Issue 35 • July/August 2018

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EDS NOTE

GREG PENFOLD
greg@capemedia.co.za

About one thing there is no doubt: it takes a tremendous amount of guts to farm. Of course, it takes more than that—foresight, intelligence, knowledge, skill, diplomacy, and business acumen are quite helpful characteristics too—but without the basic qualities of courage, endurance, and a certain kind of faith, farmers would quit the land for more comfortable occupations. However, time and time again, farmers win through the tough times and reap the rewards, as nature relents and drops one set of tricks in preparation for another. The citrus industry is a case in point. Last year, it looked like South Africa's most lucrative fruit sector was heading down the slippery slope. Now, things are looking up again in a big way, with citrus black spot close to being lifted from quarantine. We celebrate this opportunity and wish South Africa's citrus growers every success as markets continue to open up for them.

Of course, in today's complicated global network of supply chains, farmers would be nowhere without the professionalism and expertise of other players in the value chain. Of these, one of the most important constituencies is the packing sector, who are responsible for ensuring that the produce cultivated by farmers with such care is sorted and packed in such a way that it doesn't cause consumers dismay. The look of the fruit on the shelf or the plate is what determine's the nation's reputation. Some of our packing companies have very interesting stories to tell—find out more in our packing section this issue.

Naturally, the conversation around land and the constitution remains very much on point. The public is very much concerned, with the Parliamentary Review Committee on the Amendment to Section 25 of the Constitution (dealing with expropriation without compensation (EWC)) receiving over 700 000 written submissions by 15 June. Weighing in on the matter, Citrus Growers Association CEO Justin Chadwick wrote as follows in his newsletter of 29 June:

"The Constitution of a country is the glue that binds all who live in it together. Amendments to the Constitution should not be done lightly. That does not mean that amendments should not be considered – for example, the abolishment of the right to have slaves was a good amendment to the US Constitution—but they should be only considered if absolutely necessary. The US Constitution has been amended 27 times in 231 years (the first 10 amendments are contained in the Bill of Rights that restrict the powers of government). The 22-year-old South African Constitution has already had seventeen amendments.

"The review Committee is now busy with hearings. Looking at snippets from hearings that have taken place so far it seems that most have been held in a cordial manner, with all South Africans sitting together listening to the views of other delegates. This is the important part—no matter what an individual's views on this issue are—it is important that all views are expressed, and all attending the hearings must listen to all these views, and not be restricted by their own views. This process has the opportunity to be nation building or to be divisive. If it is conducted in a responsible manner and if all taking part do so in a spirit of hearing all views and finding a solution to complex issues—it will result in a better South Africa. If divisive elements, emotional rhetoric and political point scoring take centre stage — the opportunity will be lost. Time for strong leadership."

We could not agree more. At the same time, it is necessary to take a broad and general view of things. Our previous issue included an article strongly pitched against expropriation in favour of private ownership; this issue, we consider whether the agricultural system itself, favouring as it does big established players over small farmers, may not be the elephant in the room (see page 50).

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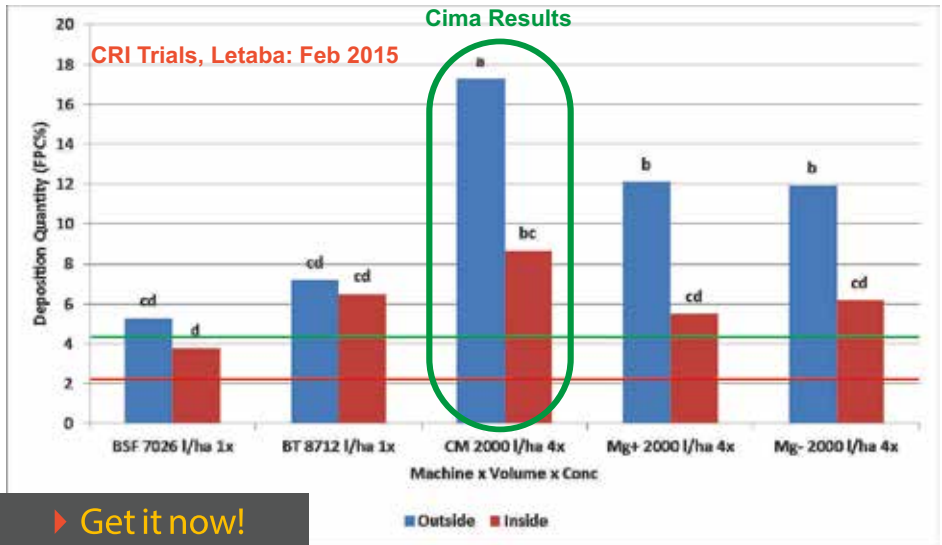

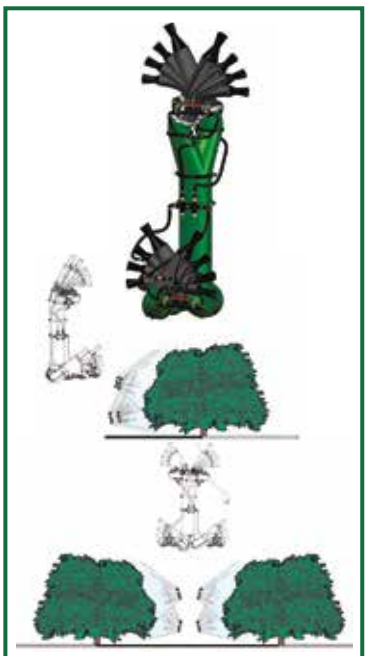

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Passion in packaging paper

Sappi: quality containerboard is their goal

Have you ever stopped to think what goes into the making of containerboard boxes? These versatile storage units are used in point-of-sale displays. They also protect products throughout the supply chain and can be stored flat and/or in bulk before and after use. Advanced design technology makes it possible to develop and deliver customised packaging within days. But where does it all start?

In today's competitive market, paper packaging has to satisfy stringent industry demands and customer requirements to ensure that fresh produce stays fresh: from harvesting through to packaging, transportation, cold storage and merchandising. Sappi, a global pulp and paper packaging manufacturer, understands the need for a visually appealing paper packaging solution that offers the required strength, versatility and convertibility. They are as passionate about paper and packaging as farmers are about their produce.

Sappi's product portfolio was developed to meet the requirements for the agricultural and industrial applications.

Keeping up with trends

Driven by market trends and customer needs, continuous product innovation is a key aspect of Sappi's business. Customers can look forward to paper combinations that offer yield gains and easier convertibility. Examples are the Kraftpride (Liner) and Ultraflute (Corrugated medium) combinations which offer customers options ideally suited for high-end, heavy duty market applications which endure, rigorous conditions within the supply chain. These are particularly useful in the citrus market where cold chains can be demanding.

Kraftpride is a 2ply virgin kraftliner that is laminated to fluting in box applications. It is available in a gammage range of 130 to 340g/m^2. Ultraflute, available in a grammage range of 125 to 180g/m^2, is a semi-chemical flute made with virgin NSSC fibre, a preferred choice for maximizing machine performance and runnability.

> Ultraflute combinations are particularly useful in the citrus market where cold chains can be demanding

In addition, the Sappi Technology Centre in Pretoria offers a value-added service to the agricultural industry by carrying out specialised packaging tests. These include box compression and strength tests, as well as paper-to-box combinations. The boxes are exposed to varying conditions of cyclic humidity to ensure that they maintain their form and do not collapse during the supply chain.

Reliable supply of a sustainable product

"Local seasonal requirements and increased export opportunities for citrus, stone fruit, grape and tropical fruit farmers ensure a continuous demand for paper packaging products. As a company, we value partnerships and collaboration, and are therefore working closely with customers to cater for peak demand periods," says Richard Wells, Sales and Marketing Director Paper and Paper Packaging.

Another important aspect is a product's environmental credentials. The packaging material supplied by Sappi guarantees a recyclable, biodegradable product that is made from renewable resources. This means the fibre used in Sappi's pulp and paper production processes are derived solely from sustainably managed plantations; never from indigenous or rain forests. The company's mills, worldwide, use woodfibre from internationally certified sources that have gone through a rigorous Chain of Custody® (CoC) certification process that carries the stamp of an internationally recognised body such as the FSC® (Forest Stewardship Council®) in South Africa, PEFC® (Programme for the Endorsement of Forest Certification Schemes) in Europe, and CSA® (Canadian Standards Authority) or SFI® (Sustainable Forestry Initiative) in the USA.

This makes the choice for paper packing an easy one. If you're looking for an environmentally sustainable product, from a company that values quality, innovation and the specialised needs of its customers, Sappi is your answer.

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Efficient, functional paper packaging

Sappi provides a range of paper for packaging products, all manufactured to world class standards, for a variety of agricultural and industrial applications. Paper combinations of UltraFlute®, KraftPride® and FusionTopliner® offer strength and high humidity benefits, as well as yield and cost advantages to converters.

This ensures visually appealing, cost-effective end-use products that will retain their required performance in the supply chain. Paper is a versatile medium for packaging to protect products from farm to market, and is made from renewable resources.

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Swings and roundabouts

After a tough year, a favourable citrus forecast

In less than a year, the South African citrus industry has made a dramatic turnaround—good news for farmers and the economy as a whole. Citrus, especially oranges, which account for 63% of the total hectares under citrus, is South Africa's most precious crop. In the 2016/17 season, despite the drought, total gross producer value for oranges reached R9.29 billion, 91% of which came from export of R8.47 billion.

However, as recently as October, analysts were asking whether South Africa's most precious fruit export was slowing down.

The lowest rainfall since 1904 and a sharp fall in dam levels during the 2015/16 production season caused a 21% drop in orange exports. Even more challenging than the drought, though, is disease.

According to Paul Makube, Senior Agricultural Economist at FNB, "Diseases are the real challenge for the industry. South Africa's main export destination, the European Union where the Citrus Black Spot (CBS) is considered a quarantine pest, has caused consternation between the two trading partners. Another disease is Navel splitting; it has affected the Western Cape so much so that exports there have reportedly dropped by about 17% to 20% [in 2017]. This raised demand for navels from other regions of South Africa particularly at the time when the export market was particularly strong in the EU, the Far East, Russia, and the Middle East."

Since the European market accounts for some 36% of total orange exports, the negative impact of a decrease in this sector would be severe.

"Producers have started to switch to soft citrus, which in the longer term may eventually lower the status of oranges as the leading fruit in terms of production and being the export leader in terms of fruit in South Africa," said Makube.

However, the outlook improved as soon as the weather took a turn for the better, resulting in a recovery in orange production and a rebound in export volumes offset by the relatively weaker rand exchange rate.

According to a report by the United States Department of Agriculture (USDA) Foreign Agricultural Service, overall, South Africa will produce more oranges, grapefruit, lemon and limes in the 2017/18 median year, "based on the increase in area planted and normal weather conditions in the main growing regions of Limpopo, Eastern Cape and Mpumalanga", three provinces which collectively account for which account for some 82% of total orange production. At the same time, "the current drought conditions and low winter rainfall received in the Western Cape is expected to severely restrict the availability of irrigation water",

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meaning less production of tangerines, mandarins, lemons, limes and oranges.

Grapefruit production is forecast to increase 400 000 megatonnes (mt), for an 8% in exports to 250 000 mt.

.Normal rainfall, no damage and increased growing area are expected to yield a 2% rise in orange production, with exports forecast to rise by 1% to 1.18 Million mt. Ongoing efforts to address EU market uncertainy owing to Citrus Black Spot have contributed to this favourable situation.

The production of lemons and limes is anticipated to rise by 6% to 420 000 mt, with increased yields in Limpopo and the Eastern Cape somewhat offset by drought-related losses in the Western Cape, where some 10% of South Africa's lemons and limes are grown.

In the Western Cape, the impact of the drought meant that tangerine and mandarin production was expected to drop by 9% to 230 000 mt, with exports declining by 15% to 180 000 mt.

Commenting on the ups and downs of the season in their April newsletter, the Sundays River Citrus Company said, "This highlights the risks and unpredictability of agriculture and emphasizes the need for very careful financial management in the operation of a citrus farming enterprise. Significant costs are incurred in the preparation of a crop, ahead of the realization of the income from that crop and if the results are not up to expectations the business will be placed under financial pressure."

Perhaps the most significant event of the year, however, is what has been widely described as a watershed moment for the South African citrus industry, namely, the publication in June by the USA of a rule amending SA-USA citrus importation regulations.

Whereas before, only CBS-free citrus from the Western and Northern Cape was allowed, the rule published on 11 June in the United States Federal Registry has instituted a process to allow all citrus-growing regions in South Africa to export. , the Animal and Plant Health Inspection Service (APHIS) has now "put its money where its mouth is", as one industry representative puts it. It is not final yet, but there is a process to allow citrus from across South Africa and it is close to certain that the wording of the rule, as it currently stands, will be accepted.

The amendment reads: "This action will allow for the importation of fresh citrus fruit, including citrus hybrids, from the Republic of South Africa while continuing to provide protection against the introduction of plant pests into the United States."

Commenting on the development, Citrus Growers Association (CGA) CEO Justin Chadwick wrote in his newsletter of 15 June, "Publication of the final rule will be widely appreciated by those in the industry who have been (im)patiently waiting for the final rule to be published. All industry players understand the importance of taking advantage of this new opportunity in a responsible manner. There are recent examples where access can be short lived if attention is not given to all access conditions and market requirements. The industry will build on the example shown by growers in the Western and Northern Cape, who have nurtured this market, built strong relationships through disciplined marketing, and paid attention to ensuring quality, phytosanitary, sanitary and market needs are met."

Minimum wage negotiations bear fruit

On 7 June 2018, the Sunday's River Valley Citrus Producers Forum (SRVCPF) resolved the minimum wage discussions for citrus workers in Sundays River Valley, with producers agreeing to pay a minimum wage of R20 per hour.

The new minimum wage will stand for two years, effective 7 June 2018. The resolution follows mediation sessions held by the Provincial MEC of Agriculture with SRVCPF.

Hannes de Waal, SRVCPF chairman, comments on the resolution saying: "The SRVCPF is an association that addresses all citrus issues and service delivery, and it's important to note that the recent actions were directed towards the citrus industry in the Valley as a whole.

"It is regretful to have seen such violence and damage within the Valley, but we want to press on positively and look forward to welcoming all our workers back to the farms tomorrow [Friday, 8 June, 2018]."

Citrus workers demanded the national minimum hourly wage of R20 that was recently passed by parliament but is not yet legally enforceable. Once gazetted the minimum wage for farm workers will be R18 per hour, to be reviewed annually.

The original intention was to make the new minimum wage for farm and domestic workers, valid from 1 May 2018; but the legislative processes missed the deadline, and there are still specific administrative steps to go through before becoming law. The legal effective date is still unknown and is yet to be published in the Government Gazette.

SANCO was not recognised by SRVCPF as a negotiating partner on behalf of the employees given the existence of trade unions and workplace forums established by employers and their employees in the valley.

Therefore the Provincial MEC of Agriculture, Hon. X. Nqata, worked with SANCO and SRVCPF to achieve a resolution and will encourage and support compliance of the agreed resolution.

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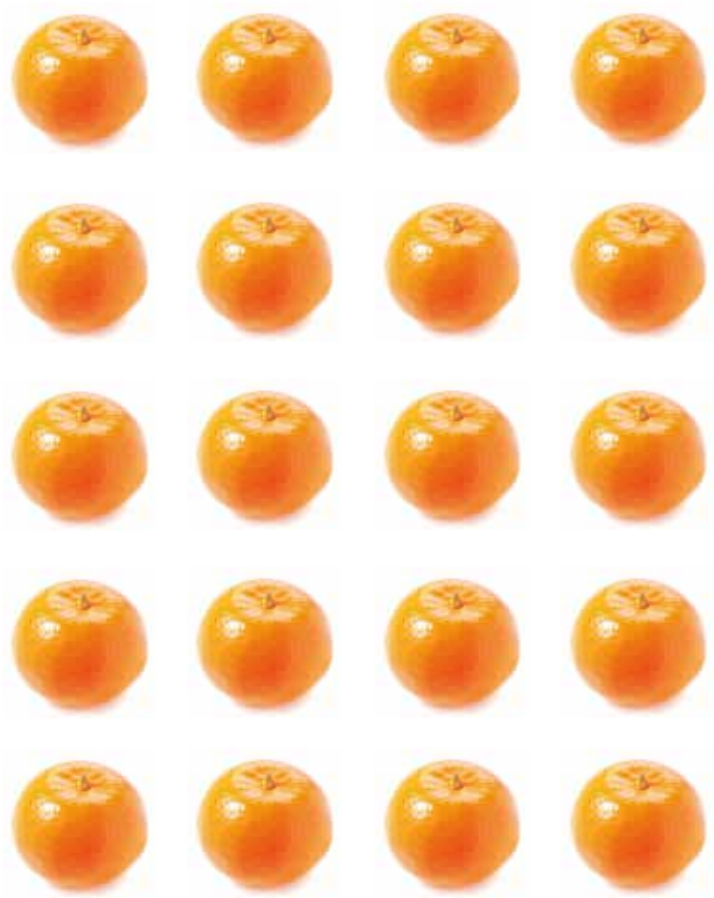

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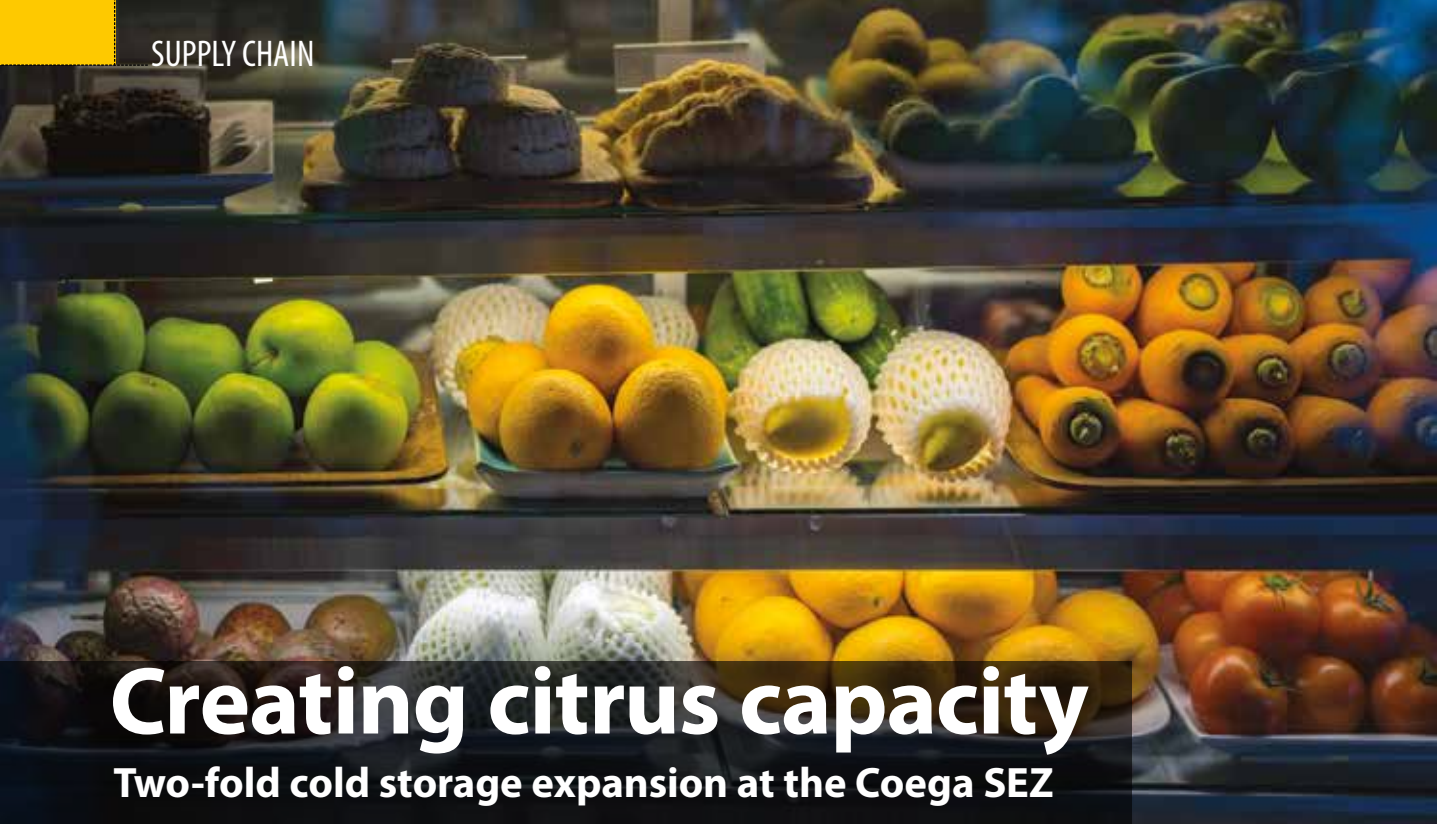


Creating citrus capacity

Two-fold cold storage expansion at the Coega SEZ

One of the very first exports-orientated investors to locate their facility at the Coega Special Economic Zone (SEZ) was the Port Elizabeth (PE) Cold Storage plant. Now, to the benefit of the citrus and pome fruits industry, the company is once again expanding its facility at Coega.

