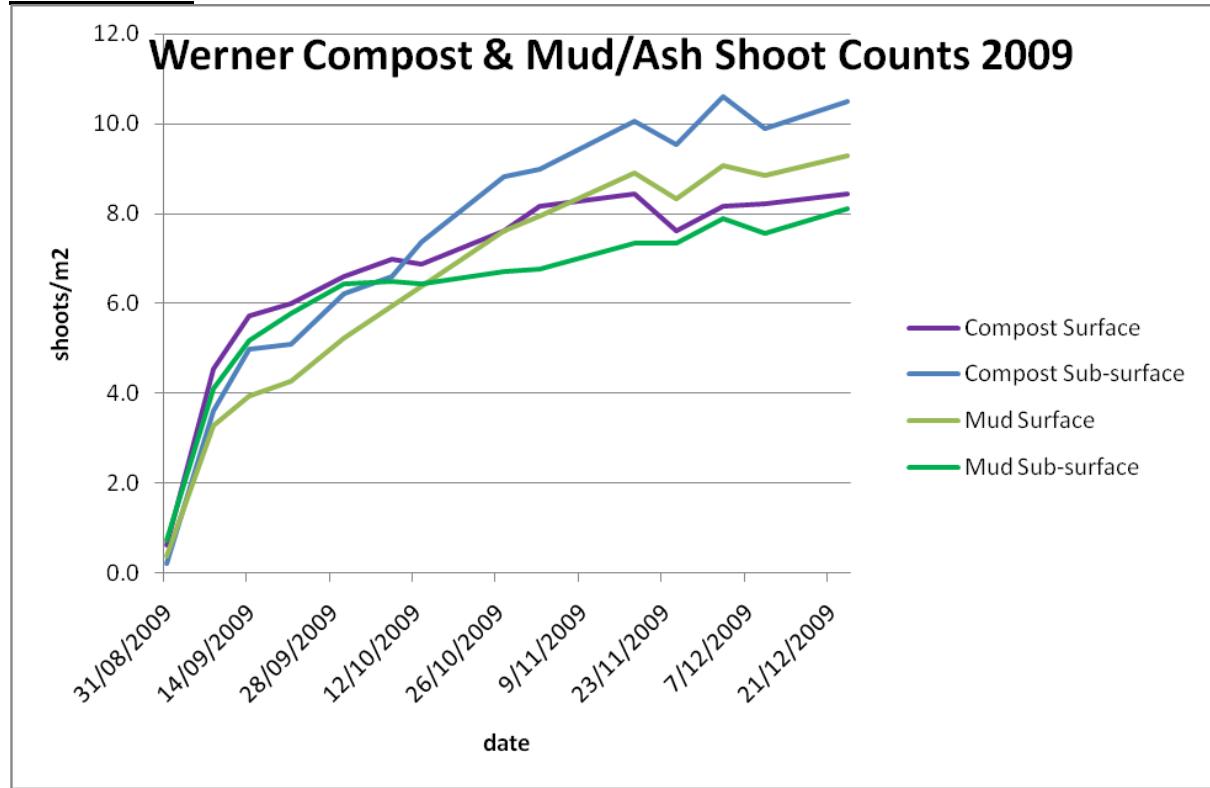
Nutrient	Total	Total	Total	Total
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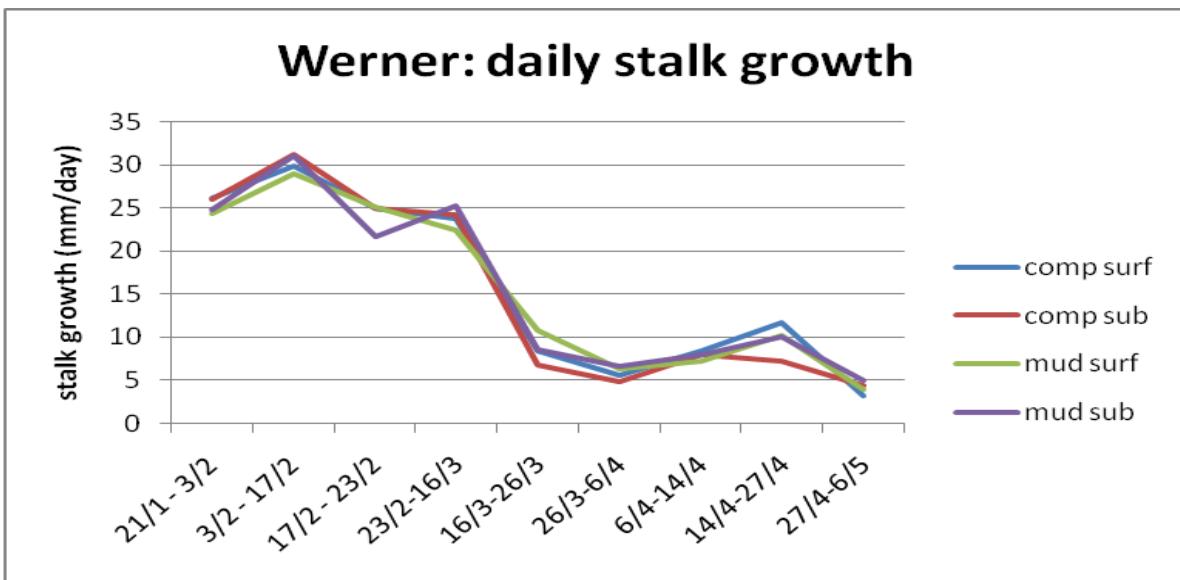
	Nitrogen	Phosphorus	Potassium	Sulfur
Analysis	0.99%	0.896%	0.664%	0.136%
Estimated Nutrients Applied* (kg/ha)	95	85	60	15
Estimated Nutrients Available# (kg/ha)	20	85	35	3

