Haifa

DownUnder

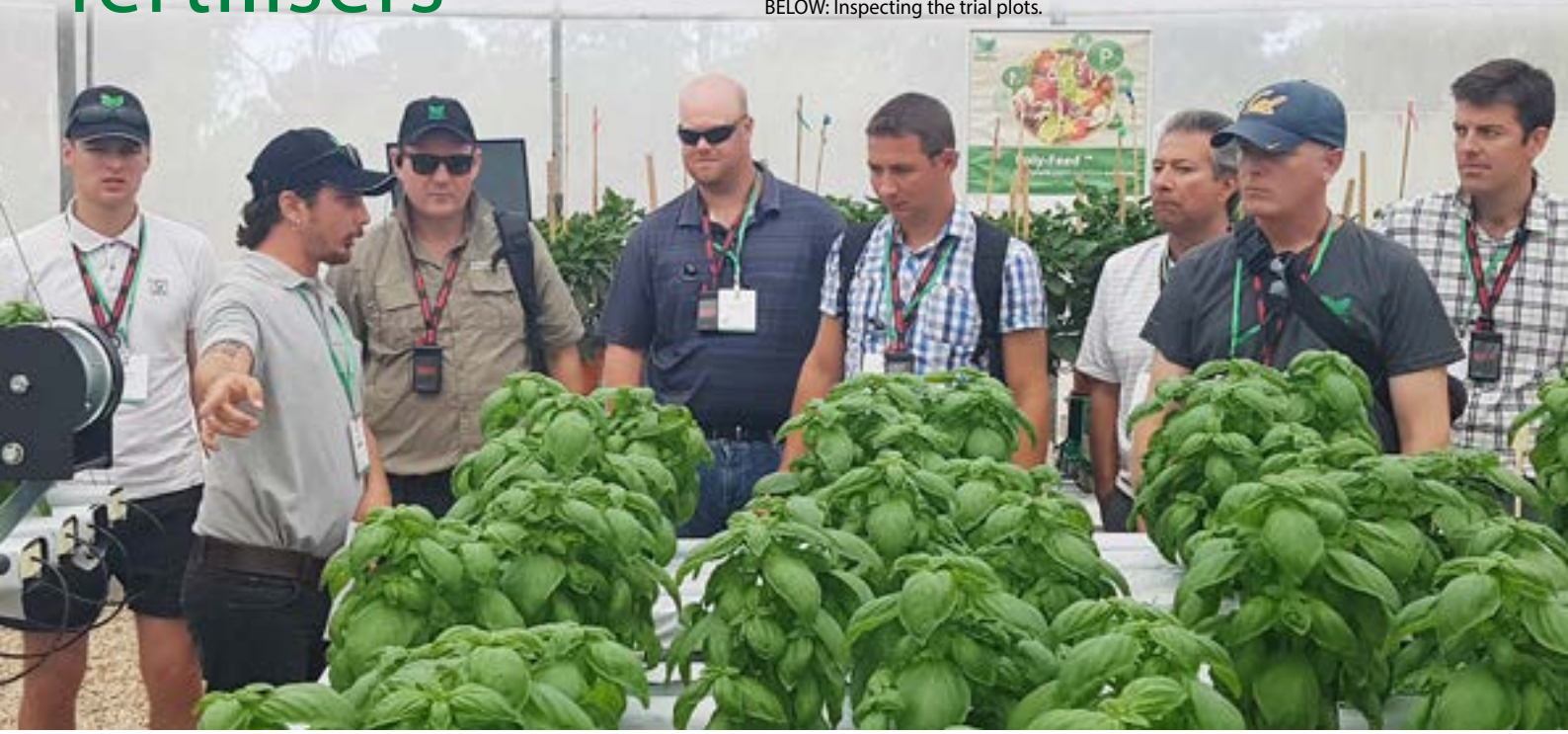
SPECIAL BULLETIN FROM HAIFA AUSTRALIA

EDITION 18 NOVEMBER 2018

CSIRO partnership targets new generation fertilisers

INSET: The CSIRO and Haifa team pictured during a recent visit to Israel with Paul Israel, of the Australia Israel Chamber of Commerce.

BELOW: Inspecting the trial plots.



New partnership aims to develop state-of-the-art fertilisers that will limit nutrient run-off and, thereby, any impact through to the Great Barrier Reef. STORY PAGE 2

ALSO IN THIS EDITION

Soluble fertiliser blends help manage crop expectations

WITH crop nutrition being one of the largest input costs for growers, application strategies can often change and horticultural trends around the Bundaberg area suggest a return to using soluble fertiliser blends in various cases.

Local Agronomist Simon Ewald, with Ag Plus Consultancy at Bundaberg, said the business was arranging tailor-made soluble fertiliser blends for numerous growers, supplying all the nutrients required in one bag.

Ag Plus Consultancy, which supports growers with a range of crops including cane, citrus, macadamia and avocadoes out to Mundubbera and Gayndah, supplies the NutraFeed custom fertiliser blends developed by Barmac. These are based on Haifa's popular Multi-K™ potassium nitrate fertiliser.

"Growers can adjust their own customised blends. They can have more N (nitrogen) up front and then increase the boron at certain stages, or have more potassium for bulking up crops later," Simon said.

"They may go with a standard NPK fertiliser at planting and then supplement the crop with a Nutrafeed blend, possibly some cal (calcium) nitrate to get them through and then another Nutrafeed blend towards the end."