The investment of R10 million is the second expansion within a space of two years, following the R100 million investment by the company in 2017.

Then, FPT Group (previously known as Fresh Produce Terminals) decided to convert its citrus storage facilities at the original Port Elizabeth harbour to a manganese terminal because the mineral means year-round business, compared to business only during the citrus season lasting five months.

This would have resulted in a shortage of pre-cooling facilities for Eastern Cape fresh produce, particularly citrus, leaving the harbour for export markets. PE Cold Storage stepped in and accelerated their cold storage warehouse expansion plans at Coega (originally to have been ready in 2020/21) in order to have new cold storage ready at the start of the 2017 citrus season.

Expanded cold storage capacity was also necessitated by a growth projection of 25% in citrus volumes over the coming years, due to increased plantings coming into production. The facility will additionally accommodate the pomefruit industry during summer, with apples and pears from the Langkloof pre-cooled for export starting in February.

Capacity is now such that when the citrus and pomefruit seasons overlap, both operations can run concurrently.

Now there is going to even more capacity.

"We doubled our capacity of 7,500 pallets to around 15,000 pallets storage. The expansion complemented our state of the art modern storage facility and accommodated greater volumes for the increasing citrus production in the Eastern Cape," says George Efstratiou, PE Cold Storages' co-director.

The current project will see the company play a critical role in the refrigeration and short-term storage of citrus products before distribution to markets around the world. The new building will comprise of a new workshop, facilitate the servicing of forklifts and vehicles of the company.

"We are very excited with the project and the vast opportunities it brings for the company. Currently we have over 100 people employed at the PE Cold Storage facilities. As a result of the expansion we have managed to create an additional five permanent jobs and a further 25 construction jobs," adds George.

Highlighting the importance of locating in an enabling environment, George said, "The Coega SEZ has been the ideal investment destination for our company. I would definitely encourage more investors to come and invest at Coega due to the clean and secure environment as well as the good services and facilities provided and being situated near the Port of Ngqura."

These sentiments supports the recent independent study conducted on the impact of the Coega in the Nelson Mandela Bay Municipality and Eastern Cape. For example, over 80% of the companies that have invested in the Coega SEZ have seen an increase in their profits since starting operations in the zone, these include Coega Dairy and PE Cold Storage, among others with the benefits felt throughout the Nelson Mandela Bay Metro and the rest of the province, according to an independent research conducted by Muffin Consulting.

In addition, 85% of investors have increased their workforce, sixty two percent (62%) have expanded their factories, more than 90% described the Coega SEZ and its Logistics Park inUitenhage as the ideal location for small and big industries, private sector investment accounts for approximately 70% of the total investment value at Coega, over 78% of suppliers to investors are local.

A fruitful process

Matching today's productivity needs

Responsible for around 80% of Southern Africa's citrus juice extraction activities through its full maintenance extractor leasing program, JBT has established a strong foothold in the food and citrus processing industries in South Africa.

Operating from its Cape Town, Brackenfell plant, the company has used its wealth of international experience from widely varied markets such as Brazil, California, Florida, Europe and China in order to install and benefit regional bases as far afield as the Eastern and Western Cape, Northwest, Lowveld, Northern Province, Swaziland and Zimbabwe, where a number of big citrus producers are located.

"Juice plant installations have also been done further in Africa, such as Nigeria," says Dirk van Wyk, Managing Director of the company.

JBT plays a major role in food processing, with its wide range of processing systems including filling and closing systems used most notably in the canning of fruit, vegetables and fish. In addition, JBT has a complete selection of retort packaging systems which allow for the sterile packaging of foods and drinks in laminates or foils, including static, rotary and automated water spray retorts. Moreover, its filling and closing systems comprise a full range of self-lubricating and CIP fillers and seamers, matching today's needs for higher productivity, reliable performance and flexibility. With almost a 100 years of canning service to their name, JBT's Continuous Rotary Sterilizer range of four models is impressive with the Classic Series model being exclusively manufactured in Cape Town.

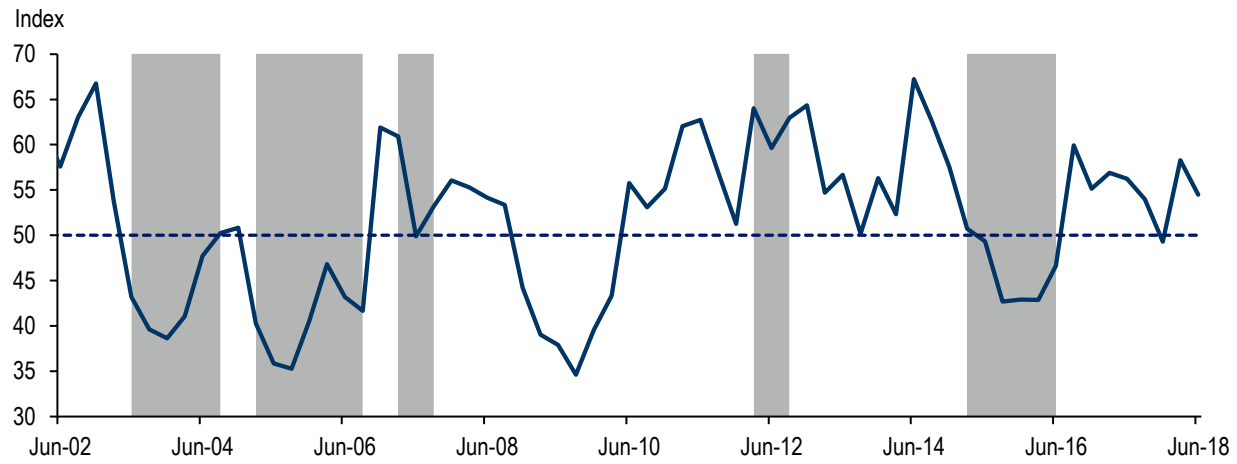
"JBT Citrus Systems has always been the leader in extraction technology and as the company's development approach is customer requirement driven, new products and process improvements are continuous," Mr Van Wyk says.

JBT recently launched a new free information service, "The JBT Liquid Foods Blog". Access customer case studies, product tips and hints, and the latest event and product news at: http://jbtliquidfoods.com/

Wait and see

IDC Agribusiness Confidence Index declines in Q2, 2018

Figure 1: Agbiz/IDC Agribusiness Confidence Index[1]



Source: Agbiz Research, South African Weather Service
(Shaded areas indicate periods when rainfall across South Africa was below the average level of 500 millimetres)

Subsequent to an uptick to 58 index points in the first quarter of this year, the Agbiz/IDC Agribusiness Confidence Index declined to 54 in the second quarter. With the results still above the neutral 50-point mark, albeit having declined marginally, this means that the agribusiness sector is still optimistic about business conditions in South Africa. The survey was conducted between 04 June and 15 June 2018 and comprised of agribusinesses operating in all agricultural subsectors across the country.

Amongst the ten sub-indices making up the Agbiz/IDC Agribusiness Confidence Index, the quarterly decline was broad-based, with the exception of the general agricultural conditions sub-index. The optimism in this particular sub-index was underpinned by prospects of above normal rainfall in the Western Cape province within the next three months, which in turn, should support winter crops and horticulture fields, as well as favourable drier conditions for harvest activity in summer crop regions.

Meanwhile, the turnover, net operating income, market share, employment, capital investment, the volume of exports,economic growth, debtor provision for bad debt and financing costs sub-indices were the key factors underlying the decline in confidence from the previous quarter.

Discussion of the sub-indices

Following a 10-index points increase to 78 in the first quarter of 2018, confidence regarding the turnover sub-index deteriorated to 64 points in the second quarter of this year. This could partially be explained by the expected decline in agricultural output this year, although some field crops are still at above-average levels, particularly grains and oilseeds. In a similar trend with the turnover sub-index, confidence in net operating income sub-index declined by 9 index point to 58 in the second quarter of 2018.

The market share of the business sub-index declined by 15 points from the previous quarter to 53. This despondency is due to a delayed harvest period in summer crops on the back of the late start of the season, as well as the aforementioned expected lower agricultural output. Case in point is the horticulture industry following the Western Cape drought, and to a lesser extent in the summer crop areas.

Confidence regarding employment in the agricultural sector retreated by 19 points to 56, which is the lowest level since the first quarter of 2017. This is unsurprising following a 3% y/y decline in agricultural employment in the first quarter of the year to 847 000 jobs. Moreover, the above-mentioned decline in agricultural output will translate to reduced activity in the fields, which could limit the chances of increased employment in agriculture in the near term.

After improving to 68 points in the first quarter of 2018, the capital investments confidence declined by 4 points in the second quarter of 2018 to 64. The uncertainty regarding land reform policy was cited by respondents as one key factor behind the deterioration in confidence.

The perception regarding export volumes sub-index deteriorated further by 17 index points in the second quarter of 2018 to 39. This is largely due to decline in horticultural products output, as well as regulatory issues in livestock products such as ostrich meat (fresh and pre-cooked), which has been restricted to accessing the European Union market sine since 1 March 2018.

The perception regarding economic conditions weakened by 18 points in the second quarter of this year from the previous quarter to 50. The respondents' perceptions could have been influenced by the recent poor GDP data for the first quarter of 2018, which showed a -2.2% quarter-on-quarter seasonally adjusted and annualised, compared with a consensus expectation for -0.5%.

The debtor provision for bad debt sub-index lifted by 10 index points from the first quarter to 50. This still mirrors the tail-end effects of the drought, particularly in agribusiness operating in the Eastern and Western Cape provinces.

The financing costs sub-index also lifted by 34 index points from the previous quarter to 64 in the second quarter of this year.

Concluding remarks

Although the Agbiz/IDC Agribusiness Confidence Index results showed a marginal decline from the first quarter, there is still some optimism regarding business conditions in the South African agricultural sector. The forecasts of above-normal rainfall in the Western Cape province bodes well with winter crops and also horticulture industry, following months of persistent dryness in that province. The summer crop harvest activity is also on good footing supported by cool and dry weather conditions across most parts of the country.

'The uncertainty regarding land reform policy, particularly expropriation without compensation, remain a key risk that could potentially undermine investment in the agricultural sector. At this point, however, farmers are somewhat in a wait and see mode. We have not seen a notable dent on investments in the sector yet.

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[1] The Agbiz/IDC Agribusiness Confidence Index reflects the perceptions of at least 25 agribusiness decision-makers on the ten most important aspects influencing a business in the agricultural sector (i.e. turnover, net operating income, market share, employment, capital investment, export volumes, economic growth, general agricultural conditions, debtor provision for bad debt and financing cost). It is used by agribusiness executives, policy-makers and economists to understand the perceptions of the agribusinesses sector, and also serves as a leading indicator of the value of the agricultural output while providing a basis for agribusinesses to support their business decisions.

All abuzz about bees

New strategy to save apiculture

The Department of Agriculture, working with bee associations in the Western Cape, has released a new strategy aimed at ensuring the sustainability of the bee population in the province.

The honeybee is as important to agriculture as water, land and air. According to the South African National Biodiversity Institute, more than 50 different crops in South Africa are reliant on insect pollination.

In the Western Cape, 50% of commercial bee keepers' revenue currently comes from pollination services with the remaining 50% coming from the production of honey and other bee related products. The National Department of Agriculture, Forestry and Fisheries currently lists 130 000 managed colonies of bees and 1800 beekeepers on their records. About 70 000 of the colonies are based in the Western Cape. However, the numbers are thought to be much larger, because of unregistered colonies and bee keepers.

According to Hortgro, the current pollination needs required by bee dependent deciduous fruit crops are 65 000 pollination units- a demand currently being met.

This is forecast to grow by at least another 30 000 units over the next decade due to new cultivars and growth in agriculture. The seed industry is also forecast to increase demand for pollination units by 30 000 over the next decade, and berry growers, by another 20 000 units. In effect, the demand for pollination services is expected to double in the next decade.

However, the bee industry has identified several problems affecting bees, among them insufficient forage, theft and vandalism, disease, environmental hazards such as pollution and exposure to external factors such as fires and drought.

The new strategy aims to ensure the continued sustainability of the bee population by focussing on five key areas:

- Ensuring sustainable bee forage
- Research and innovation
- Developing a regulatory framework
- Transformation in the industry
- Governance and stakeholders.

The single largest concern is that there will not be enough forage for bees in the Western Cape. South Africa's honeybee species rely on both indigenous and exotic species, like eucalyptus, flowering crops and suburban plants to provide forage sources year round. One major problem is that eucalyptus has been targeted by DAFF's Working for Water programme because they are an alien invasive species. This has seen six species of the tree being targeted for removal, even in contexts where they pose no water threat.

The strategy proposes that a Bee Forage Commission be established, which will be composed of players from various provincial and national government departments as well as universities, and representatives from the bee industry. Among the projects this commission will undertake will be the development of a plant book exploring bee friendly plants, a campaign with nurseries to mark plants as "bee friendly" in much the same way some species are being marketed and sold as "water friendly", and exploring the possibilities of a mass be forage planting project.

Minister of Economic Opportunities, Alan Winde welcomed the strategy and said "we need to take this document with its implementation plans and ensure that each goal sits with somebody who is going to make sure that it becomes a reality."

Minister Winde said that a properly regulated and managed industry, had the potential to create jobs and expand the economy.

"The report shows that in South Africa, we import a lot of honey. South Africa has imported 2 000 tonnes of honey annually since 2010, and honey production has dropped to 40% of what it was in the 1980s. This is an agri-processing opportunity, to produce local honey, and honey-related products right here in the Western Cape," he said.

Chairman of the Western Cape Bee Industry Association, Dr Tlou Masehela said "this is a good opportunity for us. This is a detailed plan and we now have a line of communication with the various government departments. This will require resources, and we must explore ways of getting those. The industry at large should really pull together and make this work."

The full report can be downloaded here: http://elsenburg.com/content/agriculture-releases-strategy-sustain-honey-bee-population-western-cape

Optimised crops

Integrated plant energy management

Produce healthy and affordable food by implementing acceptable and sustainable methods and practices. Start using less chemicals and more natural products, making it possible to keep up with the nutritional needs of the world. Concentrate on the development and use of environmentally friendly products and methods that promote human health. These are the demands of the modern consumer. This is what a producer of fresh produce has to achieve.

The key to overcoming the challenges of optimal crop production and thereby ensure wealth creation by sustainable agricultural practices, is Integrated Plant Energy Management (IPEM) where the emphasis is on producing healthy and affordable food by implementing acceptable and sustainable methods and practices. We use natural products enhanced with mineral nutrients utilizing the best qualities of both worlds. This can only be achieved if it is commercially viable with yields and acceptable return on investment. Here the concept of Integrated Plant Energy Management (IPEM) comes to the fore.

There are different milestones in the growth in the cycle of a plant where the demand for energy is greater than the reserves available. This occurs in cereals at initiation and when switching from vegetative to reproductive/generative phase. With vegetables, perennials and trees it occurs at blooming, cell division and fruit fill.

If this unique energy requirement is not fulfilled, the plant can experience an "energy crisis". This is so called metabolic stress, where the probability for pathogens and insect attack increases, because of the lack of available energy to drive the enzymatic/hormone system in the plant. These functions are responsible for optimal metabolism and defense against pathogens.

Plant energy can be optimised with the following essential plant/crop components: enzymatic systems, calcium and its functional components, and functional available Carbon (-COOH)

With the addition of an excellent natural organic metabolite, functional Carbon (-COOH) and Ca++, the plant's energy curve is put back in balance.

Making headway against headwinds

Securing competitive advantage and advancing investment opportunities in agriculture

Nico Groenewald

South African agriculture still offers many investment opportunities despite headwinds caused by drought in parts of the country and policy uncertainty.

A shock 2.2% GDP decline in the year's first quarter was largely the result of agriculture dipping by almost 25%. But the sector is expected to recover rapidly as financing, innovation and expansion kick in during the remainder of the year.

Nico Groenewald, Head of Agribusiness at Standard Bank, says agriculture's decline is no reason for alarm, as it was largely due to the sector coming off a stellar 2017 fourth quarter. In Q4, it was the leading light of the economy after reaching 37.5%.

