WIDE BAY & CENTRAL QUEENSLAND PINEAPPLE STUDY GROUP

Col and Megan Hawken's farm, 149 Staiers Rd, Mungar via Maryborough

Friday 27th May 2022

Take Home Messages

Growcom is offering **sponsorship for ten women to attend the Pineapple Field Days next month**. Please apply through Michelle Haase (Growcom) Mobile: 0428 586 890 Email: mhaase@growcom.com.au or the Growcom office.

Michelle Haase is also assisting growers to achieve **Reef Certification** (a Hort 360 module).

Scott Maxwell is the new Australian Pineapples **(AP) representative for the Wide Bay region**. Please contact Scott about industry ideas, suggestions or issues. Mobile: 0407269960. **Sincere thanks to John Steemson** for many years of his time and enthusiasm given for the greater good of the pineapple industry.

The combination of very acid soils with low cation exchange capacity (gutless soils) and excessive or badly timed phosphorous acid applications is causing a deficiency in several minerals, especially calcium, resulting in calcium deficiency issues including a newly described **russeting on the fruit** called **'chocolate'**

The PEST group has been renamed the **Pineapple Environmental Team (PET)** and is now chaired by the chairman of Australian Pineapples, Sam Pike.

A new **video** has been produced by the project team with assistance of growers. The video (which complements the planter sticker) has been designed as **training aid for staff on the planter**. Link: https://youtu.be/9peko6-FGGs

Comprehensive 'briefs' are being prepared for each of the **demonstration trials** – these illustrated summaries describe everything from the purpose of the trial to the results and conclusions. Some are already available on the AP website, all will be completed by the end of the project.

Two **fact sheets** have been produced thus far from the outcomes of two of the demonstration trials and are included in the appendices of these minutes. More will be prepared and made available.

Col Hawken achieved better root systems and higher yields from using **Transformer®**.

Two new herbicides have been registered but they can be phytotoxic and have not been adequately tested on pineapples. Growers are advised to **exercise extreme caution** and only try on small areas initially.

Wide Bay group inspecting a field of recently planted 73-50

Present (18 + 13 = 31)

Growers (18): Jeff & Kepler Atkinson, Colin, Megan, Breanna & Mackenzie Hawken, Col Matthews, Peter Maywald, Scott, Katherine & Leone Maxwell, Ashley & Lloyd Petersen, Phil Smith, Ashley Sonntag, Joe and Gavin (Carter & Spencer), John Steemson.

Non-growers (13): Doug Christensen (Tropical Pines), Doug Jones & James Tattersall (Kraft Heinz Golden Circle), Adam Kennedy (Carter & Spencer), Simon Newett & Garth Sanewski (DAF Qld), Andrew and another (EE Muir & Sons), Eugene Chou (Oro Agri), rep (Campbells Fertilisers), Michelle Haase & John Targett (Growcom), Tim Wolens (Agri Supply Global)

Apologies: Bridie Carr, Ciprian family, Ellison Maxwell

AGENDA

12:00 midday BBQ LUNCH & DRINKS – kindly sponsored by EE Muir & Sons and Oro Agri

12:45 pm MEETING

- Key points from recent AP meetings – Scott Maxwell
- Fact sheets and recently completed video for planting staff - Simon Newett (DAF)
- Russeting and plant nutrition – Garth Sanewski (DAF)
- Transformer® trial – Col Hawken
- Farm business resilience – John Targett (Growcom)
- Women in pineapple industry – Michelle Haase (Growcom)
- Pineapple Environmental Team (PET) – Tim Wolens
- Annual pineapple field day plans 21 – 22 July in SEQ – Tim Wolens

2:20 pm FARM WALK

- Overview of farm operation – Col Hawken
- Weedicide update – Tim Wolens
- Demo trials update – Tim Wolens
- Transformer® trial – Col Hawken

4 pm Afternoon tea and happy hour kindly sponsored by Col & Megan Hawken, EE Muir & Sons, and Oro Agri)

UPDATE ON INDUSTRY MATTERS – Scott Maxwell

There are four new Australian Pineapples regional representatives, including Scott Maxwell who replaces John Steemson as representative for the Wide Bay region. Welcome Scott and very many thanks to John for his hard work, generous time and enthusiasm at the helm for the Wide Bay region over quite an extended period.