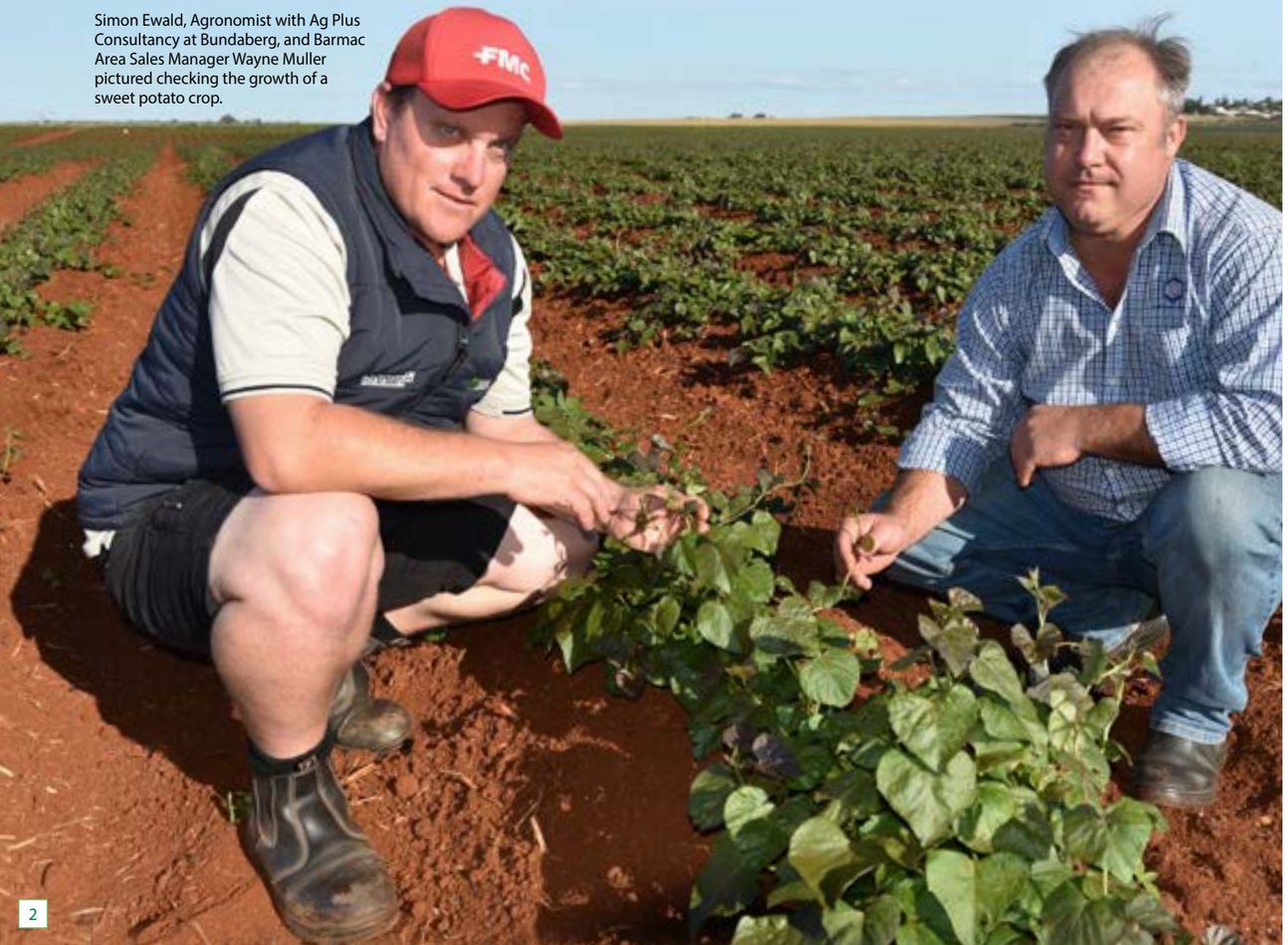
Barmac Area Sales Manager Wayne Muller said growers traditionally applied conventional NPK and side dressing applications of fertiliser, controlled release nutrition became popular and now custom fertiliser blends were again being readily applied.

"Some growers previously loaded up crops with nutrition at the beginning of the season, but with the impact that a change in commodity pricing, the weather or an insect infestation can have, demand for soluble fertiliser blends has once again picked up," Wayne said.

"Further to applying FertiCote (controlled release fertiliser) and having everything there for plants from day one, with the trace elements and all the goodies, growers could see that they could go a bit harder and push crops with NutraFeed."

The NutraFeed blends are based on the renowned Multi-K potassium nitrate fertiliser from Haifa to ensure the highest quality, and custom orders can be supplied in about two weeks.

Wayne said previously there were four main NutraFeed products, but with the custom blending any element could be added or removed.



Simon Ewald, Agronomist with Ag Plus Consultancy at Bundaberg, and Barmac Area Sales Manager Wayne Muller pictured checking the growth of a sweet potato crop.

He said growers were generally undertaking two NutraFeed applications in a crop, with higher nitrogen content applied early and higher potassium at the end of the season.

To help determine the custom blends, Simon said various growers would carry out soil and sap testing, as well as draw on their fertiliser history and experience of crop nutrition needs.

Macadamia tree crops

Wayne said NutraFeed sales had trebled in the area and the blends were particularly popular for establishing macadamia tree crops.

He said with irrigation now occurring direct to the root zone, growers were only applying 30 grams per plant.

Previously, macadamias may not have produced fruit until the seventh year, whereas now this is occurring from the fourth season.

Simon said in addition to NutraFeed, Ag Plus Consultancy also supplied Haifa's Multicote™ controlled release fertiliser to macadamia growers, while they have used Haifa Cal™ calcium nitrate and the Multi-K potassium nitrate previously as well.

He said drip irrigation of macadamia trees was now down to three to four years from establishment, before growers switched to sprinkler irrigation.

Some sweet potato growers now using NutraFeed previously never applied fertiliser through their irrigation.

"We supplied a sweet potato mix fertiliser and they also carried out side dressings and supplemented crops with potassium sulphate, then Ferticote (controlled release fertiliser) was used, and then they have had the ability to use the NutraFeed blends rather than apply straight potassium sulphate," Simon said.

Wayne said growers were now getting smarter about the use of trace elements with the NutraFeed fertilisers.

"For a lot of sweet potato growers, they have realised they needed more boron than they thought. Growers are getting smarter with boron and zinc deficiencies, so that their plants can grow to 100 per cent from day one."

He said he believed the next step was the increased use of beneficial bacteria and Barmac was adding this to further value-add to its blends.

"The wider use of beneficial bacteria has been a trend in the Philippines, China and America, and they have seen up to a 40pc increase in nitrate uptake," Wayne said.

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Multi-K

Multicote

Haifa Cal

CSIRO partnership to help develop new fertilisers

By Trevor Dennis Managing Director, Haifa Australia

HAIFA Australia is thrilled to be partnering with CSIRO Land & Water on the development of new generation controlled release fertilisers to help protect the Great Barrier Reef.

We are honoured to have been selected by the world-renowned research organisation to help develop new controlled released products with biodegradable coatings.