The longer-term trend also paints a promising picture. After contracting for every quarter in 2015 and 2016 due to southern Africa's drought conditions, the agriculture, forestry and fishing industry actually expanded for four consecutive quarters prior to the Q1 data.

While land policy remains contentious, consumer and business confidence is rising. Combined with population growth and urban expansion, this is driving the need for a vibrant agriculture sector. In turn, says Mr Groenewald, sectors higher up the value chain, such as agri-processing, fruit packing and aquaculture, are drawing investor attention—both from within the continent and abroad.

Agriculture's contribution to South Africa's economy has declined by almost 8% from the '60s onwards. Nevertheless, it's becoming more crucial to the national economy's health, and it's also an important source of employment in rural communities for unskilled and seasonal workers. Data from AgriSA shows that the number of people working in agriculture has increased by 29% from 624 000 in 2011 to 881 000 in 2016.

The future of global food systems will be defined by the Fourth Industrial Revolution, which is disrupting traditional business models. It's important that skills development in agri-business keeps pace, as, according to Mr Groenewald, this will ensure farms and related businesses adapt to the new digital world and can thrive.

"The rapid pace of digital innovation is challenging agricultural businesses to transform. Developing countries have a tremendous opportunity to move to higher productivity across economic value chains, as they can bypass older technologies."

The World Economic Forum's New Vision for Agriculture holds that to meet the world's needs, sustainable agriculture must simultaneously deliver food security, environmental sustainability and economic opportunity.

"More needs to happen at commercial and government level for this to be realised," says Mr Groenewald. "For instance, market-based approaches through a coordinated effort by all stakeholders, including farmers, government, civil society and the private sector need to be leveraged more."

Scaling the transformation through finance, infrastructure, institutions and monitoring is the recipe for success. For instance, policies that promote digital and financial inclusion will drive the growth of rural entrepreneurs and rural economies.

"While good farm management will help keep pace with digital challenges and opportunities, policy support remains crucial for agriculture to thrive, including those that encompass infrastructure development, energy provision, and improved educational facilities."

However, under-investment in agricultural research by many countries in sub-Saharan Africa is a concern. South Africa, for instance, allocates less than 1% of its national budget to agriculture, negatively impacting research and development.

"South African agriculture certainly faces challenges, but it also has many opportunities given our well-established trade links with Europe and new markets that are opening in the Far East," says Mr Groenewald. "Being one of the major food producers in Africa also puts us in an excellent position to capitalise on the growing population and rapidly expanding economies on the rest of the continent."

Potato power

Assisting emerging farmers to become profitable

Potatoes South Africa has been engaged in the Enterprise Development Programme for the past eight years. The initial aim of Enterprise Development was to engage six farmers every year in the programme. This decision was based on the available budget and the cost of producing potatoes. We have since reviewed this strategy as we want to ensure that we assist participants into becoming commercial farmers at the end of the day. Currently we can provide support for up to 30 hectares per farmer, which is the minimum for a commercial unit of potatoes according to industry norms.

Since the inception of the Enterprise Development Programme, Potatoes SA has assisted more than 40 black farmers by investing R25 million in the programme. This has gone a long way toward assisting the farmers to establish themselves in the potato industry, given that the cost of producing one hectare of potatoes under irrigation ranges between R160 000 and can go as high as R230 000 in the Limpopo region.

We constantly receive applications from farmers who want to join in the Enterprise Development Programme, and it is therefore fitting that we have criteria in place for selecting new entrants. One of the criteria is access to sufficient land: for example, the farmer must have access to a minimum of 120 hectares of arable land for planting 30 hectares of potatoes, since potatoes is a rotation crop. Another criterion is the availability of irrigation to optimise returns in terms of tonnage.

The second focus area of Potatoes South Africa's Transformation Core Business is the Small Grower Development Programme. This programme involves farmers who plant potatoes mainly for food security with the surplus crop sold to the immediate community. The main goals of this programme are to:

- Disseminate production and business information through trials;
- Provide farmers with practical training on good potato production practices; and
- Utilise cultivar or demonstration trials as a way of educating, training and disseminating important production information necessary for successful potato production.

More than 4000 farmers have been reached through this programme, which has contributed significantly to improving the food security of numerous households in different regions. During the 2017/2018 financial year, Potatoes South Africa supported 14 Small Grower Development Projects with each project generally being attended by an average of 50 farmers.

As a major role player in the potato industry, we believe that training is key to achieving the objectives of Black farmer development. We conduct research to identify the gaps that exists and training is rolled out accordingly. Some of the objectives of our training programmes are to:

- Uplift the skills of the emerging farmers focussing on decision-making and understanding their role;
- Assist in developing potato farmers with technical and business skills to enable them to farm profitably; and
- Improve the quality of potato production by improving the knowledge base of the potato farmer.

We have been providing bursaries and an internship programme to deserving students at agricultural colleges and universities. This year, 15 new students were approved for funding at different universities and colleges. Our bursary funding has gone a long way in developing much needed researchers and extension officers to service the growing agricultural industry. The Internship Programme and the Workplace Experience Programme provide students with the necessary exposure, making it easier for them to be absorbed into the industry during this period of high unemployment.

Nomvula Xaba, Manager: Transformation

This year, we hosted the 5th Potatoes South Africa Transformation Symposium in Pretoria. The primary objective of the Transformation Symposium is to create a platform for black potato farmers and community project leaders to meet, discuss problems, find solutions and plan the road ahead. Furthermore, it is an opportunity for role players in the potato value chain to meet and be part of the solution in the quest to assist black potato farmers to become fully-fledged commercial potato producers. The Symposium also provides Potatoes South Africa with the ideal opportunity to showcase progress made and successes achieved in the potato industry as far as transformation is concerned. This year's Symposium was even more exciting as the first ever Enterprise Development Farmer of the Year, Mr Pophi Raletjane of Limpopo, was announced at the prestigious Gala Dinner. We believe that this occasion will motivate our farmers to work even harder to achieve the objectives of transformation within the potato industry.

First ever Potatoes South Africa
Enterprise Development Farmer of the Year

ltr: Nomvula Xaba, PSA Transformation Manager, Dr André Jooste, CEO PSA, JF Van der Merwe, Chairperson PSA, Phophi Raletjena, PSA Enterprise Development Farmer of the Year and Bernhardt du Toit, Chairperson PSA Transformation Committee

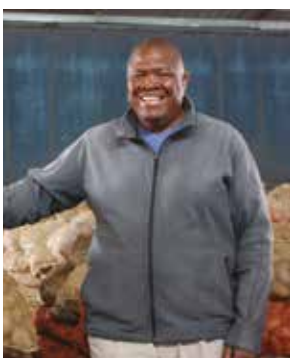
The first ever Potatoes South Africa Enterprise Development Farmer of the Year, Mr Phophi Raletjena, was announced at the Gala Dinner of the Potatoes South Africa Transformation Symposium held at the Saint George Hotel in Pretoria on 07 June 2018.

The finalists:

The finalists were Vuyani Kama from Ugie in the Eastern Cape. He started out with 5 hectares of potatoes and expanded to 30 hectares. He plants predominantly Mondial and Sifra cultivars on dryland. David Phike from Welkom in the Western Free State started out with 5 hectares and expanded to 7 hectares. He predominantly plants Mondial under irrigation. Phophi Raletjena from Vivo in Limpopo started out with 5 hectares and expanded to 30 hectares. He plants Mondial under irrigation. Read more on the Potatoes South Africa website at http://www.potatoes.co.za/transformation-potato-development-programme/transformation-symposium-.aspx

David Phike, Welkom, Western Free State

Vuyani Kama, Ugie, Eastern Cape



Phophi Raletjena, Vivo, Limpopo

potatoes aartappels SA

History in the remaking

Packaging from past to present

New by name, we come with an impressively packaged past. Neopak's heritage as a leader in corrugated packaging board started back in the 1920s. Beginning with Herzberg Ltd box makers and Transvaal Box, the business moved through decades of industrial growth in the 40's, 50's and 60's, finally to become established as part of National Packaging Ltd (Natpack) in 1963. Five years later, API and Natpack merged to form National Amalgamated Packaging Ltd or Nampak.

Through the 1970's, Nampak saw a succession of acquisitions, first by the multinational Reed Group and then by Barlows. Nampak's significant growth and consolidation through the 80's and 90's saw major developments in product offering and production expansion.

In 2015, Ethos Private Equity saw opportunity in specifically acquiring Nampak's corrugated division. A specialist business founded almost a century ago, evolving into a major industry player, is now primed for 21st century innovation. **Welcome to Neopak, where a whole new chapter in product and service excellence begins.**

What we do best

Neopak is a dedicated, corrugated packaging business. With every project and undertaking we see more potential for innovation and refinement of our product offering and supply chain service. When you have a sole purpose, you tend to become really good at it. We've found that business partners grow with us for three main reasons:

Industry experience

Whether commercial or agricultural, we have the practical under- standing and track record of delivering what works.

Highly skilled and solutions-agile team

Specific requirements need a tailored approach. Having a hands-on team that can adapt and accommodate, makes for intelligent business practice.

Longer-term, proactive partnership in your packaging requirements

Market conditions change constantly. A packaging solution is as good as its continued cost-effectiveness. With Neopak, you stay on your game. The more we understand your business needs and expectations, the more focused and exceptional our product & service delivery. You are partnering with a committed, specialised business.

Innovation is a habit

At Neopak, we have ever-curious minds. It's the reason we show up in the morning. When you structure a team to think through-the-box, every day, you would be surprised just how much keeps coming out of that box. Not only do we strive to maintain industry standards, but we also aim to create benchmarks.

Leadership thinking

Our team is empowered to do more than get the job done. Fresh ideas aren't managed top down. If there's a better way, it is likely to come from the day-to-day interaction with your business.

Change is constant

Everybody knows it. Everybody says it. Not everybody does it. We are regularly reviewing and reinventing with the changing face of business.

Technology first

More than boxes, our business is about intelligent, optimised, supply chain support. We run systems, like our unique MITact tool, that ensure fluid, cost-effective processing. Neopak maintains licence agreements and technical alliances with leading international paper and packaging producers. This ensures you consistently get the benefit of worldwide trends and developments.

Dedicated expertise

Industry sectors require specific insights and infor- med approaches. Neopak operates effectively across commercial and agricultural, as well as export markets.

Commercial

FMCG is predominantly Neopak's market, partnering with leading Southern African brands for local and international consumption. Economies of scale require high-volume automation. We continue to develop successful models and design standards that achieve highly efficient supply chain solutions, especially for these commercial markets:

- Perishable – such as frozen meat, fish and poultry
- Non-perishable – including tinned foods, snacks, biscuit and condiments
- Beverages – ranging through alcoholic, non-alcoholic, juices and water
- Home care – from grooming and toiletries to home cleaning products
- General trade – across tobacco, emulsions and fast foods

Agricultural

Maintaining quality control of fresh produce during transport, is essential right through the supply chain. Neopak ensures smooth, uncompromised delivery, with proven expertise in the following:

- Citrus – including lemons, limes and oranges
- Deciduous – such as apples, pears and peaches
- Sub tropical – with avocados, mangoes and pawpaws
- Local produce – butternut, lettuce and tomatoes

Export

The Neopak export division offers a well-established network of reputable freight forwarding agents. Container loading and documentation is properly overseen to ensure hassle-free cross-border delivery. We also supply paper and packaging solutions to Sub-Saharan customers and retain dedicated teams in East and West Africa. Sea freight operates out of Cape Town and Durban, while central African distribution is operated out of Gauteng.

Impressive footprint

Neopak boasts four manufacturing mega plants across South Africa and two paper mills in Tshwane. State-of-the-art equipment, with high-level technical expertise, delivers top end corrugated packaging solutions.

Our Paper Laboratory houses highly qualified scientists and leading technologists who regularly review strength tests, moisture vapour transmission and water resistance appropriate to industry-specific requirements. Specialty Plants undertake specific projects for automotive, white goods and tobacco industries, amongst many others, to add competitive value.

Empowered

South Africa's Broad-Based Black Economic Empowerment (BBBEE), is a social and economic measure intended to uplift previously disadvantaged communities. Companies require annual auditing and rating according to their commitment and achievement across employment equity, skills development, ownership structures and socio-economic development.

Dedicated to social responsibility, Neopak, together with majority shareholder Ethos Private Equity, is a committed participant and contributor, achieving a Level 4 BBBEE rating in line with the new codes.

A friend to the environment

The knock-on of our recycling processes is a major benefit to businesses and brands committed to environmental best practice. All Neopak plants and mills comply with internationally recognised quality, safety and risk programmes, including the ISO9000, 14000, AIB (American Institute of Bakers) and other recognised standards.

Locations of plants and mill

Mega Plants	*Speciality Plants*	*Paper Mill*
Cape Town *Port Elizabeth* *Wadeville* *Durban*	*Cape Town* *Port Elizabeth*	*Rosslyn*

Better packaging for a better world

A fully integrated approach

With a 50-year history, Corruseal has grown through a combination of organic growth, acquisitions and partnerships into a fully integrated supplier from waste collection to finished box. With a footprint across South Africa of 10 manufacturing sites and over 1500 people.

A key driving factor to our philosophy is to deliver international quality packaging solutions to South Africa. By continuously forging new alliances with overseas partners, as well as investing heavily in the very latest machinery and equipment into the South African packaging market.

Growing our presence in Southern Africa

Agricultural sector:
Our innovation ability and fresh solutions have allowed us to look at the Agricultural Fruit Export industry and add immense value to the supply chain. With our successful packaging solutions resulting in firm supply partnerships with major growers and exporters throughout the country.

In an industry where trust is fundamental we have had to employ internationally proven technologies and techniques to support our growth strategies in this sector.

New Western Cape plant:
We recently completed our Western Cape flagship plant with its aesthetic design, technological performance capabilities and enhanced environmental sustainable systems.

This plant will set a new standard on the performance within the Group and corrugated packaging market in South Africa.

Upgrade at Enstra Paper:
We have recommissioned the PM3 machine which made its first paper in October 1952 further cementing our position as a national integrated supplier of paper packaging.

The PM3 machine produces light weight grammages across the fluting, beehive and recwrap grades (used to produce bags for the fast food market).

Group sustainability – 'our journey to making a difference'

Our Environmental Responsibility:
- Achieved a 15% drop in maximum demand for electricity.
- Fossil fuel usage has dropped by 8%.
- Water usage has dropped by over 25%.
- Over 500 jobs created in the past 10 years.

The Corruseal Group is a level 1 B-BBEE supplier and has the following accreditation and memberships in place:
- ISO 9001/2015-Quality Systems Accreditation
- FSSC 22000-Food Safety Compliance

- FSC-Forest Stewardship Council
- SMETA 4 pillar to ensure Responsible Sourcing Audit compliancy
- An accredited Safety System in place to manage Health & Safety Compliance

Our Social Journey:

The Krupa Foundation Trust, our social benefit arm of the Corruseal Group was born in support of our core belief that successful businesses need to be surrounded by healthy and thriving communities for there to be long-term sustainability of our economy through growth and job creation.

Krupa's vision, 'To Make the World a Better Place' encourages a culture of activism within our organisation and greater emphasis on non-financial aspects of our performance by;

- Active involvement in Oliver's Village, a not-for-profit sustainable village focusing on early childhood development, community upliftment projects, education and Enterprise Development initiatives.
  - Initiation and promotion of entrepreneurship with a bakery project into the local community to assist with a sustainable income stream.
- Key participation in Operation Smile South Africa, a Public Benefit Organisation that provides free surgeries to repair cleft lip, cleft palate and other facial deformities for children.
- Active involvement in the newly build Autism Centre in KZN with Action in Autism.
  - An active lobbyist, support and fundraising for a Public Benefit Organisation who serves people with autism and their families.
- Active Management engagement and commitment to the Uminathi Organisation (a Public Benefit Organisation).
  - Assisting with the creation and furtherment of the Uminathi Preschool and Uminathi College (an Independent school).
  - On-going engagement in the education and boarding establishment of the Uminathi College and 60-bed Hostel.
  - On-going engagement in the education and professional development of the Uminathi teaching staff with Khaniysa Inanda Seminary Community Projects.
- Key participation in the Partners for Possibilities programme promoting a co-action, co-learning partnership between School Principals and Business Leaders. Empowering Principals to become change leaders in their schools and communities.
- Donations to several other social organisations. These contributions created new homes for families in need as well as helped various organisations in their social missions.

Corruseal Group has invested significantly over the past years in cutting edge technology, upskilling our employees and driving performance. We remain a long-term packaging Group that is committed to growing our footprint in the South African market.

Partners in packing

The advantages of a turn-key solution

Harvesting is only the beginning of fruit's journey from tree to plate. To ensure quality, it is vital to have the right systems in place, especially when it comes to grading, packing, washing, bagging, palletising and tracing. Some companies develop their own capacity; others prefer to rely on a trusted partner. This is where MAF RODA RSA comes in.

As the 15th subsidiary of the MAF RODA Group, MAF RODA RSA was officially established in South Africa in 2010. This entity benefits from the involvement of the Group headquarter situated in the south-western production basin of France, since 1962 in grading machine business and from their development in early 80's of the mechanical systems into electronic and automatic systems, with the birth of its first electronic graders.

South African major player

A spell of rapid growth has paved the way for the relocation of the MAF RODA RSA company to its own 535 m^2 property, currently under construction in Firgrove Industrial Park in the Western Cape.

MAF RODA RSA is supported by a dynamic network of more than 45 international agents and a workforce of more than 1000 employees.

With its six engineering and design departments working full time, the company is able to find and implement appropriate solutions to all its customers across the fruit and vegetable producing world regarding grading, packing, washing, bagging, palletising and traceability systems, which are fully manufactured in MAF RODA's modern factories in Europe.

Grading for the best

"There are many solutions available on the market, but we are the only full turnkey supplier that designs and manufactures the entire system from infeed to palletisation in our own factories," says MAF RODA RSA general manager Nelson da Silva.

In the scope of the group expertise, a unique working concept in "two stages" has been developed & promoted, and now fully adopted by major growers: this signifies pre-sizing or pre-sorting of the products, intermediate storage, single-product packing on demand.

This tool insures greater work flexibility, corresponding to the demands of large scale distribution. This approach provides a completely automated system to handle the fruit, from the orchard to final delivery.

High-end and reliable quality sorting

Since 1990's, MAF RODA Group develop electronic sorting equipment for external and internal measurements on fruit and vegetables to improve the quality and uniformity of the product selection for day-to-day operations in post-harvest stations all around the world.

Among others, INSIGHT—an electronic internal measurement unit, has been developed to sort products such as citrus, apples, stone fruits, kiwis, melons, mangoes and tomatoes with analysing their sugar rate (BRIX index) and acidity level.