The group is now chaired by Sam Pike (SEQ) who has taken over from Stephen Pace as chair.

- Courtney Thies (NQ)
- Ryan Brooks (CQ)
- Scott Maxwell (WB)
- Ben Stokes (SEQ)

Very many thanks to those stepping down, John Steemson (WB), Stephen Pace (NQ and former chairman), and John Cranny (CQ) for many years of dedicated service to the industry.

Scott thanked the Hawken family for supplying pineapple fruit for the Maryborough Show.

A Growcom & DAF industry data project is being conducted to get more use out of the production data that is currently collected on behalf of industry. Safeguards around the security and privacy of individual data will continue to be maintained.

To improve the relationship between HIA and the pineapple industry - HIA has proposed that it outsource some of its responsibilities with the pineapple industry to its peak industry body, Growcom.

Export of pineapples to New Zealand again is being looked into.

Diuron – growers no longer need to renew their accreditation to use it.

The PEST group has been renamed the Pineapple Environmental Team (PET) and is now chaired by the chairman of Australian Pineapples, Sam Pike.

Australian Pineapples is investigating the organisation becoming a not-for-profit organisation which may allow it to be able to attract more funding.

It is proposed to hold a meeting during the annual pineapple field day to look at improving communications between growers in different regions in relation to reducing peaks and troughs in supply onto the market.

RECENTLY COMPLETED VIDEO FOR PLANTING STAFF, FACT SHEETS & STICKERS - Simon Newett (DAF)

Simon announced the completion of a four-minute training video. It has been developed as a training aid for staff sitting on the planter. This is the link https://youtu.be/9peko6-FGGs to the video which is housed on the Queensland Agriculture YouTube channel. It which will also be emailed to growers and the link available on the Australian Pineapples website. It complements the planting sticker produced last year. Feedback is welcomed.

Comprehensive 'briefs' are being prepared for each of the demonstration trials. These briefs are intended to be stand-alone reports for the industry listing the objectives, methods, results and conclusions of each trial. They will also form the foundation for the development of extension resources such as fact sheets. Two have already been completed and will soon be available on the Australian Pineapples website.

Copies of two fact sheets, 'Inter-row Spraying' and 'Improving Sprayer Efficiency' (refer to the Appendices) and copies of the planter sticker were made available. Contact Bridie (0436 675 740) or Simon (0400 565 784) if you missed out and would like any of these handouts sent to you.

There was a brief discussion around the use of podcasts for growers, 8 were in favour and 2 against.

Col Hawken said that he needed reminders to visit the AP website, e.g. a message sent when there is something new on the website.

FARM RESILIENCE & HORT 360 – John Targett (Growcom)

Please refer to Appendix V for detail. John is a Growcom farm resilience office employed by Growcom and based in Caboolture. He encouraged growers to engage with the Hort360 team and complete Hort360 modules. One of these modules is on farm business planning and it is necessary to do this particular module if you intend to apply to QRIDA for disaster or sustainability funding. A farm business plan needs to be updated every 5 years.

To apply for QRIDA funding John said it was very important to:

1. Take time stamped photographs
2. Keep receipts
3. Diarise events (i.e. keep records)

FREE REGISTRATIONS AVAILABLE FOR PINEAPPLE FIELD DAY – Michelle Haase (Growcom)

To celebrate this years International Women's theme **Equality today for a sustainable tomorrow**, recognising the contribution of women around the world in changing gender equality and building a sustainable future, Growcom is offering sponsorship for ten women to attend the Pineapple Field Days next month.

Sponsorship is open to women who are an owner or operator of a pineapple farming entity. It is additionally open to women family members who are directly involved in the pineapple farming entity.

Sponsorship covers the entire cost of attending both days – entry, bus transportation, Gala Dinner ticket, lunch both days, happy hour, breakfast on day two, field day booklet and satchel, to the value of $330.

Sponsorship is offered on a first in best dressed basis; one sponsorship approved per entity. Sponsored delegates will be responsible for covering additional costs of travel and accommodation.

An initiative of Growcom's Hort360 Great Barrier Reef (GBR) and South East Queensland (SEQ) projects funded by the Queensland Government, we hope to see more women participating in this worthwhile industry event.