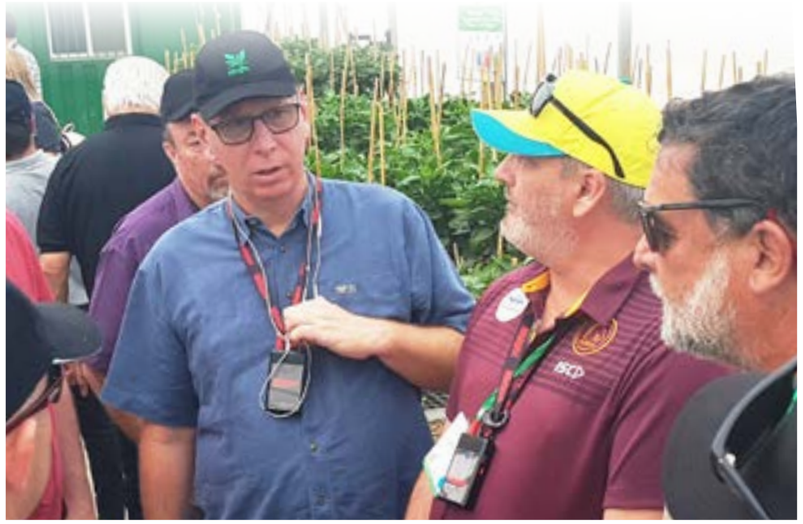
The partnership aims to develop new state-of-the-art fertilisers that will limit nutrient run-off and, thereby, any impact through to the Great Barrier Reef.

After extensive testing of many controlled release fertilisers across the industry, CSIRO indicated it was particularly impressed with the sigmoidal release curve of Haifa's Multicote fertiliser products, which matched the nitrogen demand of sugarcane crops during the growth cycle.

We recently hosted three members of the CSIRO team to view our production facilities in Israel and meet with global Haifa staff and technical personnel in Israel and France, and we aim to continue to share technical knowledge with the team.

We are looking forward to strong cooperation with CSIRO on nutrition technologies and helping growers in the Great Barrier Reef zone with their nutrition management.

It's an exciting development for the industry, with new controlled release fertiliser products set to be widely tested over the next couple of seasons.



Brian Thomas, CSIRO, Brad Rule, Lindsay Rural, and Haifa Northern Agronomist Peter Anderson discuss a trial plot at the Haifa research farm in Israel.

Maryborough pineapple trial probes controlled release fertiliser benefits

THE opportunity to improve pineapple production despite reducing fertiliser applications and the time spent on his spraying boom has prompted Maryborough grower Phill Smith to trial controlled release nutrition this season.

Phill and his wife, Kay, grow pineapples over about 16 hectares of their 40ha property, with fruit heading to the fresh market or to Golden Circle for processing. They also run some cattle.

They grow 7350 (hybrid) and Clone (smooth leaf) varieties, and achieve two crops from the one planting over a three-and-a-half year period.

One acre blocks are cultivated to a depth of 35 centimetres, scraped for levelling and fumigated with Rural Telone C-35 to combat nematodes and symphylids prior to planting.

Soil testing is undertaken, with any deficiencies corrected; shooting pineapple tops are dipped in a rooting hormone and phos acid mix to protect the roots prior to planting; and the Smiths previously used the Incitec Pivot 77S fertiliser, containing sulphate of potash, as a pre-plant application and again six months later.

Further fertiliser applications, particularly during the good growing season from October to April, could be carried out once a month prior to rainfall events and up until applying ethylene gas about 12 months after planting to induce fruit production. Fertiliser treatments could then continue up until 16-18 months after planting.

In more recent times, the Smiths have followed the pre-plant fertiliser with two applications spaced six weeks apart and each comprising 50 kilograms/ha of nitrogen, 50kg/ha of potassium and 10kg/ha of magnesium.

Leaf analysis is used to adjust some fertiliser applications and Phill said he irrigates crops about four weeks before picking to give them a boost.

He is coordinating the controlled release nutrition trial on their property with Barmac Area Sales Manager Wayne Muller, using the company's Ferticote blend.

Wayne said Ferticote already was being used by some growers in the Yeppoon area, with the aim to fill plants out prior to treatment with the ethylene gas.

"They want to get a bigger plant before the natural flowering. The flowers set up the fruit size, so they want to get bigger plants and flowers, to then pick bigger fruit," Wayne said.

The trial on the Smith's property features their traditional fertiliser applications spaced six weeks apart after the pre-plant application; pineapple tops dipped in phos acid and grown on the Incitec Pivot 77S fertiliser; similar plants grown on the Ferticote blend applied at an equivalent of 580kg/ha; and a similar application with plants dipped in the phos acid and rooting hormone mix. There is also a row where no pre-plant or additional fertilisers have been applied, providing a comparison with the other treatments.

The particular Ferticote blend is an eight-month controlled release fertiliser and plants in these plots have also received an application of 25kg/ha of nitrogen, 25kg/ha of potassium and 5kg/ha of magnesium.

Phill said he was also carrying out a liquid application of nitrogen, phosphorus, potassium, iron, zinc and magnesium over the whole trial area.

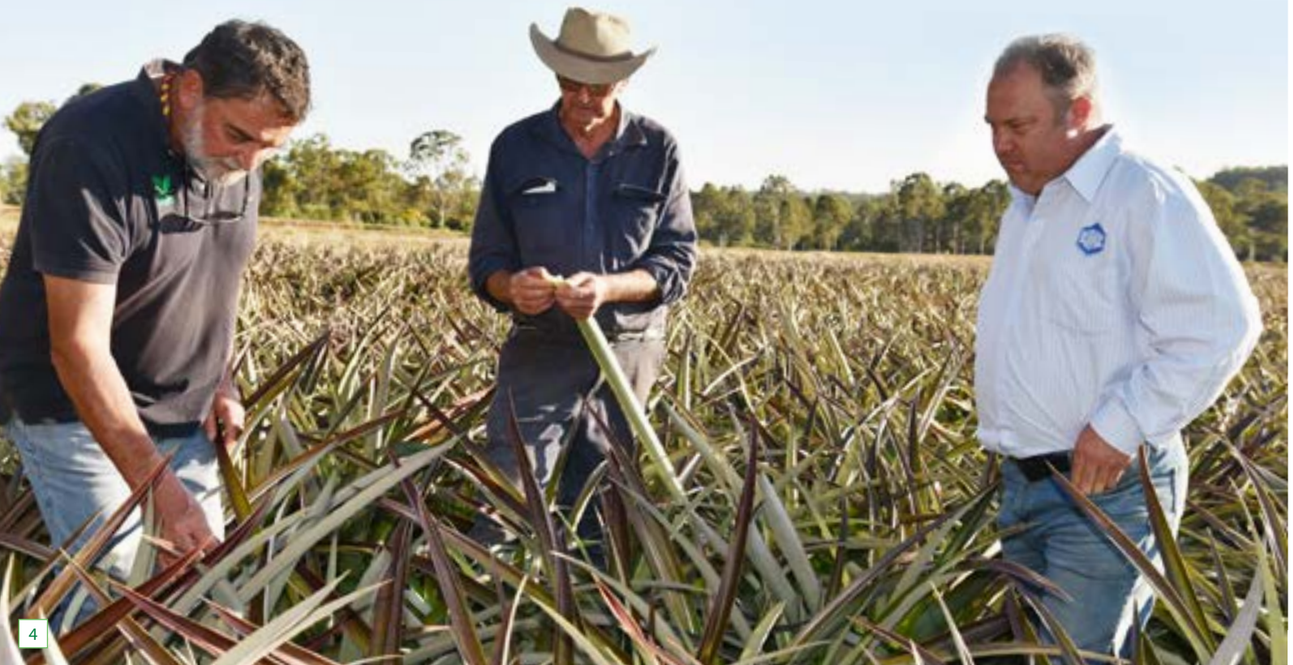
"The Ferticote has done its job and we will now see how things go," Phill said.