Thanks to INSIGHT use, the fruit producers can then provide consumers with consistently high-quality produce, resulting in increased demand, and meet buyers' requirements for minimum average sugar contents of consignments. With the data analysis of all their production, they benefit as well from measuring agronomic performance which can help them in their effort to improve crop quality and yields.

Commitment spirit

Relationships are critical to success in the packaging and distribution business. The customer is always the partner in the journey to providing a truly unique and turn-key solution from the simplest to the most sophisticated challenge.

Having now close to 100 customers across South Africa, MAF RODA's after-sales service team continues to grow, providing support even in the most isolated areas by physically visiting the facility or direct intervention by specialists on the customer's site via telephone, modem or ADSL connecting systems.

The company's researchers have specifically developed solutions to problems found particularly in the South African environment.

"Local conditions demanded that we develop blemish sorting systems capable of detecting defects unique to our South African environment such as sunburn on Pink Lady apples," says da Silva.

"We are also proud of the fact that we have designed, manufactured, supplied and installed seven apple pre-sorting plants in the Western Cape," he adds.

If this sounds financially daunting, it is comforting to note that the company is capable of leveraging the necessary muscle. "Yes, depending on the need, we facilitate access to foreign finance," concludes da Silva.

MAF RODA®
AGROBOTIC®
Visionary engineering

We see a lot more than you can imagine

MAF RODA WORLDWIDE PATENT

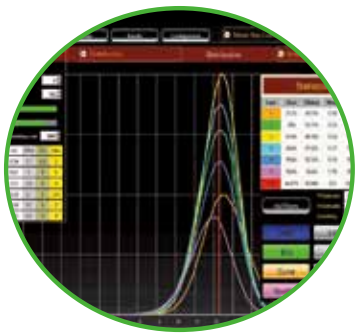
Benefit from MAF RODA new electronic sorting technologies

GLOBALSCAN 7

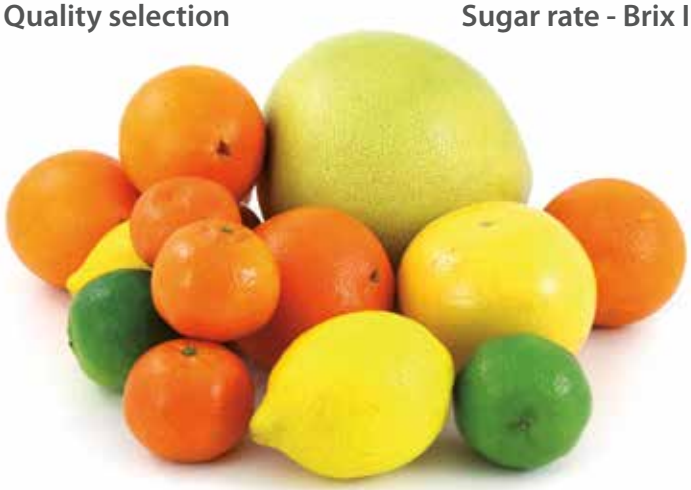
NEW

External measurements
Quality selection

INSIGHT 2T



Internal measurements
Sugar rate - Brix Index



SORTING ● HANDLING ● GRADING ● PACKING

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www.maf-roda.com

Tested, tried and true

A new centre-drive that ticks all the boxes

"How can we improve yields with the limited resources we have?" That's the age-old question in agriculture. Farmers have already learned that water is their main limiting factor when it comes to yields, but centre pivot irrigation can efficiently take care of that.

Still, there are situations where growers work in less-than-perfect conditions. For example, the land isn't always flat. Maybe the temperature is above ideal for crops to grow and flourish. It's hard to spread chemicals equally across the field so young plants aren't damaged.

What can you do to overcome these obstacles?

Some tried and tested solutions

On one hand, you can test everything. Modern farmers pay for research that helps determine soil types throughout fields, examines centre pivot water usage and uniformity through remote monitoring and telemetry reports, performs strip testing and tissue sampling of crops in different fields, uses thermal sensors to measure the temperature difference in the crop canopy, and more.

On the other hand, you can try various solutions through constant supervision and by physically moving irrigation machines. Farmers who rotate crops spend large amounts of money each year to move pipe from one field to another, as well as on maintenance and operational resources.

The new solution

There's a better solution to fit all the requirements of modern agriculture:

- A constant speed, even on hills, rocks and slopes.
- Equally distributed amount of fertilisers.
- No problems with the characteristics of the landscape or the amount of water needed.

These are, in short, the advantages of the new Valley® centre drive system, Valley X-Tec™.

Valmont® Irrigation, parent company of the Valley brand, continues to guide growers with new technologies and innovative techniques to gain greater yields and produce healthier crops. The new Valley X-Tec™ advanced DC centre drive motor does just that. The power allows centre pivots to move at a smooth, consistent pace at any speed, even over varied terrain, while new Valley FastPass™ technology allows the machines to operate up to twice the speed of a standard, high-speed AC centre drive motor.

Why Valley X-Tec?

Smooth and consistent pace: The patented alignment technology and robust DC motor keep the centre pivot moving at a smooth and consistent pace, even over varied terrain. It can move easily over rocks, hills and slopes, thus moving centre pivots with ease.

High-speed pivot: Valley X-Tec operates at up to twice the speed of a standard, high-speed AC centre drive motor. At top speed, chemigation through the centre pivot improves because chemicals are not as diluted. To reduce damage to young plants from blowing soil, apply a light application of water to hold the soil down. With the increased speed, you can move your centre pivot out of the way much quicker for harvesting or other farming operations.

Maximise crop yields: The advanced DC motor design provides the centre pivot with constant torque throughout a wide speed range, providing growers with unmatched control and additional options to maximise crop yields.

Plant cooling: In order to get high-quality yields, farmers need a lot of water, and Valley X-Tec helps them to keep up with that high demand. On dangerously hot days during the growing season, applying a cooling pass of water can improve plant health. With the Valley X-Tec, you can water partial-circle centre pivots in one direction and then quickly move back to the dry part of the field to begin irrigating again. To match water intake rates of the soil and evapotranspiration, Valley X-Tec pivots have sprinkler charts designed and implemented specifically for high speeds.

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- Robust design provides lasting durability
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Connecting people, soil and plants

Sustainable agriculture and food security in the spotlight

The links between climate change, soil, plant health, urban development, food security and technology came under the spotlight at the Sustainable Agriculture and Food Security Seminar, held on 7 June 2018 at the CSIR International Conference Centre, as part of Sustainability Week 2018. Melissa Baird reports.

The seminar was opened by Councillor Sakkie Du Plooy of the city of Tshwane. Du Plooy is tasked with the management of the food bank that the city of Tshwane will be launching in the city to offer nutritious food to those in need. He offered a warm welcome to the sector specialists due to present and pointed out that food security is enshrined in the bill of rights even though food insecurity is common in many SA households. He encouraged collaboration to address the challenges faced by cities to provide nutritious affordable food to its citizens to create sustainable food networks. Agriculture could deliver opportunities for poverty reduction and economic growth if managed with a sustainable framework. The city of Tshwane has approximately 213 000 households that are vulnerable to hunger and the opening of the food bank will aim to alleviate some of the burden they experience.

Climate change threatens plant health

Stephanie Midgely, Research and Project Manager in Agriculture, Food Security and Climate Change, University of Cape Town, stated that the current drought gripping the western Cape is considered a one in a four-hundred-year event. This fact was stated in the opening presentation which reflected on the impacts of climate change and its rapid spread that was changing weather and rainfall patterns. The impacts are seeing both warming and drying of the atmosphere and dryland crops are likely to change in terms of output on the next few years specifically those grown in marginal areas. It was discouraged to make predictions without looking at

the various modelling projections available, but it was presented that sorghum and sugar cane are likely to be crops that will expand although the rise of other pest and diseases were considered unknown impacts preventing specific data.

For irrigated crops the future looked far less certain with apple crops being at high risk due to the change in access to water for the crops. Conservation agriculture was having a positive impact because its methodology promoted efforts to build soil that holds water and retains carbon far more effectively. Irrigating at night also had credible impacts on water saving of up to 40 % less water needed. The need for farmers to adapt, be resilient and diversify their crops were strategies for managing the next few years although the impacts on vegetable production were likely to be felt heaviest due to lack of access to water. Technology was also playing an important role in measuring and managing the effects of the drought, but job losses had created a new number of at risk households who will not be able to afford nutritious food. More investment and research were needed in to the impacts of climate change and the land issue remained a big question for the future of agriculture.

Reflections from the City Food Network

Nachi Machoe, from ICLEI AFRICA, said that local governments needed to be tasked with providing a city food network and ICLEI offers this network for the exchange of peer-to-peer knowledge. The benefits for city managers joining the network included helping to mobilise funding for projects that would assist in food security. ICLEI hold regular workshops that aren't just 'talk shops" enabling youth development and problem-solving engagement strategies. She stressed the importance of networking and finding support to unlock funding for new projects and initiatives. And that the City Food Network was a global network that can offer great support and a wealth of resources to assist in finding solutions to the problem of food insecurity.

Technologies for healthy crops

Timothy Willis, CFO of Aerobotics, gave a presentation focused on the technological development of drone technology to support farmers in understanding their crop vulnerabilities from data posted by the drones. Essentially it is the implementation of early warning systems to show where trees were under threat from disease and that would enable focused intervention to mitigate the risks. Machine learning was undergoing continuous learning and improvement and this technology—which is developed in South Africa—is currently being used in 11 countries around the world. The machines can read moisture and chlorophyll indices and the management tool that assists farmers saves time inn finding where the vulnerabilities in a farm exists. It also counts trees and capture data from farmers to create comprehensive maps of agricultural land. Aerobotics is also working with finance institutions to enable them to review a farmer's risk portfolio based on the information to hand which can assist farmers in the long term to re-evaluate their farms and production capabilities and communicate this to banks, so they are given more support.

Healthy soil and climate resilience

Dr. Garry Paterson, Soil Scientist for the Agricultural Research Council, presented compelling research showing the map of South African soils and where the country has the most arable land. He framed South Africa as a rainbow nation with rainbow soils, i.e. many different soil types, some of

which were more suited to agriculture than others. He stressed the need to understand this map of soil to make sound decisions on where to focus production and farmer support. This land capability map showed that soils with high potential only make up 5% of South Africa's soil quotient. The Eastern Cape is a region with very poor soils for agriculture and this was cause for concern considering where land claim and new agricultural initiatives were being proposed. There is limited high quality soil, and this is a call to action for it to be protected and nurtured so that it remains in good health. He shared many pictures showing the impacts of poor soil health on crops and on soil erosion as well as practises that were likely to cause further soil erosion like planting too close to waterways and wetlands Pollution impacts were also discussed with emphasis on acid mine drainage and its impacts on soil health. Soil is alive and there are more living organisms in a teaspoon of healthy soil than on the earth and their role in nitrogen cycle is inn its true sense—vital for crops and the nutritional aspects of them.

Solutions in developing soil health included identifying the soil type via surveys and mapping, revision of land use practises to include conservation agriculture and precision farming and correct water harvesting based on the requirement of the soil. Irrigating the right soils was a key factor inn water conservation. Healthy soils equal a healthy nation and the Arc is there to help farmers with analysis as they address soil health.

The proactive implementation of rural Fresh Assembly Points

Kenneth Carden, Independent Consultant at the Southern Food Lab Programme, and Bongani Sambo, facilitator at the Spar Rural Hub development project, demonstrated the evident links between agriculture, nutrition, health and the food system as well as the fact that the current food system was failing to deliver food security to a nation where 26% of the population faces daily hunger. The cost of food and access to nutritious food were real threats to overcoming this problem. The distribution of food is also adding to the cost factors which is why the rural hub aims to solve this by linking subsistence farmers to local supermarkets to reduce food miles and provide impetus for new agricultural initiatives. Local hubs would improve access to fresh produce and the affordability of nutritious food, equalling a more inclusive food system. As Spar is not in the business of agriculture its main aim was to support local farmers with their business models and to link them to points of distribution—in order "to create localised short value chains in a local area". There is currently one hub active in the Limpopo Province and a hub in partnership with the provincial government in KZN. A case study of the Ekwhesi hub was presented showing how this model can work. The plan for 2017-2022 was to establish more hubs and to actively seek partners in the endeavour. Whilst fresh vegetables were crops of choice there is an opportunity to expand in to poultry and dairy production as well.

A pro-society approach to agriculture

Wandisele Makwabe, Head of the Masisizane Fund Agribusiness and Flagship Initiative, described the fund's activities.The Masisizane fund is fostered by Old Mutual and provides funding for all elements of sustainable agriculture. In consultation with government it has created a vehicle for entrepreneurs and partnerships to flourish. Active in five provinces, it offers agribusiness pillars and routes to investment for land usage, soil health and risk aversion. Irrigation access and technology is key to the success of agricultural endeavours as is the gross contribution of animal products. The fund works with funds from government as well for procurement purposes in terms of machinery and training for farmer's and farm workers to use the machinery. It has seen successful investment in Agri-processing endeavours and supporting of emerging farmers. A major success of the presentation was the link to Spar Rural Hub's call for investment—Wandisile Makwabe noted the fund would reach out and support the work.

The threat of unchecked urban development

Nazeer Ahmed Sonday, farmer and Leader of the PHA campaign, shared that the Philippi Horticultural Area provides 80% of Cape Town's fresh vegetables and employs some 6000 people. Supported by an aquifer that has shown no signs of depletion during the current drought scenario the organic farming initiative can help cut the city's carbon emissions by 20% but it is under threat by plans for development. Politicians and developers see short-term profit solutions whereas in fact the need to look at urban agricultural solutions is very much a long-term concern and is impacted by land reform issues. Urban sprawl and its impacts on farming lands was under discussion with the opportunity for better urban planning that includes green and agricultural spaces to be noted. In the past 3 years 3 million hectares have been lost to urban sprawl and cities need to rely on the ecosystem services that agricultural land provides. Densification is a solution and he noted the city of Barcelona as a successful example of this approach. Questions around the de-colonisation of spatial design were also posed. The issue of water conservation was addressed, and it was revealed that of the 400 million litres of waste water produced each day only 7% was recycled. The current food system is responsible for the inequality in access to healthy food and the issue of land reform was a hot topic. The need to connect people to the source of their food would enable better understanding of how vital small-scale farmers are to the economy and environment. Rural and urban development need to be considered in tandem.

Practical finance support required

The key question posed by Mandla Nkomo, Managing Director of Solidaridad Southern Africa, was whether food insecurity can be fixed by sustainable development. The UN's Sustainable Development Goals were touched upon and who could disagree with the set of standards that have been negotiated with a view to promote progress on food security and nutrition. Collaboration was a key strategy to achieve these bold aims and it was noted that food insecurity is a global problem. The decline in investment in agriculture was a cause for concern. The number of people in South Africa who are food insecure equals the entire population of Zimbabwe (13.6 million) and this is a major driver in finding solutions that will work for the long term.

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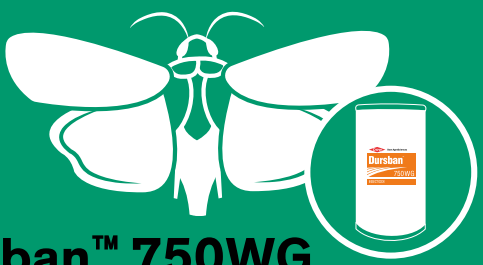

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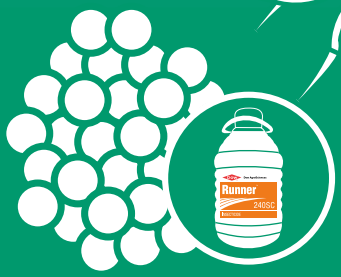

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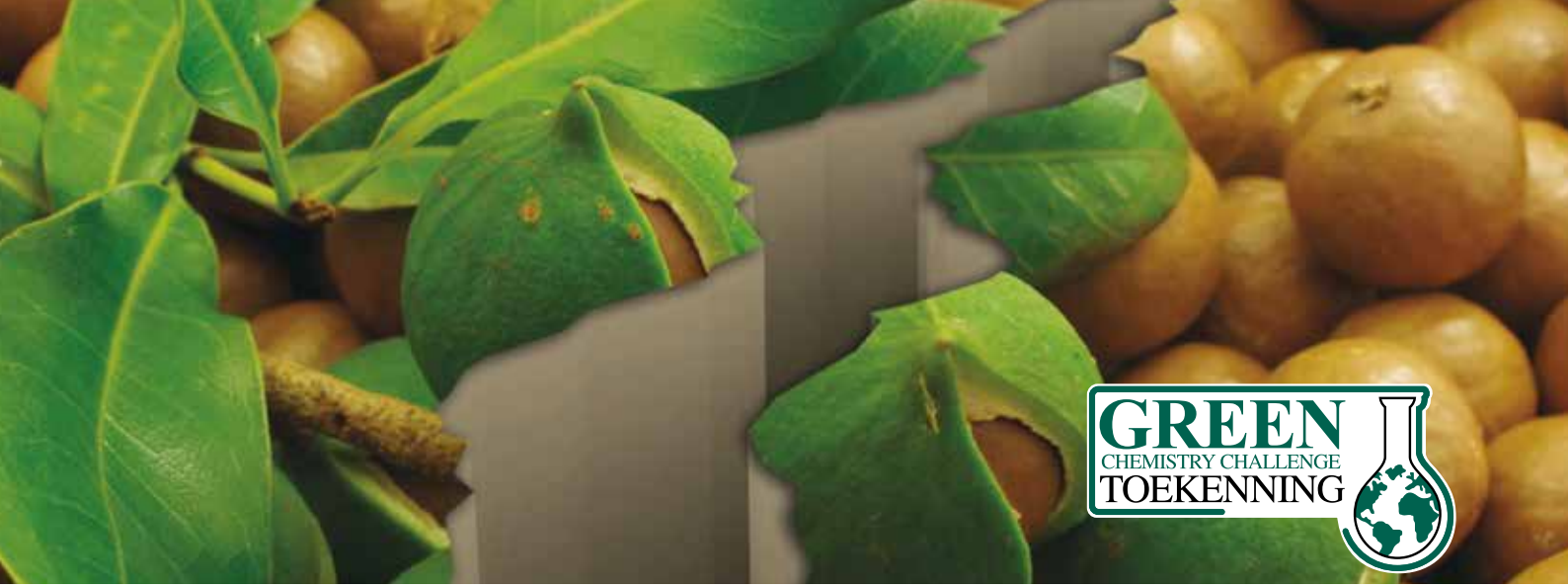
Solutions for the Growing World

Solidaridad is a global organisation that provides solutions through its networks. It was responsible for the development of Fairtrade and yet the role of certification was not enough in helping to eradicate poverty in the lives of farm workers. What will bring change? It is not the lack of science or technology that is holding true change back but the fact that people are not connecting the 'dots' in agriculture and food supply. Solidaridad aims to change this by providing technical solutions and sticky apps that will help farmers manage their land and output in a more effective manner. Instead of certification, there will be a self-certifying tool that farmers can use to measure their own performance and set new goals for improvement. An example was given of a farm about to be foreclosed by the funding bank until the app that could measure the proposed value of the crop still in the fields was used. The result was an ability to prove to the bank the value of not foreclosing on the farmers and this was a great win for the farmer. This indicated the need for the finance sector to support emerging farmers in more practical ways and to understand the value of the agricultural sector not only in terms of financial returns but to the overall cohesion of society. An innovative soil testing kit was due to be rolled out to rural youth to enable micro-businesses to develop and to assist farmers in understanding their soil which would have overall impact on the use of water, pesticides and fertilisers.