*based on 9.6 t/ha dry weight applied

based on estimate 20% N & S, 100% P & 60% K readily available to 1st crop

Shoot Counts



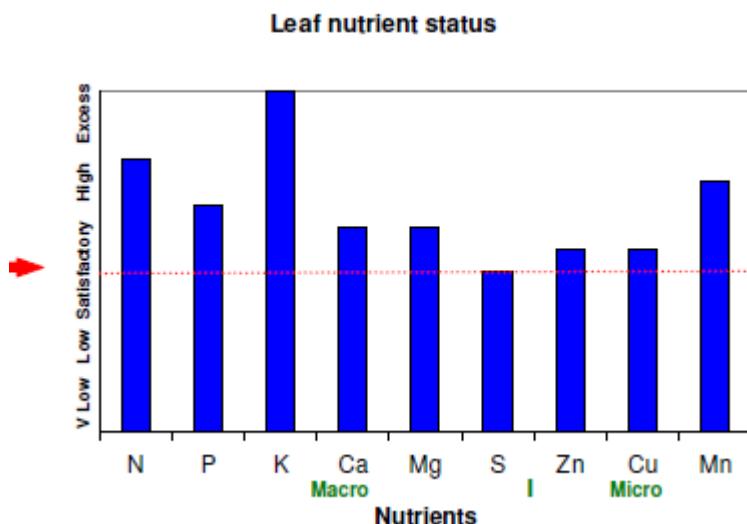


Leaf Samples

Leaf samples were taken on 6/5/2010, dried at 65 degrees celsius and sent to BSES for analysis. Lab results were received on 12/8/10. Analyses show that all nutrients were present in the crop at satisfactory or above levels. In all treatments nitrogen concentration was high and potassium excessive. One potential reason for the N & K results is that the mud/ash and compost was applied in a band rather than broadcast. The actual amount of product was concentrated on a m² basis in the growth zone. Broadcast mud/ash is usually applied at 55 dry t/ha (given 63% moisture content at Werner's) which equates to 5.5 kg/m². The surface applied mud/ash treatment was applied at 9.6 dry t/ha on the row in a band approximately 0.5 m wide. This equates to about 3.5 kg/m² or **over 60%** of a broadcast mud/ash rate. The sub-surface applied treatments were applied on the row in a band 0.1 m wide. Applying the same calculations as above, this equates to about 17 kg/m² or **three times** the broadcast mud/ash rate. This translates into an underestimation of the "available" nutrients in the mud/ash and compost. The second possible explanation is that April was dry and possible moisture stress may have influenced the leaf test results.