"The Ferticote area has had a lot less fertiliser. We will do a leaf sample and see where we are heading towards harvest in November."

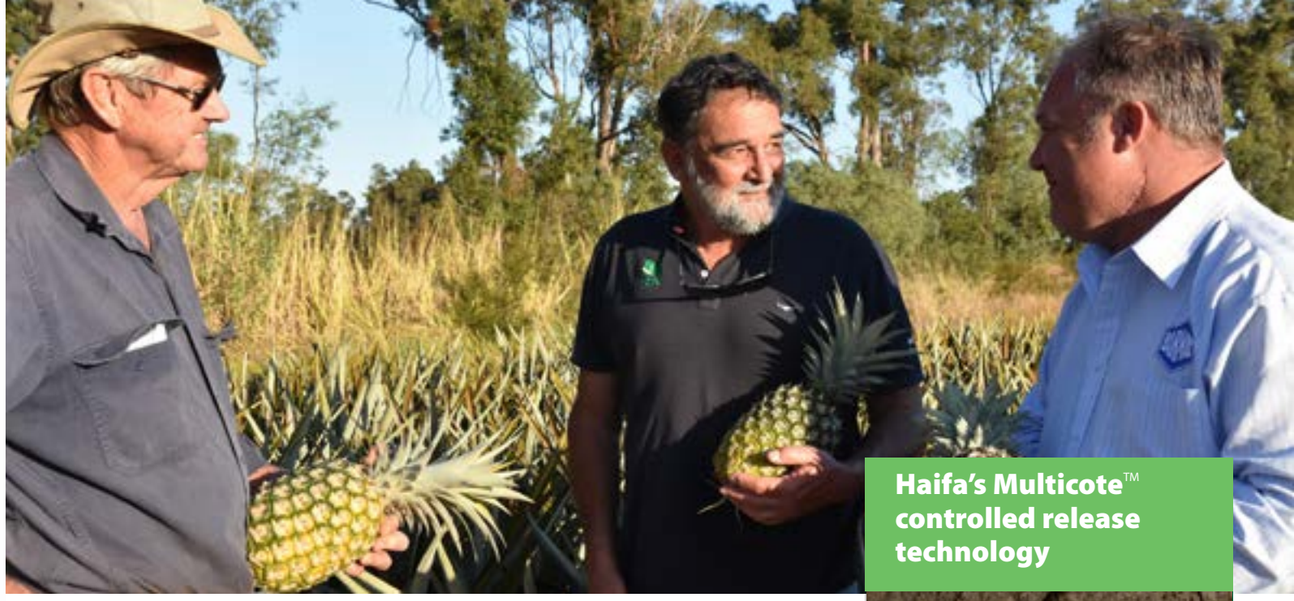
Wayne said Ferticote also was being used by growers because it offered almost nil nitrogen leaching, helping to prevent any impact through to the Great Barrier Reef.

Haifa Queensland Regional Agronomist Peter Anderson said it was significant that a lot less upfront fertiliser was applied in the Ferticote treated area compared with the Smith's normal pre-plant application.

"There is also a lot less fertiliser being lost. Growers can lose a lot of nitrogen from fertiliser applications," Peter said.



Haifa Queensland Regional Agronomist Peter Anderson, Maryborough pineapple grower Phill Smith and Barmac Area Sales Manager Wayne Muller check out plants treated with a Ferticote controlled release fertiliser blend in the trial area on the Smith's property.



Phill, Peter and Wayne sample some of the quality pineapples at the Smith's property.

Haifa's Multicote™ controlled release technology

Barmac's Ferticote products use Haifa's Multicote controlled release technology to ensure growers receive the highest quality ingredients in the blends. The Multicote technology incorporates unique polymer coating that allows a slow, continuous release of dissolved nutrients to the root zone at a soil media temperature of 21 degrees. As soil warms up, the release rate increases consistent with plants' growth rate and nutrient consumption. Other factors such as microbial activity and soil moisture do not affect the release rate.

Ingenuity, water soluble fertiliser behind Childers small crops success

Lindsay Rural Childers Branch Manager and Agronomist Jules Keller, local grower Andrew Haaksma and Haifa Queensland Regional Agronomist Peter Anderson take a closer look at the Haaksma's snow pea crop.

FARMING ingenuity and efficiency comes to mind when visiting the small crops and beef grazing property of the Haaksma family near Childers.

Andrew Haaksma together with his wife, Kerryn, and parents, Jack and Dorothy, operate the 153-hectare 'Watervale' property, where they grow zucchinis, squash and snow peas over about 10ha and run around 50 breeders. They also grow pasture hay, of which most is sold, and mow and bale hay for various fellow landholders.

The horticultural crops are grown over a wide rotation, with up to two crops a year on heavy red soils and one crop every five years on their grey country.

They normally manage three blocks of snow peas and 10 blocks of zucchini each year, with the snow peas grown over 10 weeks and picking then occurring for six weeks, while the zucchini can be picked after about five weeks in summer and seven to eight weeks in winter and is completed over four weeks.

All working up of the ground is performed with small machinery and the crop rows are set at a width of 3 metres. Snow plea plants are spaced every 50 millimetres, while there is 75 centimetres between the zucchinis.