There are enough resources and it is through networks that these will be better managed; companies need to become strategic partners in rural development and speed and scale were required to activate rural agricultural hubs. Diversification was an important consideration for farmers as is the fact that urban agricultural solutions need to be considered due to the rate of urbanisation.

Conclusion

Undoubtedly food security and agriculture are inter-dependent as is the support structure that can be offered to farmers by corporations looking to invest in relevant social development projects. Urban sprawl and its impacts on the environment need to be far better managed as well as looking to solutions for micro farms that can provide the daily needs to mega cities. Diversification of crops is an important element in managing the impacts of climate change and understanding soil health and the preservation and regeneration of South Africa's soil is a major factor in whether the country can grow in to a more food resilient society and provide enough nutritious food for its citizens. The actions of the country's major metropolitan centres can also go a long way in supporting vulnerable citizens that are faced with hunger everyday by looking to create networks and supply of excess food via food bank initiatives. More than 50 delegates attended this inspiring seminar and the energy and insight of the speakers left the delegates inspired and committed to connecting and building networks help address the issue of food insecurity and sustainable agricultural development.



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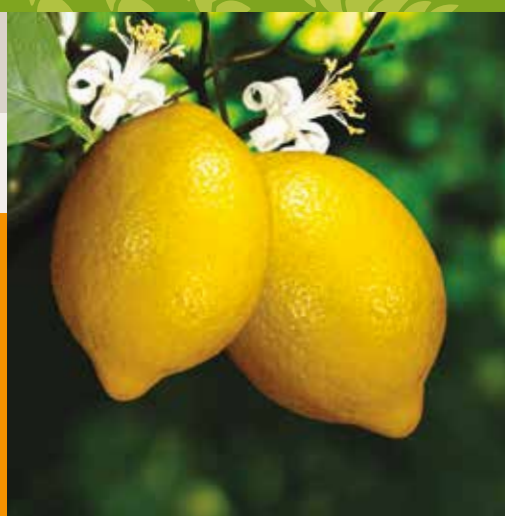
Yara is expanding to serve all areas in South Africa



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Advancing agronomic expertise

International partnership to help local growers

Agriculture remains a critically important industry in South Africa, and indeed many other African nations, not only as a provider of job opportunities but also from a food security perspective. Nearly 80% of farmable land in South Africa is used for agricultural production, which amounts to more than 97.6 million hectares.

Feeding the world has never been more challenging, and Africa is emerging as an agricultural hub of enormous potential with the future ability to produce enough food to globally fuel human prosperity. Now, more than ever, Africa can help feed the world through reaching its full potential. With the agricultural sector contributing around 2.5% (US$8.7 billion) to South Africa's GDP, Villa is keen to capitalise on this market segment, investing heavily in product development in order to provide a total solutions approach to crop protection, as opposed to providing standalone products to the market.

As the market leader in South African crop protection products, Villa Crop Protection considers fighting hunger to be a key pillars of its strategy.

For more than 20 years, Villa Crop Protection has significantly contributed to South Africa's agricultural industry via its unique and innovative approach to crop protection. Through massive investment in the development of its product portfolio, targeting products mainly towards "permanent crops", or "export crops"—such as citrus fruits, table grapes, apples, pears—the company is helping to protect the seeds of continued growth of the country's strong agricultural exports.

With more than 381 product registrations and nearly 900 on-farm research and development trials conducted each year, the ISO-accredited company has a reputation for high quality and innovative products that help local growers achieve their goals.

In 2015, Villa partnered with Land O'Lakes, Inc., a Fortune 250 global agribusiness and food company headquartered in the United States. Through Land O'Lakes' leading crop inputs business, Winfield United, Villa gained access to new capabilities and levels of agronomic expertise. Going into the partnership, Villa and Land O' Lakes (LO'L) were focused on two main synergies. The first was to bring Winfield United's size and scale to help source product. The surety of supply has allowed Villa to strengthen its partnerships with key strategic dealers.

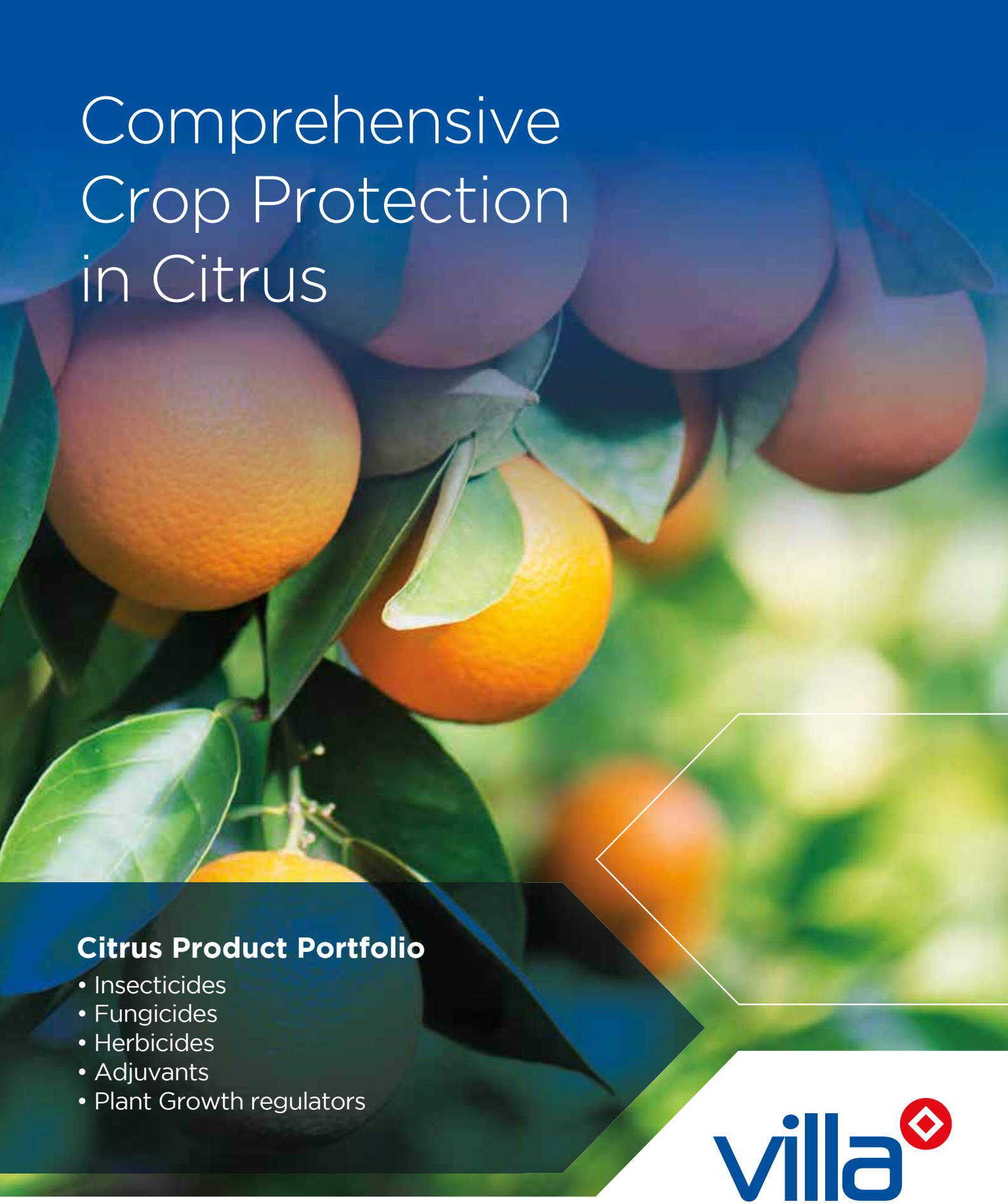
The second synergy was to bring Winfield United's range of value added products and services to the South African market. For Villa, the adjuvant, Interlock has been the first truly value-added product.

Interlock is a unique, new generation adjuvant. Its "3D" technology—drift, deposition and depth—ensures that it locks in deposition and depth of canopy penetration, while locking out drift. Pest control is increased and therefore it has a direct positive effect on yield.

Interlock uses new Cornsorb™ Technology from Winfield United in South Africa. This patented technology protects the droplet to ensure that more active ingredient gets in to the target.

The next opportunity Villa is working on is launching Winfield United's NutriSolutions360™ system together with the Max-In range of micronutrients. This range of products also contains Cornsorb™ Technology and is designed to increase humectancy and uptake. The program has been piloted in 2017 and the initial response was very positive from the market. Villa is working on changing the way the market approaches micronutrients by conducting leaf tissue sampling prior to making recommendations. This is made possible by using Winfield United's technology and processes to quickly enter the market with a value-added service that will be difficult to replicate locally.

Comprehensive Crop Protection in Citrus



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Spraying for sustainability

Vineyard pest and disease control for Conservation Agriculture

There are many and diverse definitions and opinions around what Conservation Agriculture (CA) entails—and most of them are accurate—carrying a message of protection and optimal use of environmental resources (water and soil) and supporting the sustainability of commercial agriculture at the same time.

What can you do—practically—to support the CA objectives during your spraying programme?

Timing is everything

Preventative programmes need to be applied timeously—to do just that—prevent the disease from becoming a commercial risk, requiring expensive and potentially less environmentally friendly kick back programmes, with limited results.

More is not necessarily better

The amount of water used per hectare needs to be carefully considered. When increasing the application to the "point of run-off" is increasing the risk of loss of quality and uniformity of the application, as well as a loss of active ingredient due to run-off.

If the densest part of the canopy is sprayed to the point of run-off, the outside, facing areas of the canopy has lost most of the active ingredient in run-off.

It has been shown over many years of independent research by various institutions that the best way to improve the spray quality uniformity and distribution and at the same time increasing the recovery of the active ingredient on the target, is by reducing the water volume and droplet size (50 – 120 micron VMD), and increasing the concentrate in the tank to the inverse ratio to keep the application of active per hectare constant. This has to be kept within product label registrations.

In this way, the active ingredient is effectively retained on the target, having the best possible effect whilst minimizing the effect of run-off on soil and into the ground water.

Faster is not quicker

The large leaf and soft stem of the vineyard plant makes for a challenge in optimizing the penetration into the crop canopy to reach the innermost parts of the plant. Too much air momentum will effectively cause the leaves to form a curtain barrier, preventing spray penetration, and too little air momentum will not cause enough turbulence for a long enough period to deposit spray in all areas.

This effectively limits the usable initial air momentum from the fan to about 25 000 cub m/h for axial fan sprayers and 5 500 cub m/hr for centrifugal fan sprayers when used in single row spraying.

To achieve enough air movement over long enough periods in the canopy with the above fan specifications, it was found that keeping the spraying speed below 4 km/h in the pea size stage and later, will hugely benefit effective spray recovery and distribution.

Exceeding this speed will not only reduce the recovery in the central canopy, but also reduce behind the leave and inside the bunch recovery.

Multi-Row uses less carbon

A properly designed multi-row sprayer should reduce the energy requirement per hectare by between 20 – 30%, thus reducing the impact on the environment and at the same time save on mechanization cost.

The above principles are very simple to apply, and could yield benefits in supporting the Conservation Agriculture philosophy.

Spray high or low?

How to recover the maximum active ingredient on the target

The focus into improving biological efficacy of agrochemicals by improving application techniques and apparatus has never been more intense.

Risking over-simplification, there seems to be primarily two schools of thought that need to be considered:

1. Improving biological efficacy by increasing application volumes.
2. Improving biological efficacy by reducing application volumes and increasing chemical concentrates.

It is imperative to understand that neither of the above is intrinsically "right" or "wrong". What is important though is to understand which strategy would be beneficial to the biological outcome in which circumstance.

Circumstances favouring increased application volumes

1. Applications where the "active ingredient" has no or very little chemical activity.

- Winter and summer oil applications (with no second active with a chemical activity for controlling the first instar larvae) for Red Scale. In this approach the functionality of the oil is physically to suffocate the dormant Red Scale. The principle is simple—although it is possible to drown in a cup, it is much more probable to drown in the sea! In this case—more free water/oil gushed into the target area will have a better chance of control, naturally at great expense and huge negative impact on the environment.
- Winter oil sprays to break the rest cycle have the actual objective to "wake up the tree by strangling it momentarily" and also require the bark to be drenched.

2. Applications where chemical activity is the driver.

- Insect vectors hiding behind bark and/or protected by their own natural structures can pose a virtual impossible situation to get active ingredient into their environment to affect them. Again, this category requires drenching the environment in a quest to achieve contact.

The above applications are not technically spraying operations, but rather drenching, and has very little science built into it, achieving high levels of coverage by the mixture, but very little chemical recovery. This constitutes a huge amount of waste and environmental contamination, at exorbitant cost to the producer. It should be restricted to the minimum.

Low volume, high concentrates

The science of effective application of agrochemicals has the sole purpose of optimizing the recovery of active ingredient on the target area. the proper distribution uniformity on the target and throughout the total target area is of equal importance.

This has been shown in numerous recent (2009-2015) trials to be far better achieved by a reduced volume and a pro-rata increased concentrate to keep the active per hectare constant. This has been demonstrated in Vineyard, Apples and Citrus through independent research.

The reason is simple: A certain surface area will only be able to "carry" a certain amount of atomized solution before run-off will commence. At that point we have exited spraying and entered drenching.

Product registrations

Very few chemical registrations refer to a specific water volume per hectare—generally the amount of active is specified per hectare or per 100 litres of water.

Thereafter it is left open for interpretation. Phrases like "Full cover spray" are used, and this supposedly indicates that the active ingredient should be recovered and retained over the entire surface to have the desired effect. In a case of a product that has a chemical function, e.g. A preventative spray against Black Spot, with Copper as active, this means that the control is dependent on the presence of Copper. The worst recovery and retention will be achieved with the highest volumes, resulting in the worst outcome—poor control, early re-infection, increased risk of resistance and gross environmental contamination.

On the other hand, if the "Full cover spray" is used in context with an oil application against dormant Red Scale, where physical suffocation is the objective, the drench application will necessarily require large volumes per hectare for the desired result.

Tank mixes

It is clear from the previous distinction between SPRAYING and DRENCHING for different purposes that it is important not to use two contrasting chemical in a tank mix! If the oil spray requires high volumes for DRENCHING and the Copper compound low volumes at higher concentrates for maximum RECOVERY, they cannot be mixed.

Conclusion

By only reading product labels and not understanding the difference between recovery (spraying) and coverage (drenching) applications, might mislead one in choosing a non-optimal route.

Marius Ras (M.Eng), Group Marketing Director, Rovic Leers
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Diversity is South Africa's strength

Branding South African agriculture for tourism

The National Agricultural Marketing Council has a project that will be launched this year where they want to get agricultural role players to financially support their endeavors to create a uniform image nationally and internationally for South African Agriculture. I presume that Brand SA, Proudly SA and South African Tourism would integrate this project into their current modus operandi as well.

The initiative is sound in its merits, but to get government-funded departments to work together is challenging, as we have experienced—mainly because the environment in which they operate is about "protecting their turf". Privately owned agricultural stakeholders are often easier to deal with because they are empowered to make decisions as they are financially independent.

I see the exercise, initially, as an educational one within South Africa. Agriculture has a legacy in South Africa that to some extent is negative because of Apartheid. The Agritourism South Africa Information Portal was started in 2016 to enable South Africans and international visitors to meet South African farmers. This initiative has been successful because farmers realize the potential of earning additional income and diversifying. As international travelling has become unaffordable for most South Africans, holidaying at home while enjoying new experiences has become an increasingly popular option.

We also need to see a change in the education syllabus with a greater focus on agriculture in schools that are in rural areas. We need to see the youth playing a far more active role not only in agriculture, but in agricultural policy as well, and we need to keep the youth employed meaningfully on farms.

Supporting the agriculture industry to become brand-aware is difficult, because are

many different types of agriculture and many different types of farming. Farming in future will not only be land based, but will be water-based as well. Of course, there will be farming in cities, which can be highly successful as the Dutch have proved. We need to broaden our viewpoint as to what is considered farming. The traditional farms that had many different crops and animals are rare to find these days because of input efficiencies. Determining a common agricultural brand is complex.

So what threads can we find to brand successfully in such a multi-layered industry? For those in the industry, it is easier to contribute to this discussion. The professionalism and dedication of farmers and agricultural workers is often noted by foreign journalists and farmers. "This is not what we expected" is a frequent comment from visitors. However, an element of confusion exists because of the negative signals that South Africans send of their own country, whether it be politically based or economically driven.

Our farmers approach farming differently, from lifestyle small-holdings to export-driven large companies, from abalone farming to tilapia to game-breeding farms. We should be careful not to narrow the focus too rigidly. Africa is known for its diversity and its vibrancy. Just as there is no single type of farmer, there is no single market. Visitors are multi-dimensional and want to experience different aspects of what a farm offers.

Agritourism South Africa is a farmers and agricultural workers' information portal. We interact regularly whether assisting with tourist campaigns or taking video footage. We are not just another booking site. We are currently working on a project to increase the awareness of agritourism nationwide in September, to coincide with tourism month. Visitors will be encouraged to interact with farmers.

The iPES (International Panel of Experts on Sustainable Food Systems) report "From uniformity to Diversity" refers to the paradigm shift from industrial agriculture to diversified agroecological systems (www.ipes-food.org). Most farmers realise that a fundamentally different model of agriculture based on diversification within farms is essential, as the oversubscribed Landbou Weekblad "Konferensie oor Herlewingslandbou" in Reitz, proved.

If farming as an industry is changing from uniformity to diversity, this is a clear indication that forming one standard brand to promote agriculture is not the way to go. In agritourism, we have over 20 different types of farming activities that visitors can participate in when visiting farms. One of the documents that lead to the formation of Agritourism South Africa was the FAO document on the "Future of food and agriculture: Trends and Challenges" (available: http://www.fao.org/publications/fofa/en/). It is obvious that there has to be change—all the trends and challenges apply to South African agriculture, and agritourism is a conduit for that change.