Please apply through the Growcom office or via Michelle Haase (Growcom) **Mobile:** 0428 586 890 **Email:** mhaase@growcom.com.au

"CHOCOLATE" - A FORM OF FRUIT RUSSETING AND ITS CONNECTION TO PLANT NUTRITION – Garth Sanewski, DAF

Please refer to Garth's very descriptive presentation. A copy has been uploaded to the website.

Garth explained that "chocolate" is the result of nutritional problems and is different from russeting caused by sunburn. Also, investigations by Garth show that it is not caused by mites.

Eyes affected by 'chocolate'

Symptoms

- Chocolate coloured eyes on any part of the fruit (unlike sunburn which will be found only on the upper/exposed side). Can include corking and callousing. Relatively shallow.
- Absence of trichomes, which give the plant surfaces hydrophobic and light reflective properties, resulting the fruit and leaves having a polished appearance.
- Fruit core may be cracked and may be brown. Fruit is usually more fibrous.
- Abnormalities in crown growth with shiny/oily appearance (similar to calcium and copper deficiency). Crown may die (like calcium and zinc deficiency).
- Fruit stalk may be bent and short (similar to zinc deficiency), fruit may be deformed and die.
- Leaves may have a polished appearance (lack of trichomes), be distorted and malformed, and growing point may die (typical calcium deficiency symptoms).
- Different varieties are likely to show different levels of susceptibility to 'chocolate'.

Causes

- The main causes of 'chocolate' are thought to be:

    - Low soil pH
    - Low cation exchange capacity (a measure of nutrients that can be held in the soil)
    - Deficiency of calcium especially if excessive levels of magnesium and potassium are present in the soil and are competing against calcium for uptake (referred to as 'induced deficiency')
- **Excessive or badly timed phosphorous acid applications** could be causing a temporary tie up of cations, particularly calcium. Cations and phosphorus tie each other up and if phosphorous acid is applied at a critical time in the growth cycle, such as flower and fruit development, then calcium deficiency symptoms can result.
- Calcium is critical for the formation of strong cell walls – many of the symptoms associated with "chocolate" are linked to **weak cell walls** caused by **calcium deficiency** - small and mis-shapen fruit, growing point abnormalities, malformed crowns etc.
- **Manganese** is an overlooked element and is required in greater quantities in pineapple than other trace elements. Its role includes stress tolerance to high temperatures, sun exposure and drought. Manganese also has a role in resisting root disease.
- "Chocolate" is likely caused by a **deficiency of cations**. (Cations are positively charged elements that include calcium Ca^{2+}, magnesium Mg^{2+}, potassium K^{+} and some trace elements such as manganese Mn^{2+}, zinc Zn^{2+} and copper Cu^{2+}).
- Soil analysis in affected areas show that the soil is low in calcium and manganese and has a low pH. Sometimes other cations (potassium and magnesium), zinc and boron may also be low. **Low soil pH** and soils with a **low cation exchange capacity** (CEC) i.e. gutless soils such as sands, are prone to rapid leaching of cations – the soil doesn't have the capacity to retain nutrients.
- Leaf analysis reveals that affected plants are particularly **low in calcium and manganese**, and are also low in magnesium, zinc, copper and boron.
- **Copper** deficiency symptoms include lack of trichomes ('polished' leaves) & dieback of growing tips**.**

Suggested treatment/prevention

- There needs to be more emphasis on soil health.
- Keep any changes small and try on a small area first.
- Raise the pH to 5.2 – 5.5. Don't go higher than this because manganese becomes less available at high pH. An exception to this is if soil manganese levels are excessive or toxic (above 40ppm in the soil) in which case a soil pH of about 6.5 is desirable.
- Increase soil organic matter (a long-term undertaking) to increase soil CEC.
- Conduct a comprehensive soil analysis (including trace elements) prior to planting, interpret results and apply ameliorants as required in balanced amounts. For example, applying too much potassium can displace calcium. Note that boron and calcium work hand-in-hand so ensure that neither is deficient.
- If copper is needed, apply to the soil pre-plant.
- If zinc and/or manganese is deficient then apply to a small area on a trial basis and use the basic sources such as zinc sulphate and manganese sulphate.
- For phosphorous acid - avoid excessive use, and avoid applications at times when calcium uptake is critical e.g. during flower and fruit formation.
- Avoid excessive potassium applications.
- Avoid excessive phosphorus fertiliser applications.
- Conduct regular soil and leaf analyses.