No plastic

Most similar operations normally undertake full cultivation and bedding up before installing plastic, however the Haaksmas don't use plastic. It also means they use only about one-third of the fuel and time of similar programs.

They also slash grass between the rows and put it on the beds to help retain moisture and they use a disc to roll-in dirt around the squash plants, covering any weeds.

A final rotary pass is performed before planting and fertiliser is drilled to a depth of 15-20cm using a single tyne fertiliser box, which also sets the mark for installing the trickle tape. The old fertiliser box used was originally purchased by Andrew's grandfather.

The zucchini seed is simply planted via a pipe that Andrew kicks along before pushing some dirt over the seed, while the snow pea seed is sown via a planter.

"We will plant and trickle it for a week to get the moisture down," Andrew said.

The family's irrigation system is powered by a home-made, 19-kilowatt stand-alone three-phase solar array.

Soil testing is carried out and the Haaksmas have previously been using an organic Katek Custom Blend fertiliser, as well as applying chicken manure, lime and gypsum, the latter to correct calcium deficiency and high soil aluminium.

They switched to Nitrophoska fertiliser and achieved a better result, however then had concerns with nutrient leaching.

"We were finding with Nitrophoska that we would put it in, then we were getting a heap of rain and it would leach out. We were putting out about 1 tonne of Nitrophoska over several blocks and losing most of it over the early crop cycle," Andrew said.

He considered it would also be more difficult to apply Nitrophoska in future due to the push for more efficient fertiliser use to help protect the Great Barrier Reef.

The Haaksmas have since cut back on their pre-plant fertiliser and will alternate between the Katek product and Nitrophoska. However, they have decided to use water soluble fertilisers through the trickle irrigation, using Haifa products Poly-Feed™ 15 and Poly-Feed 12, sourced through Lindsay Rural at Childers.

"It's about half the amount of Nitrophoska we were applying. We apply 0.6-kilogram every 10m of row – or about 150kgs/ac," Andrew said.

"We are trying to develop a program that is simple and the 25-kilogram bag of (Haifa) Poly-Feed (per acre) per week from about three weeks after germination is good," Andrew said.

Virtually free of chloride, sodium and other detrimental elements, Poly-Feed provides optimal, balanced nutrition throughout the growth cycle.

"We also put in a bag of Haifa Cal™ nitrate per week and half a bag of Multi-K ™ potassium nitrate per week just before flowering," Andrew said.

The fertiliser program then stops before the end of harvest.

"Another grower has been using all straight fertilisers and has been finding the crops are getting a lot of N and producing bulk, but not getting the flowers."

Andrew said they had been happy with their crop production and quality.

"The quality has been good right from the start."

"Snow peas can be curly in the first picks, but they have been straight. The zucchinis first pick has also been very good.

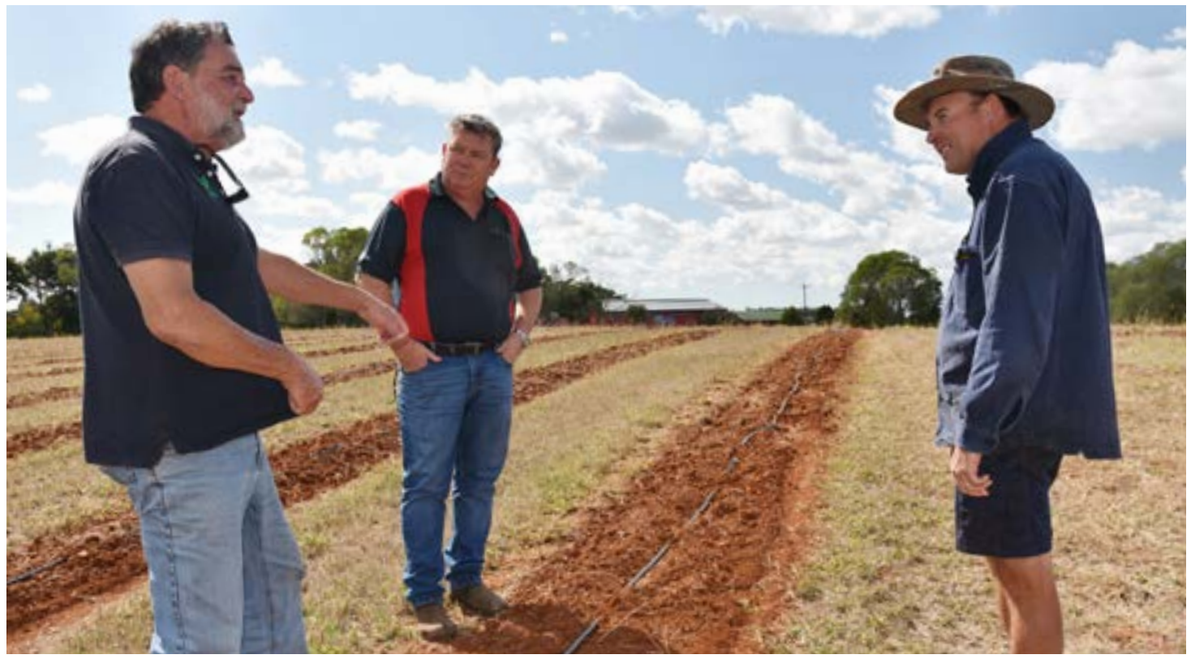
"A good crop of snow peas is 1.5-2kg/m. Last year we had 7-foot high peas and we have done up to 3kg/m."

Click for further info

Poly-Feed Multi-K Haifa Cal

Andrew with some of the small machinery used on the family's 'Watervale' property.

Andrew with the single tyne fertiliser box used to drill fertiliser to a depth of 15-20 centimetres. The old fertiliser box used was originally purchased by Andrew's grandfather.



Peter, Jules and Andrew discuss the early preparations for the family's small crops.

Better efficiency, uniformity with controlled release fertiliser

WHILE the reduction in sweet potato prices to growers has proved difficult for many, there's no doubting the advancements with seed potato quality and nutrition technologies that have contributed to improved efficiencies, production and productivity in the industry.

Russell Mortimer, originally from Cudgen in New South Wales, where his wife's family grew sweet potatoes, has been growing them in the Hummock area, near Bargara in Queensland, for nearly 20 years.