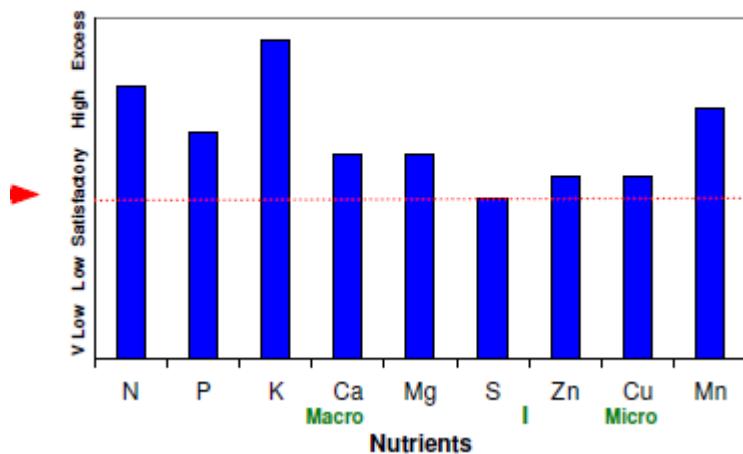
Leaf analyses are displayed graphically below:

SUB-SURFACE MUD/ASH



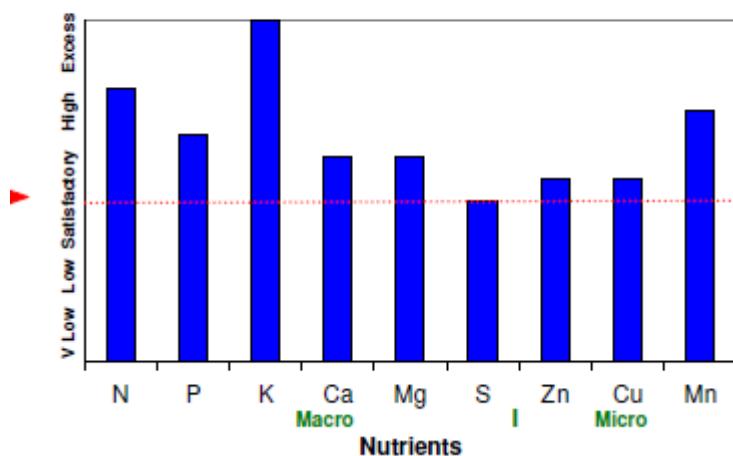
SURFACE MUD/ASH

Leaf nutrient status



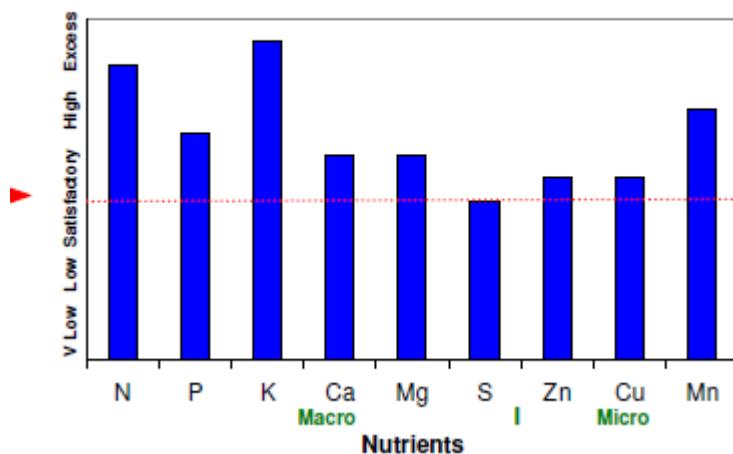
SUB-SURFACE COMPOST

Leaf nutrient status



SURFACE COMPOST

Leaf nutrient status



Hand Harvesting: mature stalk counts and weights

	Compost Surface		Mud/Ash Surface		Compost Sub.		Mud/Ash Sub.	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
North	127	92	130	150	132	166	125	182
South	156	118	158	110	146	125	143	124
Av.	142	105	144	130	139	146	134	153

sticks/10m row 29/7/10

Commercial Harvest

22/8/10	Compost Surface	Mud/Ash Surface	Compost Sub	Mud/Ash Sub
TC/ha	74.83	76.97	71.89	73.8
PRS	16.29	15.75	16.11	16.56
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Conclusions

Given the dry growing season, the poor soil type (low PAWC) and limited irrigation available; the plant cane yields are understandably low. There is unlikely to be any real difference in cane yields or PRS between the four treatments. Differences are likely the result of paddock variation.