FARM WALK

Overview

Col Hawken explained that there were two soil types on the farm:

- Red volcanic
- Acid, grey very erodible soil overlying shale

73-50 is the main variety with a little Smooth Cayenne (clone 10) grown but Smooth Cayenne doesn't grow so well on this farm. 140,000 73-50 are planted per year and 60,000 Smooth Cayenne.

2 ½ t of ag lime is applied pre-plant together with 300 kg single super and 300 kg Gran-am (granulated ammonium sulphate). No potassium is applied as a pre-plant. A side dressing of 77S is applied at 5 months of age but Col plans to change this back to 77S with Cu & Zn, the latter was always recommended by Rudy Wassman and Col Scott.

4 kg/ha Hyvar is incorporated as a pre-plant and followed by 2 kg/ha soon after planting. This practice seems to give good weed control.

Symphylids are a problem on the volcanic soil, for which bifenthrin is applied at 2 L/ha.

Tops are dipped pre-planting at the 0.5% phosphorous acid rate. Slips aren't dipped but are treated in the field before harvesting at 0.4%.

Fruit are considerably smaller near the tree line.

Sunburn is not generally a problem here thanks to the good leaf cover of the pineapple plants.

There was consensus that the N levels are too high in these 73-50 plants, making the leaves too long (averaging about 1.2m) and narrow.

First stop was to look a field of 73-50 with a high proportion of natural fruit which Col attributed to the heat wave in October. There was a general consensus that the plants were too big and that nitrogen rates need to be cut back. Col said that he plants North/South, if he plants East/West then the natural flowering is worse.

Fertiliser is boom sprayed every three weeks in 2,500 L/ha:

- 25 kg magnesium sulphate
- 60 kg urea (higher than this results in leaf burn)
- 75 kg potassium sulphate
- Zinc and sometimes iron.

A spray volume of 5,000 L/ha is used for pesticide applications

Natural fruit has been a bit of a nightmare this season but being a small operation with limited staff it does spread the harvest out more so is easier to cope with.

There is an issue with wetness at the bottom of the block, Col plans to overcome this with the use of concrete sleepers placed at intervals across the track and spreading of gravel between the sleepers. The sleepers cost just $2 each delivered.

Symphylids

A plant crop of Smooth Cayenne on red soil had been treated with bifenthrin 5 weeks ago and well rained in. Attempts by those on the farm walk to find symphylids were unsuccessful suggesting that they had succumbed to the treatment. Unevenness amongst some areas of the field were the result of symphylid attack. Some evidence of nematodes was found.

Young crop of Smooth Cayenne growing on red soil, recently treated for symphylids that have caused unevenness in plant size.

Erosion measures

Col is using Peter Maywald's practice of placing plants across the walkways at various intervals to help reduce erosion.

Plants placed at intervals across the walkway to help manage erosion.

Michell Haase (Growcom) mentioned that Col and Megan are considering getting **Reef Certification** and pointed out, using the example of the field we were looking at that they had may of the measures in place that were needed, these included:

- Tops placed in the walkways to reduce erosion
- Grassed waterways
- Riparian vegetation

Michelle (0428 586 890) encouraged growers to apply for Reef Certification and said she was there to help them achieve it.

Fumigants

Tim spoke about the work with fumigants, he said that the choice of fumigant was important and could change from block to block on the same farm based on the main issue in that block.

Agri-silica

Tim reported on the results of an initial trial at John Steemson's farm where AgriSilica appears to have reduced nematode levels quite dramatically.

Early results from this trial are as follows:

Agri-silica rate	Root knot nematode count (per 200mL of soil)
Nil (control)	232
Low	23
Medium	40
High	16

Claims are made that the 'sharps' component of the product deters pests such as mites and makes the crop less attractive to pests.

Agri-silica may have the potential to fill the role that Nemacur® used to as a treatment against nematodes in the growing crop, i.e. as a follow up to fumigation. The silica product may also have a longer residual effect (fumigants have no residual effect). More trials are planned.

Vic Millward (0438 954 500) represents Agri-Power.

Planting material

Tops recently planted in this field were stored in bins out of the rain and were not wet but nevertheless still started growing in the bins due to the sustained high levels of humidity in recent months:

Tops that had started to grow when still in storage bins

Transformer® trial

Col took us to the site of his Transformer® trial recently harvested.