The Mortimers source clean, virus-free sweet potato tubers from Rockhampton, grow them out in separate beds and then plant the harvested cuttings over about 190 hectares of volcanic, heavy red soils, with the produce heading to markets in Sydney and direct to chain stores. They also grow some other opportunity crops, including melons.

A winter crop is planted from April-June and harvested in November-December, while a summer crop is planted in August-September and harvested from January.

Sorghum crops are grown prior to about a month of soil bed preparation for planting and, in recent years, controlled release fertiliser (CRF) has been used after previously using straight soluble products and carrying out side dressing applications of granular fertiliser.

Russell said the aim was to get 70 per cent of crop nutrition requirements down at planting and while further applications had not generally been required for summer crops, they had supplemented the nutrition of winter crops with a NutraFeed soluble fertiliser blend. These blends are based on the renowned Multi-K™ potassium nitrate fertiliser from Haifa to ensure the highest quality.

Soil testing

Soil testing is carried out from block-to-block and if there is some residual nutrition, the applicable nutrients in the CRF can be adjusted. Sap testing has also helped to provide a nutritional baseline for the sweet potato crops.

The Mortimers have been applying a Haifa Multicote™ Agri CRF containing 14pc nitrogen, 8.6pc phosphorus and 16.6pc potassium plus trace elements at 650 kilograms/ha. Sourced through Lindsay Rural at Bundaberg, it features 70pc coated nitrogen and potassium and 30pc uncoated, and has a 4-month release period.

Lindsay Rural Bundaberg Account Manager Geoff Turner said the 40pc coated phosphorus was particularly important for plant availability of the nutrient in the heavy soils, which were prone to locking up granular phosphorus applications.

Russell said using the Haifa CRF was certainly a major benefit in times of heavy rainfall.

"If you get a lot of rain, you won't lose it. We have had summer storms and recorded three to four inches overnight. With other fertilisers, you never know how much you lose," he said.

"We also do lots of watering at crop establishment. We would be putting out 4.5 millimetres per day."

Russell said using the Haifa Multicote Agri CRF was also more efficient, with less in-crop applications required, and it supplied the critical nutrition for the latest variety they grew, Orleans.

"The nutrition is very important for the Orleans variety because the vine can tend to go off a bit."

He said they noticed a real difference with their sweet potato crops on the Haifa CRF 60-80 days after planting.

"You don't get the sporadic growth and there is more consistent development and size."

"Markets are looking for uniform shape, size, colour and minimal skin defects.

"The consistency of pack-out has been very good. The naked eye can pick up a 15pc improvement, so you have automatically had a productivity increase.

"We are getting more even tonnage and more into the marketable size.

"Previously, if we did 500-600 cartons pack-out we were over the moon. We are now around 1500-1800 of the 18 kilo cartons/acre," Russell said.

Multicote™ Agri

Based on Haifa's polymer coating technology, Multicote™ Agri releases nutrients into soils in a gradual manner, matching plants' requirements.

It also differs from other controlled release fertilisers because its release rate is governed by temperature, not moisture. This is important in ensuring the nutrients being supplied to plants are not lost during periods of high rainfall or over-watering.

Multicote™ Agri combines polymer-coated granules of nitrogen, phosphorus, potassium and magnesium, as well as non-coated, readily available nutrients. It is available with a variety of nutritional compositions and release features.