The original estimation of available nutrients from the mud/ash and compost treatments was probably conservative given the leaf tissue test results which indicated high-excess nitrogen and excess potassium in the plants. The imprecise rate of nutrient release and the concentration of ameliorants in bands (giving higher rates on a square meter basis) probably lead to luxury amounts of N and K being available. The dry growing conditions and smaller crop size may have concentrated nutrients further within the plants. Appendix 1 shows a recalculation of estimated available nutrients (from ameliorants) and total available nutrients (including fertiliser).

Appendix 1 Recalculation estimation of available nutrients to plant cane

Total Nutrients kg/ha

MUD/ASH Full Rate

broadcast

150 WET T/HA	N	P	K	S
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150 WET T/HA	N	P	K	S
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56 DRY T/HA*	550	500	370	76
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56 DRY T/HA*	550	500	370	76
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5.6 kg/m ²	550	500	370	76
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* WERNERS moisture	550	500	370	76
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63%	550	500	370	76
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Mud/Ash

9.6 dry t/ha (surface applied)

0.5m band on 1.8m rows

Total Nutrients kg/ha (on m² basis)

3.4 kg/m2 (60% of full rate)	330 N	300 P	222 K	46 S
Est. Available Nutrients	66	300	133	9
Plant cane nutrients				
planting mix	18	20	17	9
side dress	112	0	50	13
Total available	196	320	200	31

COMPOST	N	P	K	S
10.3 dry t/ha (surface applied)	95	50	40	15
If broadcast = 1 kg/m2				
est. available originally	19	25	20	3

Est. Available Nutrients kg/ha (on m2 basis)				
	N	P	K	S
10.3 dry t/ha (surface applied)	N	P	K	S
0.5m band on 1.8m rows	70	93	74	11
3.7 kg/m2				
Plant cane nutrients				
planting mix	18	20	17	9
side dress	112	0	50	13
Total available	200	113	141	33

Sub-surface applied mud/ash:

9.6 dry t/ha of mud/ash was actually applied to 560 m2 (0.1 m wide band x 56 row/ha x 100). This equates to 17 kg/m2, which is three times a normal broadcast rate at 5.6 kg/m2 (56 dry t/ha given Werner's mud/ash moisture of 63%). It's unknown what the plant received as the band was parted by the planter boards and then later bought back at fill in and hill up. It's possible that eventually the plant received a similar amount of available nutrients to the surface applied treatments.

Tully Soil Assay Laboratory Nematode Results with Fungal and Bacterial Nematodes

Location: Mackay

Company: MAPS

Extension Officer/Sender: John Agnew

Date Received:

10/06/2009

Sample No T2639

Date Sampled 9/06/2009

Grower/Site Werner

Block No 18-2

Variety fallow

Crop Class fallow

Soil Type sandy loam

	Nematodes / 200gm ODS
Pratylenchus	54
Helicotylenchus	0
Tylenchorhynchus	0
Paratrichodorus	11
Meloidogyne	269
Rotylenchus	0
Criconemella	0
Xiphinema	0
Achlysiella	0
Bacterivore	215
Fungivore	194
Dorylamids	43
Mononchids	0
Other Nematodes	0

Tuesday, 16 June 2009

Tully Soil Assay Laboratory Pachymetra Results

Company: MAPS

Location: Mackay

Extension JOHN AGNEW

Date Sampled 9/06/2009

Date Received: 10/06/2009

Sample No T2639

Grower/Site Werner

Block No	18-2
Variety	
Crop Class	fallow
Previous Variety	Q196
Soil Type	sandy loam
Spores Per/Kg	8215
Other Details or Comments:	
Recommendations	This spore count suggests low-level yield losses may occur if a Pachymetra susceptible variety is grown. Further spore counts should be undertaken at the end of the current crop cycle if you do grow a susceptible variety.

ANS P/L is willing to hire the applicator when not in use by their members. We intend that product information should be shared, and consequentially, there is no confidentiality on equipment specifications nor any patent protection by either ANS P/L or Hodge Industries. We do recommend Hodge Industries as our preferred manufacturer of the applicator.

Capacity Building:

Success and failure with the applicator and the trials is building ANS P/L knowledge base on soil health and plant nutrition and its availability.

In addition to a projects OFFICIAL TRIALS,ANS P/L members have the experience, observation and analysis results of other on-farm cane plots, alternative crops, vegetables and quality of produce.