The recommendation is that 5L of Transformer® be incorporated in the soil prior to planting and be followed up by 5L/ha over the top. However, at this site the crop had already been planted so 10L/ha was applied over the top. Col said he saw a big difference in both the plant and ratoon crops.

A random sample of fruit from the treated vs untreated areas showed that the area treated with Transformer® had fruit weights averaging 44% more than fruit in the untreated area (see results in Appendix I for more information and an illustration of the effect on fruit size).

Transformer® is produced and marketed by Oro Agriculture and representative Eugene explained that it works against hydrophobic properties of soil enabling better penetration of water and chemicals into the soil. Col believes it has helped make weedicide applications more effective too.

Weed control

Tim mentioned that the film of pre-emergent weedicide spray over the soil can be broken when the bed slumps so a spray after this happens can be useful.

A grower reported that Hyvar® can act as a knockdown if 'Wetcit' is added to the mixture.

Sencor® and Balance® weedicides

Please refer to Appendix II for greater detail.

The main point with these two recently registered weedicides is that soil type has an effect on their potential phytotoxicity. It is very important that you try them in a small trial first. Caution is needed!

We need to learn how to use them (Tim has trials underway) because they can be phytotoxic to pineapples. The labels need to be read very carefully but can be contradictory. They can't be applied to actively growing pineapples. They require moisture to work so if applied when it is dry, they will sit in the soil until it rains by which time the pineapples may be growing and phytotoxicity could occur.

It also helps to have the results of a recent soil test because soil cation exchange capacity (CEC), soil carbon and pH all have an effect on how these weedicides should be used in your particular environment.

Sencor®

This one is easier to use and can be applied to both plant and ratoon crops. It is quite effective on blue top.

Balance®

Only one application can be made, and it must only be applied to the plant crop. It has not been tested in soil pH's less than 6.

This field of 73-50 ratoon was gassed for a September harvest. The dense growth is preventing fruit from lodging.

PLANS FOR 2022 ANNUAL FIELD DAY, SEQ, 21 – 22 JULY

Day 1

Starts at 8am in the Bethonga shed near Wamuran.

Growers will be bussed to Sam Pike's farm at Glasshouse Mtns to inspect the new farm-wide bioreactor and other items of interest. Growers will then visit PineCo (former Winterhoff farm) now run by Faruk and Katherine Buzaki to look at machinery developments including a machine designed to travel within the pineapple field with minimum disturbance of plants, a machine designed to collect tops from the headland and the use of drones. That afternoon will be the trade display that will include AgriSilica, Farm Resilience, farm recording software.

The gala dinner will take place in a marquee erected next to the Piñata packshed.

Day 2

Will include a breakfast followed by inspection of a compost trial, the new Piñata spray boom and use of geopolymers.

The group will then visit the Polsoni's farm to inspect the Favco varieties, their grader and packing system and a new system of applying fumigants.

Happy hour will be held at the Bethonga shed.

AUSTRALIAN PINEAPPLES (AP) WEBSITE

If you woud like to register or are having problems accessing it please contact:

Natalie Brady: **Phone:** 07 3620 3863 | **Mobile:** 0406 387 381 | **Email:** nbrady@growcom.com.au

Or

Bridie Carr: Phone: 07 5381 1327| **Mobile:** 0436 675 740 | **Email:** bridie.carr@daf.qld.gov.au

FAREWELL TO COL MATTHEWS

Col Matthews is retiring from growing pineapples, so this was likely to be his last study group workshop. Col has been a great supporter and regular attendee at the workshops, we will miss having you at the events Col but wish you all the best for the future.

NEXT MEETING

The next one will be held in November on Peter Maywald's farm at Childers.

APPENDICES

I. Summary of Col Hawken's Transformer® trial
II. Sencor® & Balance® weedicides
III. Inter-row spraying
IV. Improving sprayer efficiency
V. Farm business resilience programme

ACKNOWLEDGEMENTS

Very many thanks to the Hawken family for hosting the day, for the afternoon tea and drinks, and to EE Muir & Sons and Oro Agri for providing the BBQ lunch and other drinks.