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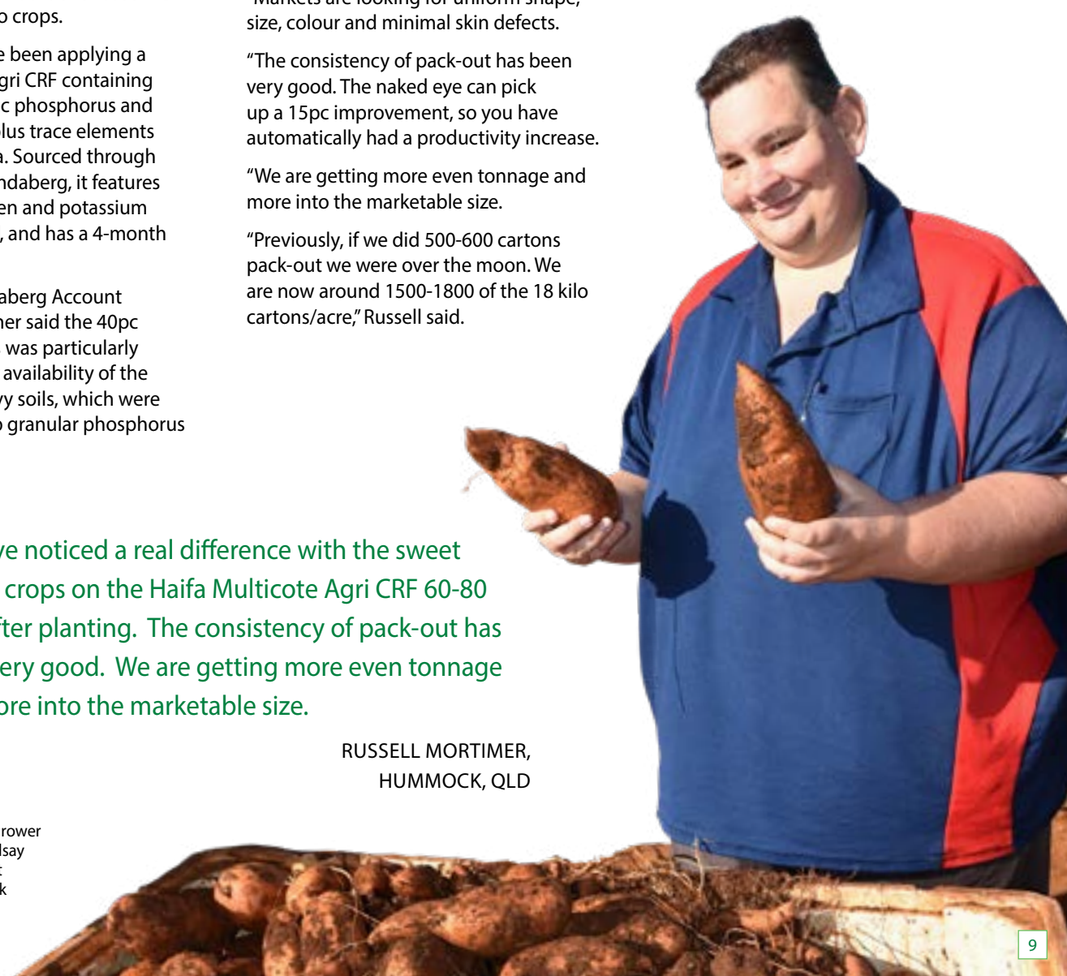
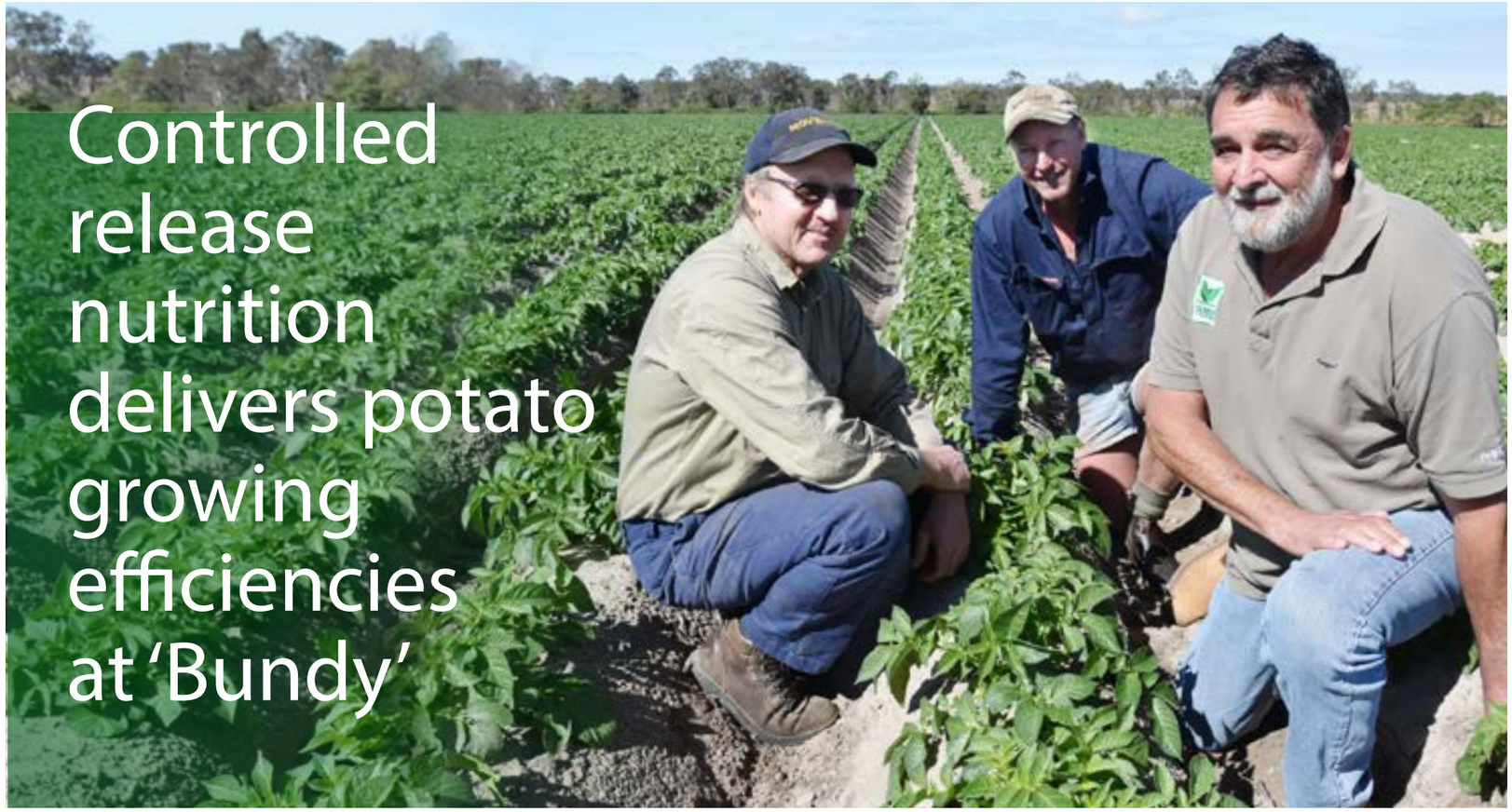
Multicote Agri

> "We have noticed a real difference with the sweet potato crops on the Haifa Multicote Agri CRF 60-80 days after planting. The consistency of pack-out has been very good. We are getting more even tonnage and more into the marketable size.
>
> RUSSELL MORTIMER, HUMMOCK, QLD



Hummock sweet potato grower Russell Mortimer and Lindsay Rural Bundaberg Account Manager Geoff Turner look over some of the family's latest produce.

Controlled release nutrition delivers potato growing efficiencies at 'Bundy'



Bundaberg crisping potato grower Mark Fritz, Tony Grassick, who works for Mark and also grows potatoes, and Haifa Queensland Regional Agronomist Peter Anderson investigate the quality of a young potato crop on the family's property.

A MOVE to controlled release nutrition is helping to limit nutrient losses and extra fertiliser applications for Bundaberg potato grower Mark Fritz.

Of course, the add-on benefits of this change in fertiliser strategy for protecting the Great Barrier Reef in the region are also well recognised.

Mark is a fourth generation grower in the area, farming 240 hectares together with his wife, Judy, and parents, Gordon and Allison.

Today they grow crisping potatoes and sugarcane under their M & J Produce brand, and have previously grown tomatoes, capsicums, watermelon, soybeans and peanuts.

Mark said the predominantly sandy soils on the property, which "you can't stand on in summer", were good for growing and harvesting potatoes in winter.

He said the potatoes were grown from March-April through to November-December in 12-14 paddocks totalling about 80ha. A further 80ha of land is left for spelling in the rotation and the remainder is devoted to cane production.

The family has been producing potatoes for Smith's Crisps in Brisbane since the mid-90s, growing the company's preferred varieties and meeting set production targets for different periods throughout seasons.

Cover crops are grown on the spelled land, with a final forage sorghum crop being mowed and allowed to regrow before being sprayed with Roundup and incorporated with a disc or speed till in preparation for the potato planting.

"We try to keep cover on the soil all the time to avoid erosion caused by wind or water. It stores some moisture and by ploughing it back in, it stores some residual nutrition and helps soil health," Mark said.

The seed potatoes are sourced from South Australia, Victoria and Charters Towers in Queensland.

The family carries out a pre-plant fertiliser application of phosphorus with some trace elements, but without any nitrogen, and applies a compound fertiliser with the seed potatoes at planting.