Consequently there is some public recognition of our experience and as our network of contacts grows we find our group sought out by people with an interest in sugar cane and other agricultural production, food quality and environmental concerns.

Outcomes:

In 2011 the applicator is operating well in both placement of product and non-disturbance of the surface profile. ANS P/L is planning on growing its membership and thereby the applicators use.

The applicator is of greatest interest where compost application is an accepted interest where compost application is an accepted practice as in North Queensland and Southern Queensland Horticulture. One commercial composter in broad acre grain-country advises us he is now unable to produce enough compost to satisfy his long term customers.

Where we have four consecutive years of soil analysis and compost application, soil organic carbon is increasing at 0.1% per year (an acceptable rate for row crops in the USA), soil ph has risen 5.5 to 6.2 and calcium levels have improved.

Best productivity was highest with a mix of compost plus granular fertiliser, both at reduced rates. This has also been the American experience. We now believe the addition of sulphate of ammonia or perhaps a liquid nitrogen from a tank attached to the side of the bulk bin, (**note:** the bin was constructed with this possibility foreseen), is probably the only inorganic fertiliser required on top

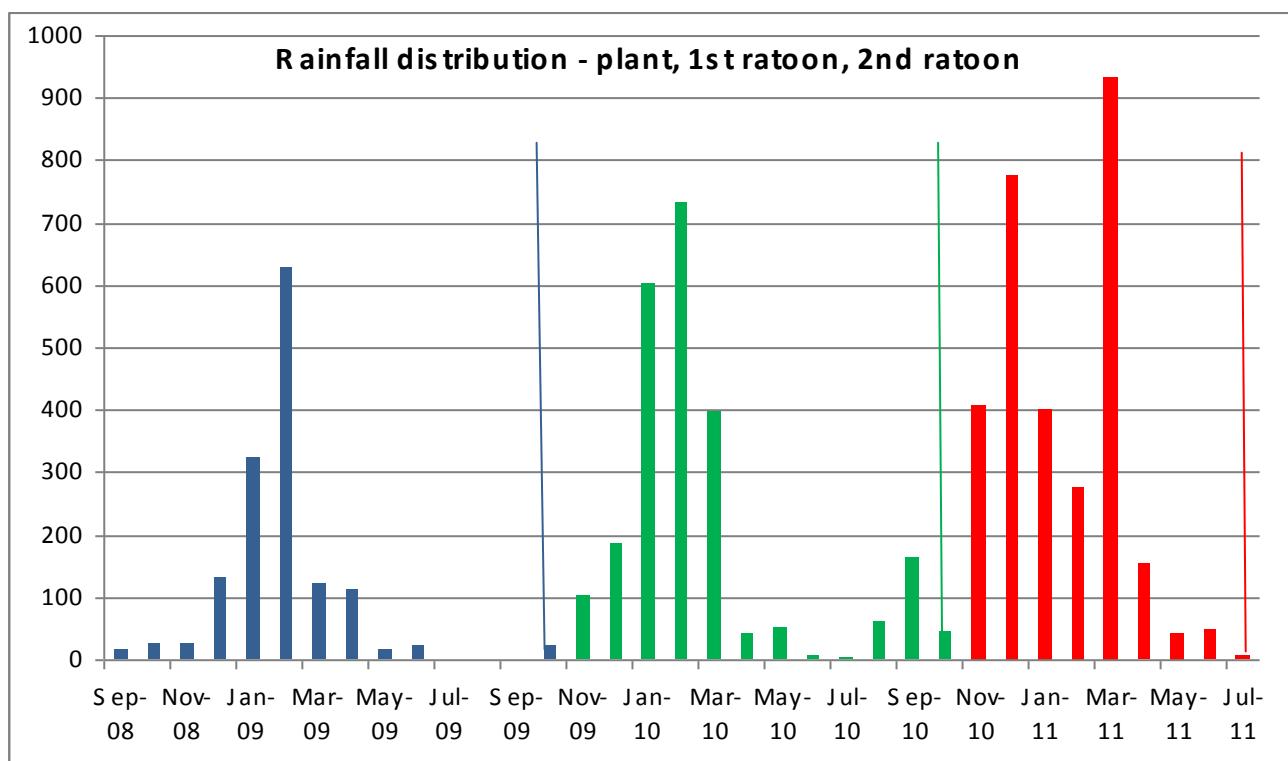
of the compost as the compost is supplying adequate nutrient in both macro and micro minerals except nitrogen and sulphur. Additional sulphate of ammonia is planned for application in 2011. GGP062 will record our on-going experiences.