Simon Newett, Bridie Carr and Tim Wolens

These workshops are part of the project "Improved viability and sustainability of the Australian pineapple industry" (PI17001) which is a strategic levy investment under the Hort Innovation Pineapple Fund. The project is delivered by the Department of Agriculture and Fisheries, Agri Supply Global and Growcom and funded by Hort Innovation using the pineapple industry research and development levy, with co-investment from the Queensland Department of Agriculture and Fisheries, and contributions from the Australian Government.

Our hosts

Megan and Col Hawken

APPENDIX I **COL HAWKEN'S TRANSFORMER® TRIAL**

With Transformer® (10 L/ha)	Untreated
1.238, 1.967, 2.246, 1.579, 1.911 kg	1.019, 1.496, 1.485, 1.187, 1.020 kg
Total = 8.941 kg 44% heavier	Total = 6.207 kg

APPENDIX II

BALANCE® 750 WG HERBICIDE

***Warning**: some of the instructions on the labels are contradictory, e.g. initially advising not to use any wetting agents, crop oils or other adjuvants, then later advising their use. For this reason, growers are urged to await trial results and further information, or exercise extreme caution and test them out on small areas initially.*

Restraints

- DO NOT apply with wetting agents, crop oils or other adjuvants.
- DO NOT apply to poorly drained soils e.g. soils prone to waterlogging, sodic soils or soils affected by physical compaction.
- DO NOT apply to crops with poor root development or to crops under stress from waterlogging, drought, nutrient deficiency or disease.
- **DO NOT apply at any rate to soils of cation exchange capacity (CEC) less than 3 meq/100g or with clay content less than 10%, or with organic carbon content less than 0.8%.** These should be obtained from soil analysis prior to using Balance®. *Note: this may rule it out on many pineapple blocks.*
- DO NOT apply at rates of 125g/ha or higher to soils with organic carbon content of less than 1.0% unless the cation exchange capacity (CEC) is above 9.5meq/100g. These should be obtained from soil analysis prior to using Balance®.
- DO NOT apply at rates of 125g/ha or higher to soils of cation exchange capacity (CEC) less than 4.5meq/100g.
- DO NOT apply if there are hazardous surface temperature inversion conditions present at the application site during the time of application. Surface temperature inversion conditions exist most evenings one to two hours before sunset and persist until one to two hours after sunrise.

Withholding Periods – Harvest: NOT REQUIRED WHEN USED AS DIRECTED

Directions for use

Apply as sprays to the soil surface. Balance® 750 WG can be applied in hot and dry soils, without risk of rapid breakdown by sunlight. For effective weed control, incorporation by rainfall or irrigation to the weed root zone is required, but immediate soil incorporation is not critical due to the ultraviolet stability of Balance®.

Crop Situation - Pineapples plant crop only- 100g/ha.

Weeds

Amaranth, barnyard grass, bluetop, blackberry nightshade, crowsfoot grass, feathertop Rhodes grass, fleabane, green summer grass, guinea grass, needle burr, pigweed, sowthistle, summer grass, thick head, turnip weed.

Critical Comments

Balance® can be used alone or in mixtures with other residual herbicides e.g. Sencor® 480 SC Selective herbicide at 1.6L/ha. Control of difficult weeds species can be improved with tank mixtures.

Plant Crop: Apply as broadcast spray only prior to weed emergence (0 - 15 days) after planting and before planting materials begins to grow roots or new leaves. DO NOT apply more than one application in the plant crop.

Do not disturb the soil surface after application.

If weeds are established at the time of application, add a suitable registered contact herbicide.

DO NOT use adjuvants or penetrants which may cause phytotoxicity to crops. Refer to Bayer science for further information.

General Instructions

Apply Balance® in a spray volume of 2,000 to 3,000L/ha. Lower water rates (e.g. 550L/ha) may result in increased phytotoxicity. Use a nozzle size and operating pressure that delivers a coarse or larger droplet size category.

General points from other crops

Prolonged dry periods of cold conditions may result in extended re-cropping intervals, even if rainfall exceeds the required amounts.

Heavy rainfall after an extended dry period may results in the reactivation of Balance® 750 WG. This can lead to transient bleaching or crop stunting.

Use on soils with a pH less than 7 has not been extensively tested, and may result in extended re-cropping intervals.