The remaining nutrition is mostly supplied through the side dressing of Haifa Multicote™ Agri controlled release fertiliser (CRF) blends, sourced through Paul Warhurst at Sunfam in Bundaberg.Mark said they make up the CRF blends and apply them two to three weeks after planting.

They use a four-month release Multicote Agri fertiliser with 40 per cent coated potassium nitrate, 40pc coated sulphate of potash and 20pc magnesium sulphate, applied at 350 kilograms/ha, as well as a two-month release Haifa coated urea fertiliser applied at 150kg/ha. The application rates can sometimes change depending on plant densities.

Mark said a lot of bulking up occurs later in the crop and that's when the controlled release potassium nitrate "kicks-in".

They have also trialled the two-month release coated urea product in cane and were able to achieve similar production despite using 20pc less urea than traditional applications.

Mark said their sandy soil was prone to significant leaching.

"With a fall of over 75 millimetres, we could get a lot of nutrient loss. Throughout the crop, we could lose a lot of fertiliser by 90 days (after planting) – and we are not harvesting until 120 days."

"We did some work with a New Zealand company showing how different soil types hold different amounts of rainfall. Ours only holds 25mm before leaching, so with a 75mm rainfall event, we can lose 40-50 units of N."

He said they had been trialling CRF products the past five years and using the Haifa Multicote Agri fertiliser the last two seasons.

"The Haifa fertiliser has been the most consistent product and has handled the blending. Some other fertilisers have had different nutrient releases and can break down in the blending."

Mark said he was also using Haifa's CRF to avoid multiple fertiliser applications in the potato crops during the season.

"We might have been applying up to three applications with a spreader. Now we only apply cal (calcium) nitrate and boron about halfway through the crop – and we have two less products in the shed."

Yields of 15 tonnes per acre are targeted and last season, despite considerable rainfall that caused some damage, a yield of 14.8t/ac was achieved.

Better size potatoes

Mark said they also were now producing better sized potatoes, however this also could be attributed to improved seed potato quality.

Tony Grassick, who works for Mark and also grows potatoes on 25ha of leased land, follows a similar fertiliser regime. He supplies his crisping potatoes under Mark's contract with Smith's Crisps

The Fritz family's potato crops are watered via lateral and overhead travelling irrigators, with some trickle tape also used, drawing from underground water and dams on a couple of properties.

Lighter crops may receive 13 irrigations, with others up to 18 irrigations. Up to 20mm is applied every four to seven days depending upon crop stage and weather conditions.

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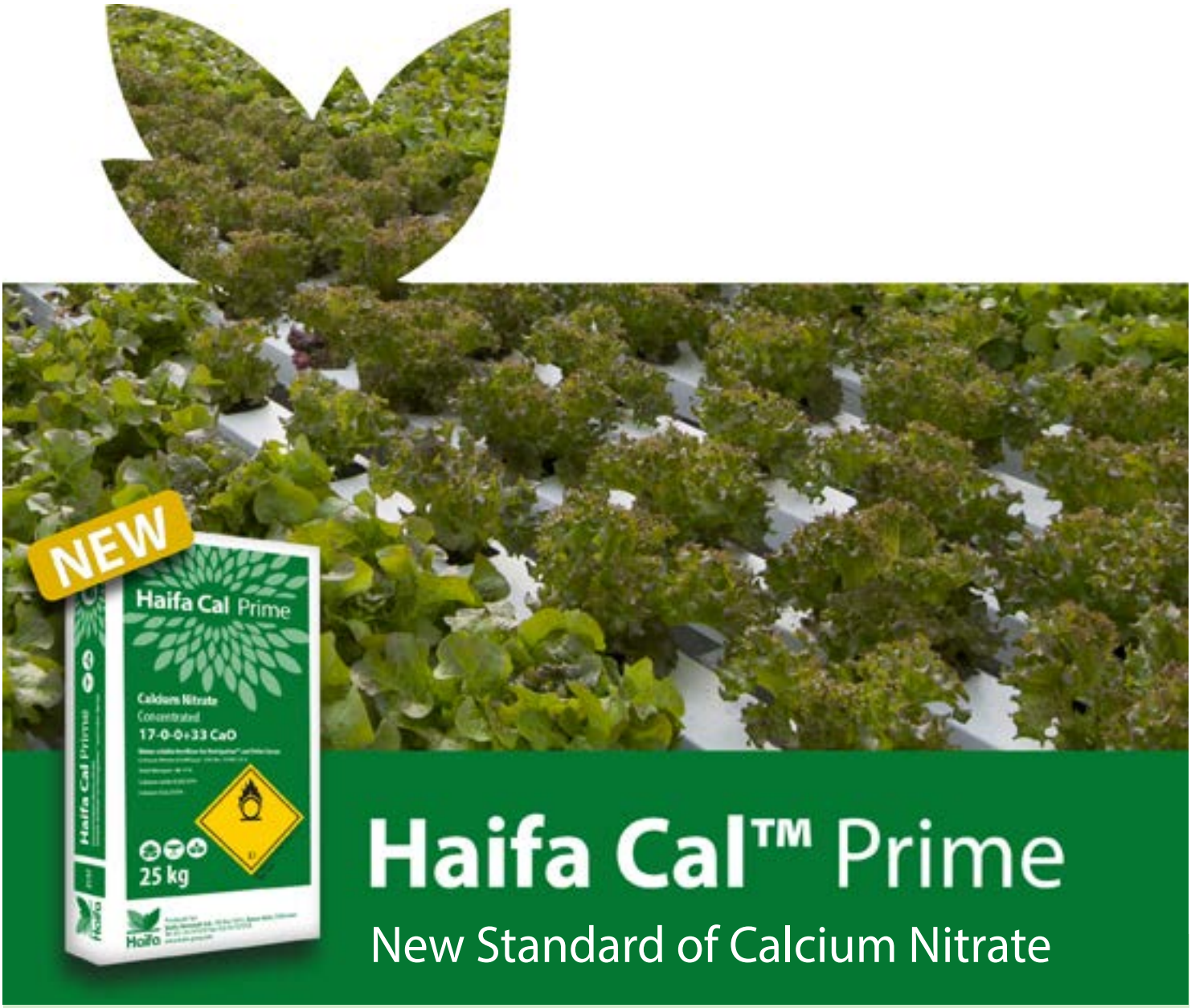
Multicote Agri



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