Agritourism is an essential element in the branding of South African agriculture. To see is to believe. That is why we place such a strong emphasis on visual footage and have a YouTube channel that is continually updated. The figures of the economic success of agritourism in countries such as Italy, Vietnam, New Zealand, Canada, etc. are available. Let us ensure that when we brand South African agriculture, we do it after consulting with farmers and the agricultural workers who provide us with food every day. We should be grateful and embrace the agricultural community.

Agritourism South Africa supports all efforts that are made to place South African Agriculture on the World map. Visit www.agritourismsouthafrica.com for further details.

Jacqui Taylor, Managing Director, Agritourism SA

Strategic pest control

Cryptex and Eco-Bb, a successful combination in the integrated pest management (IPM) approach against False Codling Moth, *Thaumatotibia leucotreta*

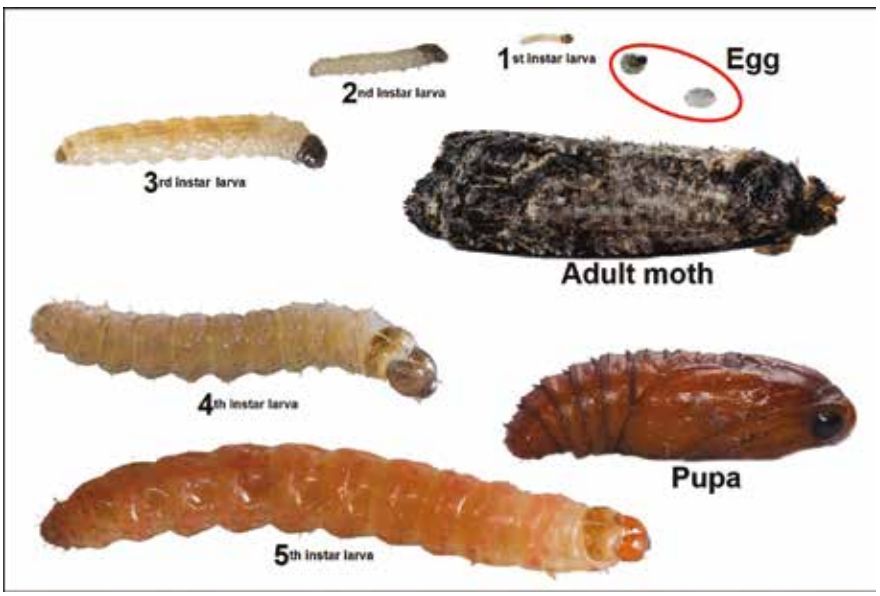


Image courtesy Andermatt Biocontrol

One of the most detrimental and challenging pests to control on a variety of agricultural crops is False Codling Moth (FCM). This indigenous moth species has an extremely wide host range and can cause severe damage on citrus, table grapes, stone fruit and tree nuts to name a few. Export of crops associated with this phytosanitary pest is closely monitored and if a single FCM is found in a shipment, it may be rejected and sent back to South Africa resulting is severe financial losses to the South African fruit industry. Furthermore, FCM has become a regulated pest in the European Union adding additional challenges.

Controlling FCM is not something that is achieved by the application of one product but rather a holistic approach combining cultural, chemical and biological control, as well as dedicated and effective management practises. The inclusion of biological products in a pest management strategy is not a replacement of chemical pesticides, but rather a complimentary practice which can aid in suppressing pests. The combination of various products and mode of actions will lead to improved resistance management and ultimately extend the lifespan of chemical pesticides.

An example of above mentioned is the inclusion of a granulovirus and an entomopathogenic fungus in a FCM control strategy. Not only does this strengthen the control strategy, but it fits in perfectly with an IPM approach against FCM.

Cryptex, a *Cryptophlebia leucotreta* Granulovirus (produced by Andermatt Biocontrol) is very species specific and is only active against FCM larvae. This product contains encapsulated virus particles, which is applied just after peaks in FCM flights. It is not a contact insecticide and has to be ingested by FCM larvae to be effective. Once ingested the alkaline conditions in the FCM midgut dissolves the protective capsule, activating the virus particle and resulting in death of the infected larvae. Buffering of the spray mix (pH 5 to 8) is extremely important, very alkaline or acidic conditions could dissolve the protective capsule in the spray tank and this will decrease the virus particle's tolerance to climatic conditions as well as overall efficacy.

Eco-Bb (*Beauveria bassiana*, strain R444) an entomopathogenic fungus (produced by Plant Health Products), is a broad-spectrum contact insecticide (refer advert) and a very important benefit of this product is its ability to infect FCM eggs, larvae, exposed pupae and adults.

Cryptex and Eco-Bb are marketed and distributed by Madumbi Sustainable Agriculture and many trials on a variety of crops have shown that the combination of the two products results in effective and consistent reduction of the FCM pest population. This is attributed to the Cryptex and Eco-Bb affecting all lifecycle stages of FCM and therefore having a bigger impact on the total FCM population.

Many commercial citrus growers have implemented this tactic in the past season, applying the biological products at their respective registered dose rates as part of a total IPM approach against FCM and this strategy has proven to be very effective.

Sias Leipoldt
Key Account Manager
Madumbi Sustainable Agriculture
www.madumbi.co.za

Eco-Bb

Reg. No. L8469, Act No. 36 of 1947

A bio-insecticide for the suppression of various insect pests on crops as specified.

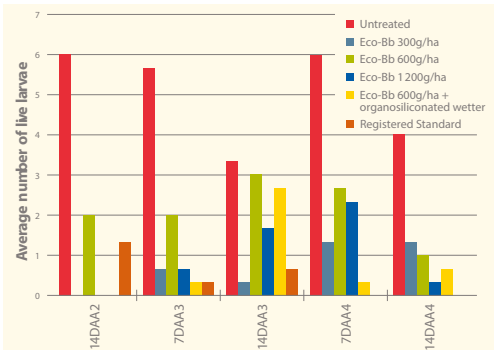
Why use Eco-Bb®?

Features	Benefits
Ability to reduce any of the life cycle stages of the target organism	Eco-Bb® is effective against the egg, larvae/nymph, pupa and adult stage. Therefore, the opportunity to reduce or impact on the target population is excellent. Inclusion in an integrated pest management (IPM) strategy will result in a more effective program overall
Unique mode of action	Mode of action of *Beauveria bassiana* is different from chemical insecticides, making Eco-Bb® ideal to use in IPM and resistance management programs
Superior wettable micro-granule oil formulation	Spores are encapsulated in a "dry oil" formulation which prevents the fungal spores from drying out and becoming deactivated under field conditions
Robust strain R444	The strain was isolated from soil in Clanwilliam, South Africa and is adapted to hot, dry, semi-desert conditions
Non-toxic, completely natural and has no withholding period	Eco-Bb® is suitable for organic and conventional agriculture and can be applied during the harvesting period

Efficacy of Eco-Bb® against False Codling Moth (*Thaumatotibia leucotreta*) on citrus

Figures right: The graph compares the number of living larvae after biweekly applications of Eco-Bb® (300, 600g and 1200g/ha), Eco-Bb® (600g/ha) plus a wetter and a chemical standard (Methoxyfenozide) as per recommendation. A total of 5 applications were made.

Eco-Bb® provided significant reduction of FCM compared to the untreated. Adding an organosiliconated wetter improved efficacy at the 600g/ha dose rate.



Eco-Bb, the perfect partner to Cryptex in an IPM programme against False Codling Moth

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Revolutionising agriculture

Boosting food and job security with Industry 4.0

New research into the Fourth Industrial Revolution has revealed how the Western Cape's agricultural sector can harness water-saving technology, drones, genetic development and robotics to develop the industry, contribute to food security and create new jobs in emerging fields.

The report, prepared by researchers at the Stellenbosch University School of Business, studied the potential impact of the Fourth Industrial Revolution on farming in the Western Cape. This revolution refers to more than just the development and use of digital technologies, but how these interact across the digital and physical realms.

And while one of the major fears associated with this revolution is the loss of jobs, the research has found that there is potential to create new careers, and scope to train and up-skill people to work with technology.

Big data, artificial intelligence, precision farming, and automation will all become prominent technologies in the future which will contribute to optimisation, efficiency, quality, sustainability and resilience.

Increased mechanisation and adoption of technology could have an impact on jobs, however, the research found that this need not be a "zero sum" equation.

While the Fourth Industrial Revolution has the potential to impact particularly low-skilled and unskilled jobs, technology creates new kinds of jobs, with the potential to retrain and reskill the labour force.

The researchers also found that farming as a career needs to be re-branded in order to attract young people, and future talent.

The research identifies three possible end-results emanating from the Fourth Industrial Revolution including:

- The Best Case Scenario: technology and development is embraced in agriculture leading to an "agri-renaissance"
- The baseline scenario, or the "agricultural cul-de-sac"
- The worst case scenario, or the "agricultural valley of desolation".

The report groups its recommendations under five key themes:

1. That the Agri-renaissance is embraced as the desired end state. It recommends that the department, together with tertiary institutions, work to develop curricula to include theory and skills relating to the Fourth Industrial Revolution.
2. Increased engagement with the rising influence of consumers. In the future, consumers will want to know more about the source, and nutritional value of their food. Consumers are increasingly concerned about ethical farming practices, and scope for the development of environmentally friendly packaging, as well as freshness indicators on packaging currently exists.
3. Acceleration of technology adoption in agriculture. The report suggests making technology more available and affordable especially to small scale farmers through sharing schemes, financing and other opportunities to ensure that a "digital divide" does not develop.
4. The important role of smallholder commercial farming development. The report recommends that the provincial government, together with financial institutions, develop financing schemes targeting smallholder farmers. It also recommends that the Department, working with the Department of Rural Development and Land Reform, should facilitate access to title deeds or other forms of collateral.
5. Re-position the agricultural sector's brand for the Fourth Industrial Revolution in order to attract and retain talent and develop agricultural entrepreneurs.

Among the key trends identified by the researchers was the impact of climate change, particularly on water availability and management. The Western Cape is currently experiencing a drought that has severely impacted the agricultural sector. As a water-stressed region, the sustainability of this resource will be increasingly important in future. The development of smart water technologies now and into the future will impact food security as well as production prices.

Minister Winde said: "It's up to us to ensure that we're making the most of the Fourth Industrial Revolution, that we're not stuck in the first, second, or third revolution because it's important for food security across the region."

Minister Winde said key to ensuring an agricultural renaissance will be collaboration, and "connecting the dots" between various players and sectors to ensure that they are able to develop and grow together.

"We need to join the dots between Agriculture, health, education and the private sector. We are home to some amazing fintech developments and we should be harnessing those skills and ideas in agriculture."

Minister Winde said: "I'm pleased with the research finding that there is room to create new jobs and retrain people for future skills. We need to be asking ourselves how we are going to get Generation Z to get their boots muddy. Currently, the average age of an artisan in this province is 60. We need to change that so young people have the skills and the knowledge that will equip them to be the drone pilots, food technologists, coders, and developers that the Fourth Industrial Revolution will require."

The full report can be viewed online here:

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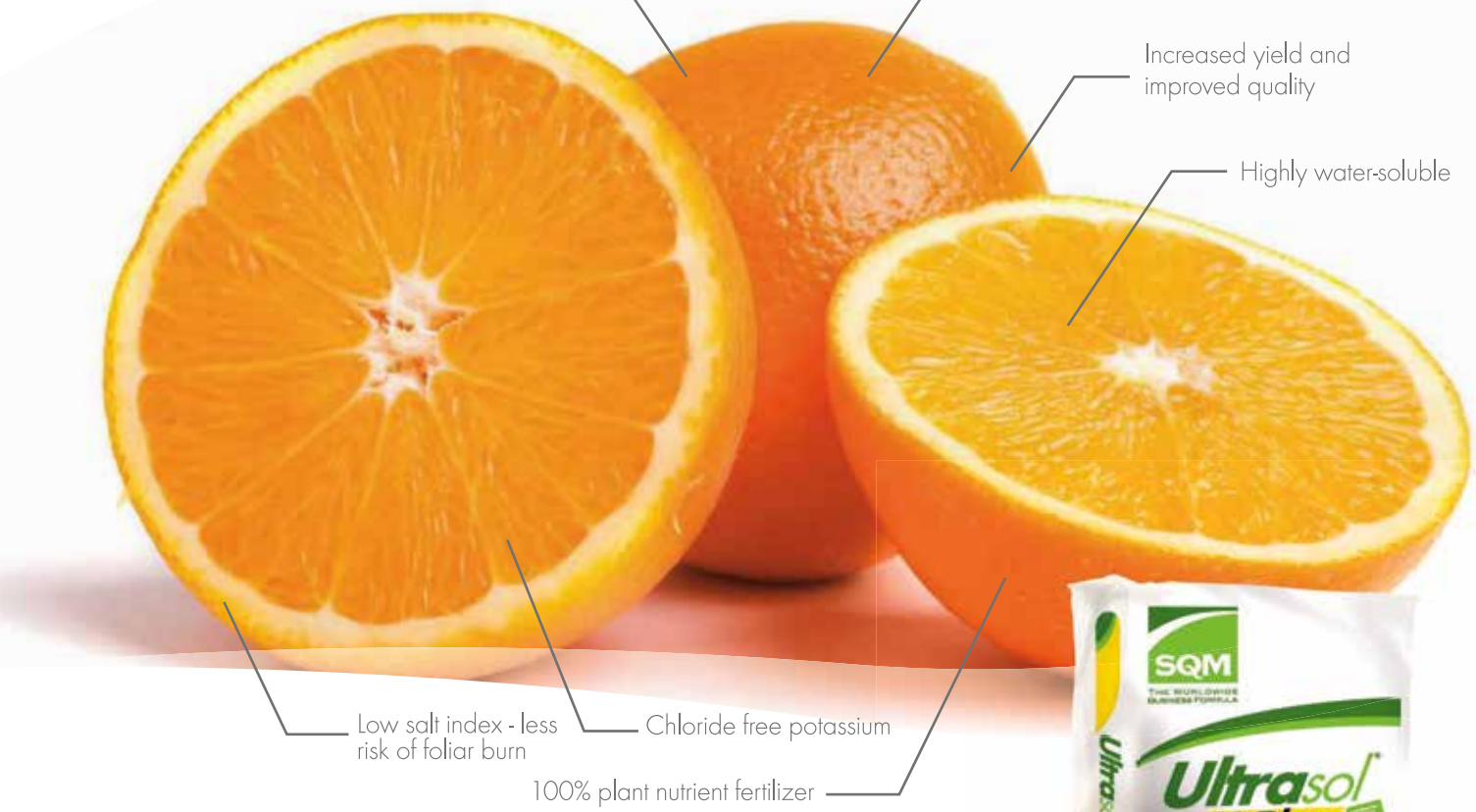

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A bird's-eye view of the drone business

Considerations in commercial Remotely Piloted Aircraft Systems (RPAS)

Drones have become more than simple devices to take pictures from the sky. For some, they have opened the window on a number of business opportunities, including some life-saving services. Zipline is an example of a company using Remotely Piloted Aircraft Systems (RPAS) to deliver blood for transfusions to remote areas in Rwanda. In addition, drones are being used to identify safety risks in mines, predict traffic flow, forecast disasters, and even transport humans. From package deliveries and logistics to data analysis and content creation, drone-based business opportunities abound.

Agricultural production has drastically increased in recent years, and studies predict that aggregate agricultural consumption will increase by 69% from 2010 to 2050. This increase will be mostly stimulated by population growth from 7 billion to 9 billion by 2050. Agricultural drones are used to help increase crop production and monitor crop growth. Through the use of advanced sensors and digital imaging capabilities, farmers are able to use these drones to help them gather a picture of their crops and use the information to improving crop yields and farm efficiency.

Additionally, the drone can be used to survey the crops for the farmer. Weekly, daily, or even hourly, pictures can show the changes in the crops over time and the farmer can attempt to improve crop management and production.

The following are ways in which aerial and ground-based drones are used throughout the crop cycle:

- Soil and field analysis: drones produce precise 3-D maps for early soil analysis, useful in planning seed planting patterns and to provide data for irrigation and nitrogen-level management after planting.
- Crop spraying: Distance-measuring equipment, ultrasonic echoing and lasers such as those used in the light-detection and ranging, enables a drone to adjust altitude as the topography and geography vary, and thus avoid collisions. Consequently, drones can scan the ground and spray the correct amount of liquid, modulating distance from the ground and spraying in real time for even coverage.
- Crop monitoring and irrigation: Images can show the precise development of a crop and reveal production inefficiencies, enabling better crop management and irrigation.

But with all these opportunities come new risks.

Legislation around commercial drones

Drones are increasingly commonplace, fostering new businesses—think of the gig economy and the rise of freelance drone photographers and videographers but also security risks. For example, Chinese smugglers recently used drones to import $80-million-worth of iPhones from Hong Kong.

For those looking to integrate drones into an existing business model or start a new company entirely reliant on RPAS, James Godden, head of Santam Aviation, cautions that familiarity with the law should be step one. "The South African Civil Aviation Authority (SACAA) identifies operational drones as aircraft that have to abide by laws similar to those of manned aircraft. For commercial use especially, there's strict legislation in place."

James says that as soon as you use a drone to earn income – even if you're just selling footage you captured in your private capacity—you need to follow certain laws. Here are some of the main ones:

- A commercial drone pilot needs to get his or her Remote Pilots Licence as a starting point, followed by an Air Service Licence (from the Department of Transport) and Remote Operators Certificate (from the SACAA)
- A drone may not be flown within a 10km radius of an airport, airstrip or helipad
- Drones must be operated in daylight and in clear weather conditions
- A drone may not be flown by an intoxicated individual
- A drone may not be flown within a 50m radius of any person, property or public road

Once the legislation side is sorted, drone insurance is the next major consideration.

The ins and outs of commercial drone insurance

In 2017, the most expensive drone cost $300,000 (USD). In an environment rich in risk exposure—from human inexperience to theft to technical failings—the cost of the total loss of a drone can be devastating to a business.

Interestingly, birds often dislike drones and intentionally knock them out of the sky, accounting for 1-2% of claims. In the private sector, inexperienced piloting accounts for 90% of claims, while, in the commercial sector, technical failures catalyse the majority of claims (80%).

James says that insurance for drones is similar to an aircraft insurance policy, with third-party liability highly recommended.

In order to secure commercial drone insurance, business owners first need to decide what kind of cover they require – and how much of it—in line with the market value of their RPAS.

In response to the growing popularity of these RPA's, Santam Aviation has developed an insurance product that provides the full spectrum of cover for drone owners and operators within the private and commercial space. Santam is one of the few insurers that are willing to insure this niche area of insurance.