Balance® is adsorbed to organic matter and clay particles in the soil. **Soils with low organic carbon (OC) a cation exchange capacity (CEC) have a reduced capacity to adsorb the herbicide in the soil**, which may result in the herbicide leaching past the weed root zone into the pineapple root zone. To minimise the risk of crop root uptake, Balance® 750 WG is not recommended for use on some soils.

The use of Balance® on newly limed soil could cause sever crop damage, please see your local Bayer crop science representative for advice prior to this situation.

SENCOR® 480 SC HERBICIDE

***Warning**: some of the instructions on the labels are contradictory, e.g. initially advising not to use any wetting agents, crop oils or other adjuvants, then later advising their use. For this reason, growers are urged to await trial results and further information, or exercise extreme caution and test them out on small areas initially.*

Restraints

- DO NOT apply until soil is well wetted by the first good soil setting rain after sowing.
- DO NOT spray plants under stress from drought, waterlogging, frost or disease.
- DO NOT apply if there are hazardous temperature inversion conditions present at the application site during the time of application. Surface temperature inversion conditions exist most evenings one to two hours before sunset and persist until one to two hours after sunrise.
- DO NOT apply by a boom sprayer unless the following requirements are met:
    - Spray droplets not smaller than a coarse spray droplet size category in pineapple
    - Minimum distance between the application site and downwind sensitive areas (see mandatory buffer zones section of the following table title buffer zones for boom sprayers) are observed

Application Rate	Boom height above the target canopy	Mandatory downwind buffer zones		
		Natural aquatic areas	Bystander areas	Vegetation areas
Greater than 750mL/ha	0.5m or lower	0m	0m	0m
	1.0m or lower	0m	20m	0m

Crop Situation: Pineapples 1.6L/ha

Critical Comments:

- Plant crop: apply as a single broadcast spray prior to weed emergence immediately after planting (within 0 – 15 days) and before planting material beings to grow roots or new leaves.
- Ratoon crop: Apply as a single directed or broadcast spray within 30 days of the plant crop harvest maximising contact of the herbicide with the soil. Do not apply if the ratoon crop contains a high percentage of suckers or slips / buttons.

- DO NOT apply more than one application in the plant or ratoon crop.
- Soil should preferably be slightly moist at application. Incorporation by rain or irrigation within 7 days after application is necessary for best results.
- Sencor® can be used alone or in mixtures with other residual herbicides e.g. Balance® 750 WG herbicide in the plant crop. Control of difficult weeds species can be improved with tank mixtures.

General

Best results are obtained if treatment is made to moist soil and moisture is supplied by rainfall or sprinkler irrigation (6-12mm) within 2 weeks after application. If heavy rains occur soon after application, injury to the crop may result.

Pre-emergence

Soil should preferably be moist to the surface and not cloddy or have residues of a previous crop on the surface. It is better to delay pre-emergence spraying of loose or fluffy soils until there is a good soil setting rain. Rain or irrigation soon after spraying is required to activate Sencor®.

Post-emergence

Post-emergence spraying will control young actively growing emerged weeds through the leaf uptake. Subsequent pre-emergence control of later germinating weeds requires rain or irrigation after spraying. Crops may show slight chlorosis or necrosis after spraying. Two sunny days before spraying enhances crop tolerance. Heavy rain (80-100mm) after spraying on deep sandy or friable well-structured sol may leach Sencor® beyond the root zone this reducing residual effect.

Ground Spraying (pineapples only)

Apply Sencor® in a spray volume of 2,000 to 3,000L/ha. Use a nozzle size and operating pressure that delivers a coarse or larger droplet size category.

APPENDIX III

INTER-ROW SPRAYING

RETROFITTED SPRAYERS TARGETING THE INTER-ROW ARE GIVING GROWERS MORE WEED CONTROL OPTIONS

- Simple adaptions have been made by multiple growers to pre-existing machinery enabling them to target their herbicide applications into the inter-row.
- These growers have access to a wider selection of herbicide options because they can avoid direct spray contact with the plant crop.
- The registered chemical for controlling bluetop/billygoat weed is Glufosinate-ammonium 200g/L (like Basta or Beast 200) which causes damage to the crop.
- Growers are successfully using this product by localising the spray to the inter-row and avoiding plant contact - one grower has seen up to a 75% reduction in their bluetop/billygoat weed population.
- The estimated cost of setting up an inter-row sprayer is $500-$1000.
- Potential savings can be made by growers with 50% less inputs being required compared to broadacre spraying.