Environmental Impact:

We believe there will be no adverse environmental impact from this applicator. Its total design is focused on maximising beneficial impacts of agricultural practices. It aims to place slow release forms of complex organic nutrients, as well as sugar factory wastes, safely in the sub-surface area where it is neither leachable nor erodable.

Communication and Adoption of Outputs:

Communication, promotion and adoption of the applicator was severely hampered by some of the initial design and equipment failure followed by unseasonal wet weather restricting its use.



Graph 1: Rainfall chart over three season

Successful adoption of this applicator type is largely dependent upon the uptake of compost technology as an optional fertiliser programme. If GGP062 concluding stage one at end of 2012 can successfully produce a higher quality compost, then a stage 2 project could include a state-wide communication and promotional tour with the applicator and include other agricultural industries.

In the past six months interest was received from:-

- Mackay Conservation Group's Eco Expo Committee
- ABC Gardening Australia presenter
- ABC Local rural radio reporter
- Green Party political candidate
- Weed Symposium of Queensland in August – with Pest Management Scientists from throughout Queensland
- King Brown Technologies for sugar cane trials at Mareeba

- Enviro Organics for horticultural trials in Southern Queensland
- The newly formed Queensland Recycling Association
- Kate Steel Project Manager Reef Guardians
- Australian Macadamia Society Ltd News Bulletin November 2009- “Compost – Just scratching the surface”



Photo 8: Article in Australian Macadamia Bulletin

- The SRDC logo appears on all our publications and is an early slide on our power point presentations. John Ross reports that one must always pronounce the Corporation full name otherwise one will be asked, “who is SRDC and what do they do?”
- Perhaps SRDC should issue for presenter’s use a one paragraph summary of their research objectives!

Recommendations:

We recommend that GGP044 has achieved the majority of its aims and is therefore concluded. The compost and mill mud comparisons would best be revisited in stage 2 of GGP062 in light of the prospect for different feed stocks formulae and management practices to evolve a different compost quality result.

Publications:

Rural Weekly 17 September 2009
 North Queensland Register 4 June 2009
 Queensland Country Life 28 May 2009
 Rural Weekly 14 May 2009
 Mackay Canegrowers Newsletter 14 May 2009
 The Daily Mercury 8 May 2009
 Mackay Canegrowers Newsletter 16 April 2009
 Rural Weekly 30 April 2009
 Case Study in Canegrowers Public Environment Report 2008
 Rural Weekly 8 January 2008
 Mackay Canegrowers Newsletter 18 February 2008
 Queensland Country Life 20 March 2008
 Mackay Canegrowers Newsletter 31 March 2008
 Mackay Canegrowers Newsletter 31 March 2008
 North Queensland Register 22 October 2007
 Mackay Canegrowers Newsletter 16 October 2008
 Rural Weekly 20 November 2007

Queensland Country Life 26 July 2007
Mackay Canegrowers Newsletter 2 July 2007
Bush Telegraph 17 October 2006

Postscript

Project outcomes were presented to the 2012 GIVE Conference at Yamba

ADVANCED NUTRIENT SOLUTIONS PTY LTD

GIVE CONFERENCE 2012

GGP 034 Profits Through Recycling – Pilot processing of sugar industry and community by-products to improve on-farm sustainability
GGP 044 Sub-surface Application of Cane Specific Compost
GGP 062 Improved Methods of Compost Generation – Stage 1.

Presented by
John Ross



Australian Government
Sugar Research and Development Corporation

Photo 9: Front Cover of Power Point Presentation

The applicator has since been transported to Southern Queensland to Richard Armstrong of Enviro Organics, where trials with drilled compost in Horticultural crops will be established this winter season. Row spacings are narrower in Horticulture, so some adjustment to row spacings or the applicator will be necessary. The applicator is to return to ANS P/L by spring so that further trials in sugar cane will be undertaken in the summer of 2012.

These trials will include compost from SRDC Project GGP062, where compost product to lower application rates is being developed.



Photo 10: Applicator loaded to go to Southern Queensland

The Steering Committee formed in Project GGP062 inspected the applicator at John Ross' farm in October 2011.



Photo 11: Steering Committee members inspecting applicator