"What is important to note, especially for recreational drone operators, is that insurance under our general personal lines offering covers very limited and restricted in-flight cover and would provide for loss of drone aircraft and claims stemming from Public Liability. Umbrella liability and Personal legal liability insurance are excluded," says James.

The Santam Aviation policy offers full and comprehensive cover on the drone whether operated or not. This includes liability cover and comprehensive third party cover on the limit the client elects to take.

"We currently insure a number of drones on the Santam Agriculture platform under the sections Business All Risks and Householders. Commercial or business policyholders should, however, note that the company will not indemnify the insured against liability in respect of the ownership, hire purchase or leasing of any aircraft as this is regulated by the Civil Regulations Act. It is therefore important that drones used in commercial applications are covered under a separate aviation policy which provides greater security against liability claims as a result of drone activities," says James.

The following kinds of cover are available:

- Cover for the physical loss and damage to the RPAS (airframe, payload, launch station and/or GCS) in its operating or routine testing environment.
- Hull war extension cover: physical loss or damage to RPAS as a consequence of a deliberate/malicious act or act of sabotage.
- War liability extension cover: third party liability loss or damage as a consequence of a deliberate/malicious act or act of sabotage arising out of the use of the RPAS.

Those requiring cover will need to fill in a detailed questionnaire which asks for the model, make, management system and insured value of the RPAS; its class certificate and intended operating environment (for example, you may be flying it over the sea if you have a fishing business, which increases the risk of a total loss); and the pilot details with questions about the operator's pilot licence and total flying hours.

Remember, in order to successfully claim:

- You need to declare whether you're intending to take the RPAS across the border
- You need to declare whether you intend to do any hazardous flying – like at night or near power-lines
- You need to keep a flight log, in accordance with any standard flight operation.

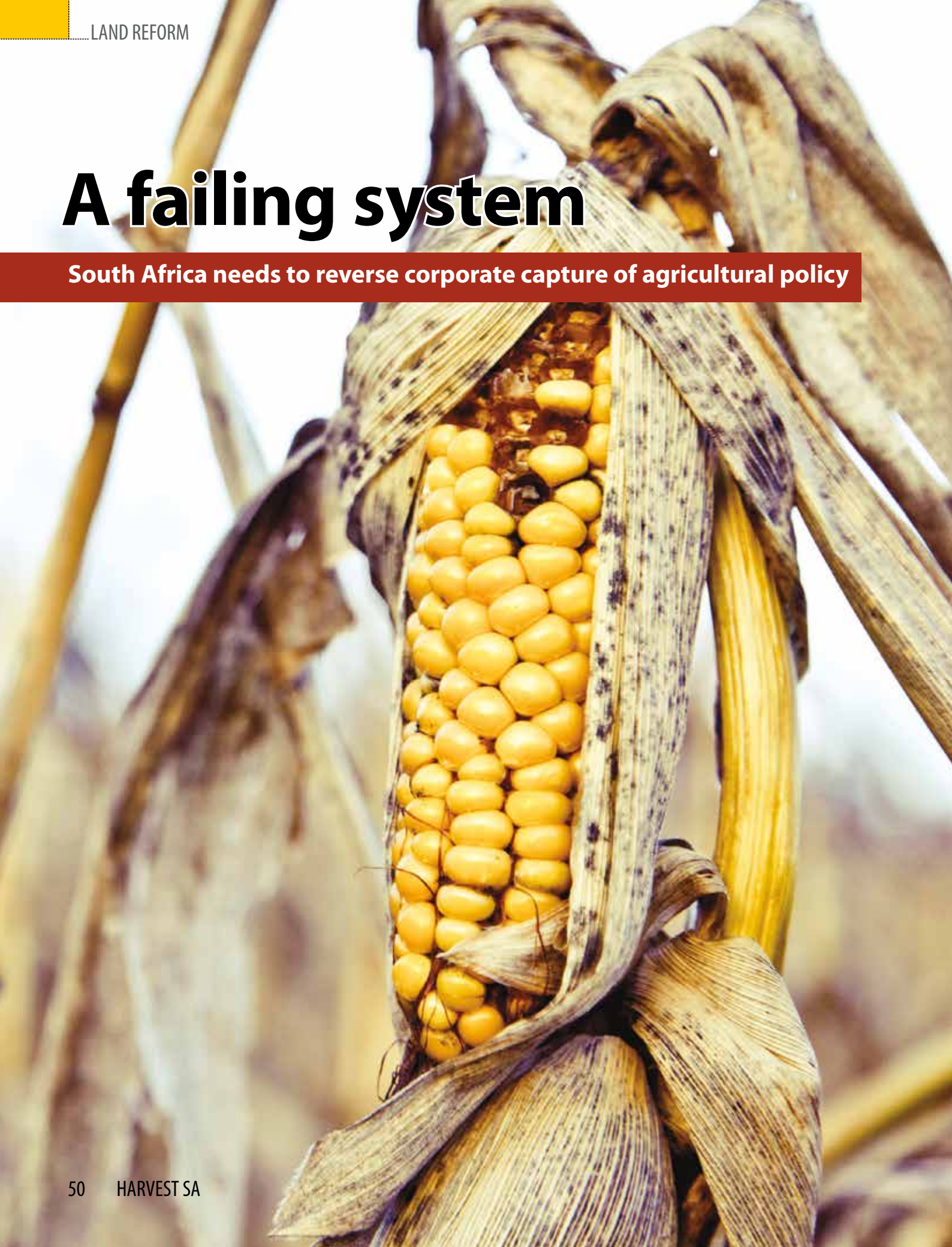
James says that insurance is worth the investment in the commercial sector especially, where drones tend to be more sophisticated and expensive. For businesses, there's also the option of business interruption insurance, should a drone-dependent company temporarily lose its RPAS, rendering it unable to be fully operational.

Drone enthusiasts should familiarise themselves with the regulations for operating drones in South Africa which were introduced in 2015 by visiting www.safedrone.co.za

For more information, visit Santam.co.za.

A failing system

South Africa needs to reverse corporate capture of agricultural policy



South Africans are embroiled in heated debates about the expropriation of agricultural land. But very little space is being devoted to how the country's scarce arable land could and should be used once it has been acquired.

This is an important part of the puzzle given that the country's existing industrial agricultural system has failed on a number of levels. A quarter of the country's population goes hungry every day. Price inflation makes nutritious food increasingly unaffordable and—as the listeriosis scandal recently revealed—food safety is easily compromised.

Unlike most other countries on the continent, South Africa's agricultural sector is heavily skewed to industrial farming. Its 40 000 commercial farmers produce most of the country's food. The official number of households engaged in small-scale farming is around 1,3 million, although this could be a low estimate.

The country's commercial agriculture sector relies on expensive and polluting genetically modified seed, pesticides and chemical fertilisers. It is also heavily reliant on irrigation: the commercial agricultural sector extracts 63% of the country's available surface water. None of this is good for the environment.

South Africa urgently needs to rethink its existing agricultural model. The current preference for large-scale, high-input farming enterprises fails to trust in small-scale family-based producers' ability to provide more efficiently for the market. Employing agroecology—farming without GMOs, chemical pesticides and artificial fertilisers—small-scale farmers can, with sufficient policy and practical state support, contribute significantly to food and nutritional security. This has been accomplished successfully elsewhere.

For example in the state of Santa Caterina in Southern Brazil, the state supported 60 000 small farmers with their agriculture, resulting in an increase of the sales of their produce by 64% after one year. In South Africa, it is also possible to make small scale farms work.

Powerful corporate interests

Why are South African policy makers choosing to back large-scale farmers? The answer is that they have succumbed to pressures from transnational corporations that have made farmers dependent on hybrid or genetically modified proprietary seeds, herbicides and fertilisers.

South Africa is the only country in the world that permits its staple food, maize, to be grown from genetically modified seed. Over 87% of South Africa's maize is now based on proprietary GM seed.

On top of this, the country's legislation is weak. The Genetically Modified Organisms Actpassed in 1997 does little to ensure biosafety. In effect it opened the door to the import and release of GM seed and enabled GM seed experimentation and bulking in South Africa. Instead of a strict impartial assessment of applications by the gene companies, the act allows for self-regulated risk assessments to be submitted to the regulator based entirely on in-house tests conducted by the GMO-purveying corporates themselves.

Nine years ago the state was forced, for the first time, to provide the public with information on GM permits after it was challenged by Biowatch, a South African food sovereignty non-profit group.

But the power of the large corporations has intensified in the intervening years. In 2012 South Africa's Competition Appeal Court allowed for the largest remaining local crop seed company, Pannar, to be purchased by DuPont's subsidiary, Pioneer Hi-Bred. This signalled the beginning of foreign monopoly control over local crop seed. This is now dominated by transnationals Monsanto, DuPont, Dow and Syngenta.

The country's drive to adopt GMOs has resulted in some spectacular failures. One involved Monsanto attempting to persuade small-scale farmers at the Makhathini Flats, a floodplain on the Phongola River in KwaZulu-Natal, to plant their proprietary GM cotton. The project was an attempt to convince the world that GM crops were suited to farmers like this. Monsanto flew representative Makhathini farmers around the world to advocate the corporation's position. But within only a few years the farmers found themselves deeply in debt and the GM cotton project was abandoned.

In the Eastern Cape province small-scale farmers were initially given free Monsanto GM and hybrid seed. Traditional farming practices were abandoned in favour of mechanical tilling and monocropping of maize. Called the Massive Food Production Programme, it failed to meet any of its key objectives over five years and swallowed R570 million in state funds. Productivity hardly improved and small-scale farmers where left with unpayable debts.

Support for small scale farmers

Helping small-scale farmers requires a number of interventions. The first is practical support. South Africa used to provide extension services to farmers, which consisted of independent advice. But budget cuts have reduced the quality of the service and opened the way for corporate agents to take on the roll. For example, in the Hlabisa district, KwaZulu-Natal, the state and Monsanto have combined efforts to influence the GM crops that farmers plant.

As part of the land debate, South Africans should be calling on government to abandon its bias towards monopoly agribusiness. The first step would be to reverse the measures that favour international agribusiness interests. Secondly, biosafety regulations should be tightened.

And significant resources should be diverted to support small-scale farmers. In doing so it will be minimising land and seed contamination, honouring traditional practices of seed saving and exchange, reviving and building sustainable employment opportunities, guaranteeing soil quality and food sovereignty. It will be a positive contribution to reducing carbon emissions and sustainable water usage.

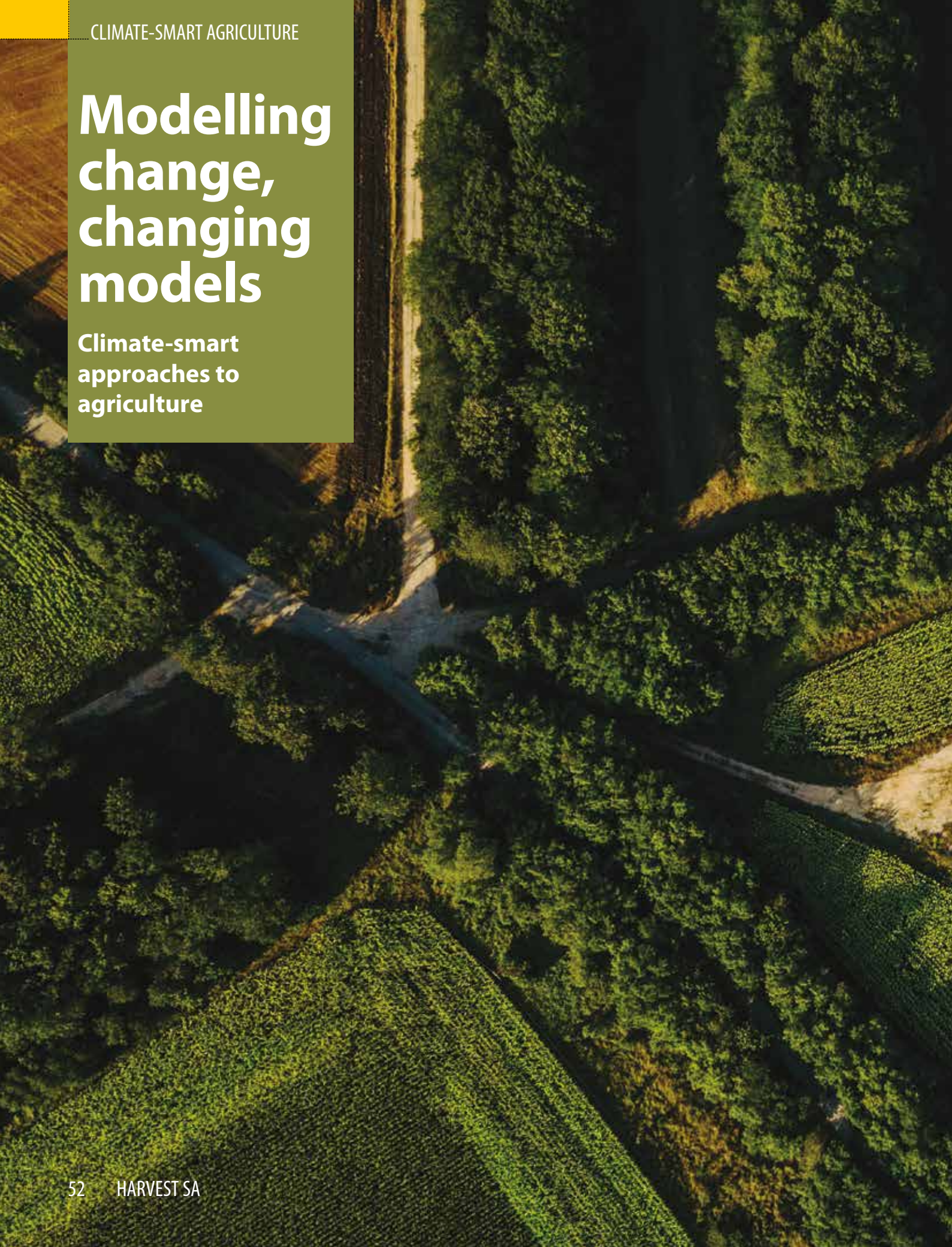
It is time to reduce the policy influence of agribusiness interests and answer the call for land with practical agrarian reform measures.

David Fig, Honorary Research Associate, University of Cape Town

theconversation.com

Modelling change, changing models

Climate-smart approaches to agriculture



Agriculture plays an important role in the Gross Domestic Product (GDP) of the South African economy. Just to give an indication, during the 2017 technical, recession the agricultural sector contributed 2,5% towards the GDP. The sector has also been identified as a key job creator. And it is expected that the sector will create 1 million jobs by 2030.

Despite this positive outlook, this important sector of the economy is facing massive challenges due to climatic condition changes and weather patterns. The climatic changes will rapidly make a huge impact on the country if not enough care is taken to mitigate their effects. Although the changes may be gradual and slow, the long-term effects are far more drastic.

The effects of climate change have the power to affect even countries with plenty of food reserves. Climate change is evidently becoming a reality. Temperatures are increasingly rising at a high rate and the coastal regions are increasing by 1-2 degrees C. The Agricultural Research Council (ARC) predicts that by 2050 global warming will have increased by 2 degrees, and will mostly exacerbate desert areas already dry and warm and producing agri products marginally. In South Africa, summer crops like maize will still be produced in the same areas as they are currently, but in smaller volumes. The same applies to potatoes, sunflower and soya.

This scenario paints a very bad picture if one considers that agricultural land is also decreasing due to factors such as mining, construction of big industrial warehousing and human settlement. These sectors are also contributing towards the country's GDP in their own right.

However, as the sector is facing such huge challenges, including how it is going to feed the nation with the agricultural space shrinking and the erratic climate conditions, the onus is upon scientists to provide solutions to farmers, and to preserve the sector from a collapse. Institutions such as the Agricultural Research Centre (ARC), which is a premier research institute in the country and the continent, are at the forefront of providing solutions.

The ARC is part of broad international collaborations to model the impact of climate change on Southern African agriculture. Based on the wealth of data gathered from stations around Southern Africa, the model points to a steady increase in temperatures in the regions along with erratic rainfall patterns. The model predicts productivity losses of 10-15 % for commercial maize, and farm revenue losses of 7-35%. However, it is also predicted that adopting proper adaption measures could almost completely prevent these losses.

The South African water supply is already at a disadvantage. Freshwater supply is already overstretched as water levels in the reservoir have decreased dramatically. Increased irrigation of the crops is not a solution either. The Western Cape province is the perfect example of the impact of the nation's overstretched water supply. The introduction of water sharing in the earlier parts of 2018 proves how overstretched our water supply is. Ground water level is also affected by the increasing mining production and acidic water drainage. These factors affect the agricultural sector.

The impact of the climate variation mostly is based on maize production, however some adaptation strategies such as irrigation require a lot of money and available water. As part of mitigating the impact on the sector, the ARC is advocating for Conservation Agriculture. Conservation Agriculture aims to achieve sustainable and profitable agriculture and is based on optimising yields, profits and livelihoods. The three main principles of Conservation Agriculture are minimal mechanical soil disturbance, diversified cropping, including cover crops and permanent organic soil cover-mulching.

The ARC is encouraging farmers to start looking into climate smart approaches for farming. These climate smart approaches include:

- Conversation Agriculture to optimise soil and rain fall
- Infield water harvesting for drop production in marginal areas
- Irrigation suitability assessment to save scares water resource
- Biogas production to integrate rural livestock and crop base systems
- Crop and cultivar development in response to changing conditions.

South African farmers can benefit from smart climate approaches and can save the land for the next generations to cultivate. Some of the key benefits of Conservation Agriculture:

- Protect the soil form soil erosion and improve water infiltration
- Control soil temperature and moisture
- Suppress wee, increase roots mass
- Increase content and diversity of bio mass
- Produce a positive residual fertiliser effect on following cash crops-below ground biomass
- Increase crop growth and yield
- Increase in food security and economic viability
- Reduce machinery wear and tear.

The increase of climatic changes is not being felt now, but it has the power to affect the nation and how we feed our people. There are solutions to every problem that we encounter. The ARC encourages everyone to contribute towards smart agriculture so we can save the land for future generations. The ARC as a premier scientific institution also encourages the indigenous knowledge systems to contribute to safeguard our land.

Assisting farmers with technology

Introducing the ARC Hub App

In its continued efforts to ensure a successful and sustainable agriculture sector through efficient and effective extension and advisory services, the Agricultural Research Council (ARC) has developed and taken to market the ARC Hub mobile application. The ARC Hub is an advisory services application that supports and enhances on-farm decision-making processes available on Android and Apple.

Accurate and timely information is required at every stage of the agricultural value chain involving numerous aspects of the agribusiness management such as land preparation; planting, animal management, water management, fertilizer application, pest management, harvesting, post-harvest handling, packaging, transportation, processing/value addition, quality management, food safety, storage and marketing.