FOR MORE INFORMATION OR FREE ADVICE ON HOW TO SET UP YOUR SPRAYER CONTACT:

BRIDIE CARR - 0436 675 740 OR TIM WOLENS - 0409 848 076

APPENDIX IV

IMPROVING SPRAYER EFFICIENCY

BOOMSPRAYERS FITTED WITH DROPPERS ENABLE GROWERS TO BAND SPRAY AND INCREASE THE AREA COVERED BY ONE SPRAY TANK

- A standard boomsprayer can be adapted to have multi-outlet nozzles fitted at each spray point which includes a 30cm extended dropper
- Each dropper can be positioned above the plant row or inter-row and the height of the arm adjusted to suit plant size
- Wasted spray mix on the inter-row and bare ground is minimised thus reducing inputs (product and labour) and potential run off
- Conventional boom = 1.5 ha per tank lasting 20 mins before refill
  Boom using droppers = 4.0 ha per tank lasting 55 mins before refill
  Product and labour costs more than halved
- The estimated cost to retrofit a standard industry boomsprayer is ~$95 per manifold
- Return on investment from:
  - Reduction of labour cost with less down time refilling spray tank
  - Reduction in input costs with one spray tank covering a larger area

FOR MORE INFORMATION OR FREE ADVICE ON HOW TO SET UP YOUR SPRAYER CONTACT:

BRIDIE CARR - 0436 675 740 OR TIM WOLENS - 0409 848 076

growcom PINEAPPLES

Hort Innovation PINEAPPLE FUND Queensland Government

APPENDIX V

Farm Business Resilience Program

QRIDA Funding

Sustainability Loans of **up to $1.3 million** are available to help primary producers to improve the sustainable infrastructure of their primary production enterprise.
A Sustainability Loan may be used as the co-contribution to the Drought Preparedness Grant for implementation activities.

Australian Government | Future Drought Fund | Drought and Climate Adaptation Program | Queensland Government | growcom

Farm Business Resilience Program

How does it help Growers?

Support to:

- identify goals,
- identify business and climate risks, and strategies to manage these risks,
- review management practices,
- facilitates specific training and other activities to help address risks and be more resilient.

The new assistance focuses on greater preparedness and business planning to manage risk of drought in Queensland.

Growers can participate in this program irrelevant of their drought situation and do not require a drought declaration.

Australian Government | Future Drought Fund | Drought and Climate Adaptation Program | Queensland Government | growcom

Farm Business Resilience Program

QRIDA Funding & Farm Business Resilience Plan

Growers will need to have a completed Farm Business Resilience Plan when applying for assistance.

- Go to Growcom web page and click on the link to log in or register HORT 360
- Complete the Farm Business Resilience Planning module, action plan and Farm Business Resilience Plan template.

For more information or to apply, visit:

https://www.growcom.com.au/portfolio/fbrp-horticulture/

www.qrida.qld.gov.au/drought-support

Australian Government | Future Drought Fund | Drought and Climate Adaptation Program | Queensland Government | growcom

Farm Business Resilience Program

QRIDA Funding

Farm Management Grants offer primary producers a **50 per cent rebate** on the cost of eligible professional advice up to a **maximum $2,500** to produce a Farm Business Resilience Plan for their property.

Drought Preparedness Grants offer **up to $50,000** as a co-contribution grant to assist primary producers undertake on-farm capital improvements that will improve the drought preparedness of their property as identified in their Farm Business Resilience Plan.

Australian Government | Future Drought Fund | Drought and Climate Adaptation Program | Queensland Government | growcom

Farm Business Resilience Program

QRIDA Funding

Drought Ready and Recovery Finance Loan

The Drought Ready and Recovery Finance Loan offers **up to $250,000** to help primary producers undertake drought ready and recovery activities and improve the drought resilience of their primary production business including:

- improving on-farm water infrastructure;
- implementing grain storage;
- reasonable freight components to purchase and install equipment or infrastructure;
- contractor costs or non-salaried employees' costs directly associated with implementing the drought preparedness project;
- removing unviable crops, plants or trees and purchasing and planting new seed, seedlings or trees; or
- purchasing and vaccinating new stock or drenching new stock.

Producers **do not** need to be drought declared to be eligible for this assistance.

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Farm Business Resilience Program

QRIDA Funding

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