The ARC Hub application effectively responds to the technical elements of the value chain as reflected in the ARC research areas. These include research on vegetables and ornamental crops, deciduous fruits, tropical and sub-tropical crops, grain and industrial crops, soil climate and water, plant protection, veterinary science, agricultural engineering as well as animal production.

The application also provides information on training programmes provided by the ARC for which farmers and others can participate as well as books that can be purchased from the ARC. Through the application farmers and experts can share early warning information for improved risk management in the sector. The ARC Hub tremendously improves the delivery of such information in a cost-effective, concise and user friendly form at the comfort of the user's devise and space.

The ARC Hub is supported by ARC experts through the provision and updating of agro-enterprise support information as well as addressing specific queries from farmers and extension officials as information users on the ground. The ARC Hub makes it possible for farmers, extension practitioners and knowledge brokers to access not only information at their fingertips, but to also access and interaction with experts for technical advice and support. The application effectively provides a virtual platform for researchers, advisory services practitioners and farmers to interact and learn from one another.

It is advisable that all users register themselves to allow the ARC to improve support by sharing relevant information as guided by the user profiles in terms of location and types of enterprises.

The ARC acknowledges financial support for the project from the Department of Science and Technology (Chief Directorate: Innovation for Inclusive Development) as well as collaborating developers from mLab Southern Africa.

Users can access the ARC Hub App free on Android and Apple. It can also be accessible through the web on www.archub.agric.za

The ARC is led by its highly capable executive team and enjoys the support of the shareholder through the Ministry of Agriculture, Forestry and Fisheries as well as its various partners.

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science & technology
Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

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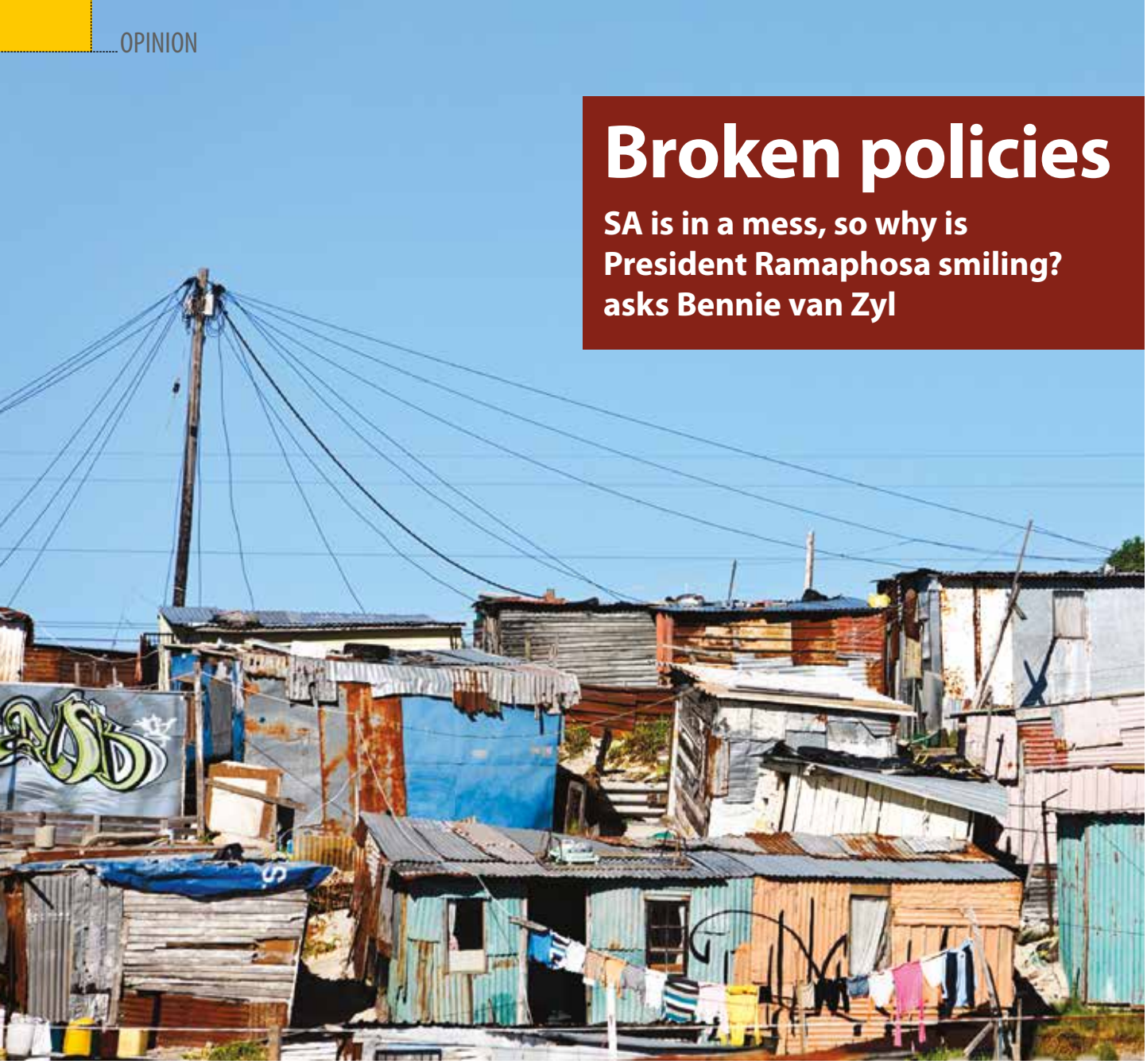
Broken policies

SA is in a mess, so why is President Ramaphosa smiling? asks Bennie van Zyl



Much publicity surrounded the visit of President Cyril Ramaphosa to the Muslim Community of Rylands in Cape Town to celebrate an evening meal – Ifthar – the breaking of the daily fast during Ramadan. As usual the president is smiling broadly for the press: the dinner was one in a string of widely-publicised presidential visits to various functions and meetings throughout the country since he became president. (It is interesting that Rylands has been listed by Tripadvisor.co.za as a place for travellers to avoid in South Africa due to crime. Resident Shabeir Shay declared he feels unsafe due to constant house break-ins and shop robberies. (Athlone News July 20, 2016). Abalone smuggling and smash and grab thefts are also prevalent.)

Did the president talk about crime during his Ifthar visit? Did he discuss what his government is doing about it? And what about the collapse of the country's municipalities, another problem which would affect the residents of Rylands and indeed all cities and towns throughout South Africa.

Local government is the ANC's Achilles Heel. It is indeed the elephant in the room. Its problems are so intractable that it will be virtually impossible for the country to ever claw back to the previous government's municipal efficiency.

Nobody really knows what South Africa's population figure is. It seems to go up arbitrarily, according to who is discussing it. At latest count it was 57 million. Migrants are everywhere – from Cameroon, Uganda, Nigeria, Burundi, the DR Congo, Ghana, Pakistan and of course Zimbabwe. Mozambicans simply cross through the Kruger Park's since the border between the two countries was abandoned. These people throng to this country's cities, and they utilise municipal facilities for which of course they don't pay. Where do they live? Where do they

work? Who keeps tabs on them? The African Union supports "free borders" in Africa, and president Ramaphosa upholds that policy. (Rapport 3/6/18).

Municipal structures are crumbling. Sanitation is non-existent in many areas. In one example, a cemetery in the West Rand has been closed because soil pollution from a neighbouring squatter camp has seeped into the graves. Citizens are advised to cremate their loved ones as no one knows what area of South Africa's soil will be polluted next! 150 megaliters of sewage is flowing daily into the Rietspruit river because unemployed people blocked the entrance to the sewage plant. They demanded jobs! The police were called but there was no indication that they actually arrived.

Government promises that by 2014 all squatter camps and informal settlements would disappear have come to naught. Since 1991 informal settlements have increased from 1,9 milion to 2,2 million Around 7 million people live in these places. Because the ANC promised free houses during pre-election canvassing, waiting lists for houses get longer by the day. Although the government has provided three million free houses since coming to power, the growing population numbers simply swamp these efforts. Everybody wants the free goodies promised, and when they don't arrive, anarchy takes over. Urban areas take the strain: 80% of South Africa's economic activity occurs in urban areas. According to Statistics SA, 55% of black people in South Africa live below the poverty line. Youth unemployment is more than 50%. In the former homelands, 65% of the population live on welfare.

Policy

Government policies are the cause of this inundation. There is little if any control at South Africa's borders. The "free everything" promises are unsustainable. Local government is broke. Of SA's 257 municipalities, only 13% are in full compliance with legal requirements, producing quality financial statements and performance reports. Auditor General Kimi Makwetu says 31% of SA's municipalities are not financially viable. Reasons given are "lack of appropriate financial and management skills", plus a failure to fill key personnel positions. But the government does nothing about this. Municipalities are still stating their affirmative action policies in job advertisements, which is ANC-speak for no whites need apply. So the public gets what it deserves as it continues to vote for the ANC.

Corruption is rife. Mr. Ramaphosa says he will "root it out". We'll see! Durban mayor Zandile Gumede is presently under investigation for money laundering, fraud and corruption. The mayor of Endumeni local council was arrested in northern Kwa Zulu at the end of May this year after the Hawks foiled an alleged plot to assassinate the speaker of the municipality. The mayor appeared in the Estcourt magistrate's court on a charge of conspiracy to commit murder.

Auditor general Makwetu's report revealed that at 215 municipalities R28.37billion was "irregular" expenditure, at 161 municipalities R12.603 billion was "unauthorised" expenditure and at 204 municipalities R1,52 billion was identified as "fruitless and wasteful" expenditure. Mr. Makwetu says the country's municipal problems are "exacerbated by a repeated failure by leaders to act on his office's 'insistent' advice". The sheriff recently attached computers and sundry office equipment at the Emfuleni municipality's offices because of unpaid bills. Rubbish removal has stopped because vehicles are either broken or have been put to pasture. Fifteen years ago this same municipality had 45 rubbish removal vehicles, all in good order.

Fifty-three municipalities received qualified audits because their information was incomplete. Mr. Makwetu's office could not audit procurement processes valued at more than R1,2 billion because documentation was incomplete. Inaction by leaders has created a culture of "no consequences", says Makwetu. The Treasury and the SA Local Government Association are "working to improve municipal financial management", says Cooperation and Traditional Affairs Minister Zweli Mkhize. This statement was followed by a long list of how his department was "strengthening" this and "improving" that. But unless the staff structure is changed, there will be more of the same. Mr. Ramaphosa can do nothing about this because he will not upset the municipal staff apple cart now that there is an election next year.

In the meantime violence rocks the land. Service delivery protests are a virtual everyday occurrence. Extravagant ANC promises are now albatrosses around their necks. There is no money to fund any of the promises because much of these funds have been stolen by the ANC's political appointees masquerading as civil servants.

Mr. Ramaphosa now finds himself in exactly the same position as ex-president Jacob Zuma. When matters get too hot, the blame game starts. In a speech last year, Mr. Zuma said "the whites have made you poor" to a cheering crowd. He spoke in Zulu. Mr. Ramaphosa is on the same tack. At the Ifhtar dinner in Cape Town, he waxed lyrical about the legacy of Nelson Mandela, and how apartheid and colonialism were the cause of the country's current malaise.

If this humbug is what the ANC's audiences believe, then there's little hope that any intelligent assessment will be brought to bear to vote out the ANC at the next election. More than 18 million welfare recipients vote for the ANC no matter what, just so they can collect their cash at the end of the month. Mr. Ramaphosa told voters in his constituency in Limpopo that "the boere will come and get you".

This is the level of political discourse in this country. How to rise above it is Mr. Ramaphosa's responsibility and indeed his duty. But many voters are not holding their breath until this happens.

Bennie van Zyl, General Manager, TAU SA

The views and opinions expressed in this article are solely those of the original author.

Igniting the economy

Transformation is everybody's business

Transformation can very easily become a buzzword that is thrown around in the corporate and agricultural sector. At Agri SA however we consider it to be an integral part of progress. Transformation is not just concerned with race, but with the empowerment of all South Africans. Food security is at the heart of every agricultural issue. At Agri SA we feel that transformation and food security go hand-in-hand.

In the agricultural sector there must be a focus on the empowerment of emerging farmers and workers, as well as on fostering sustainable partnerships. Partnerships are key to changing perceptions and realities for thousands of people working and living on farms. There are many successes that can be achieved by way of funding, skills training and enterprise development between government, the private sector and non-profit organisations.

Agri SA, through its membership base, has been actively involved in promoting transformation through numerous development programmes ranging from training courses to recapitalisation. A total of R331 million has been spent on transformation, and more than a hundred thousand farmers have benefitted from these programmes.

For example, Cotton SA currently provides training and mentorship to more than seven hundred cotton farmers in Mpumalanga. Nearly R9 million was contributed to this project from Cotton SA and the Department of Rural Development and Land Reform.

Grain SA, on the other hand, has a comprehensive farmer development programme that aims to develop black commercial farmers and to contribute to household and national food security. In 2016, close to R40 million was spent on the programme, in which nearly 10 thousand farmers participated. Grain SA says by assisting farmers to use the land they have available (however small), the sector will be able to ignite the rural economy and set the base for other developments.

The focus should be on how to address various socio-economic challenges in these communities. These challenges include gross inequalities, low level of skills, financial illiteracy and substance abuse.

In Agri SA's research numerous other challenges were also identified. This includes a shortage of capital, minimum wage requirements and strict local and export market requirements. We are looking at solutions for these challenges, among others. A farm is a business that can only be sustainable if it is profitable. Transformation in the agricultural sector is intertwined with commodity-specific and business management training and skills. Commodity organisations should be approached for mentorship in this regard. This approach is already in place and offers emerging farmers access knowledge, industry structures and platforms where skills are taught. A hands-on approach is key to sustainable development.

The reduction of inequality and poverty in a society promotes economic growth. The involvement and contribution of government in programmes should also be acknowledged and commended. The purpose of the development programme is to empower farmers to continue profitably and sustainably.

The focus is these programmes should be the financial independence of the farmer, financial literacy and management skills, as well as sector transformation. Continued co-ordination is essential is there is to be a constant and sustained progress. It is here where experienced farmers should upskill emerging farmers, and these farmers in turn upskill others.

Agri SA will continue to identify best practices and opportunities for further growth and finding solutions to developmental challenges. Agri SA aims to pro-actively update government and other stakeholders on the development work done and challenges experienced within the sector.

Yes, this is no easy task, and for some it might be a tall order. However, at Agri SA we are convinced we will achieve this.

Omri van Zyl, CEO, Agri SA

Simply.Grow.Together.

Adama continues its commitment to South African agriculture

Adama is proud to be the world's leading supplier of off-patent crop protection products. From humble beginnings in the 1940s and 1950s we have continuously grown and expanded to become a global player. Adama has managed to achieve three times the long-term historical growth realised by contenders in the very competitive global industry. Today Adama is doing business in more than 100 countries, including the top 20 agrochemical markets in the world.

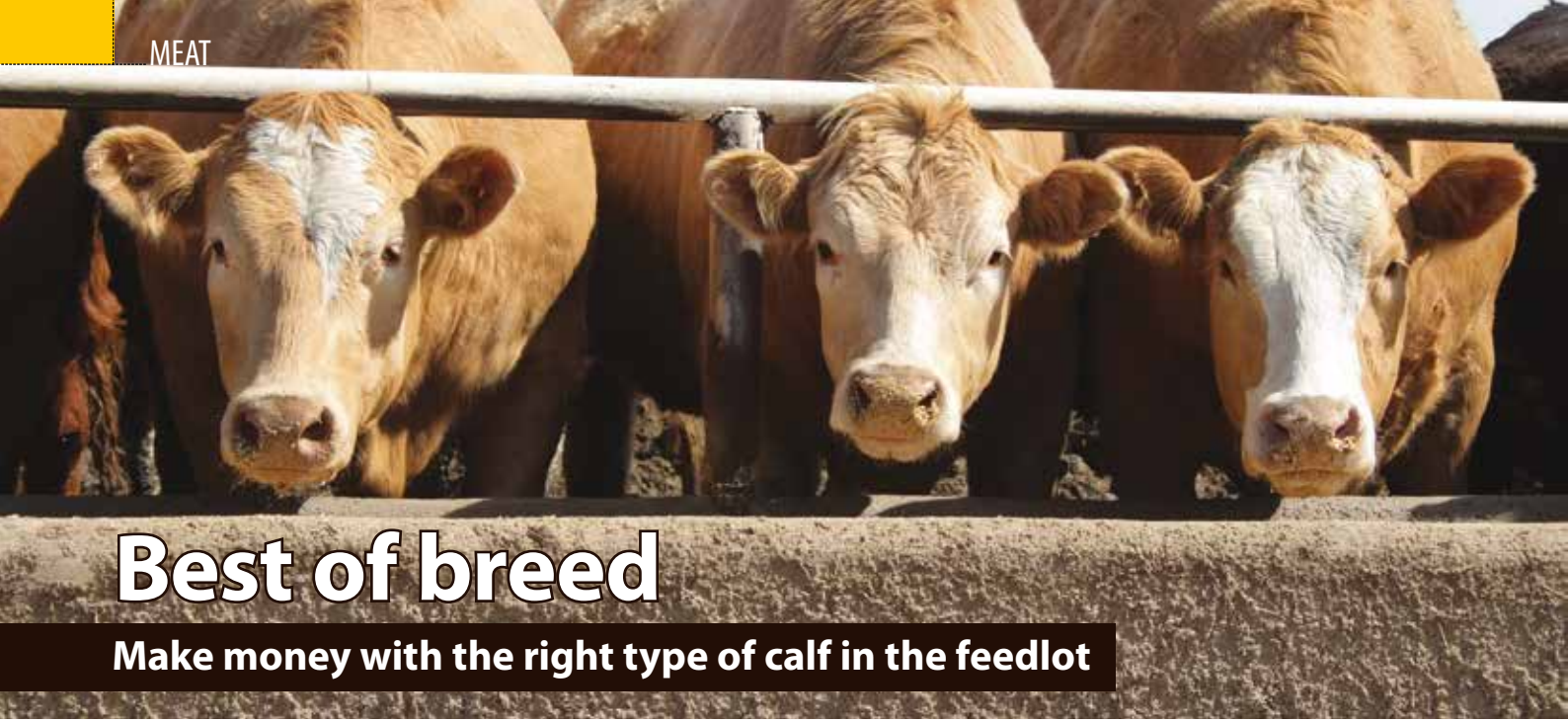
At Adama we put the farmer in the centre of everything we do to ensure that we offer solutions that are tailor-made to resolve key issues. Quality is our top priority and something we will never compromise. Farmers can therefore be assured that Adama provides not only excellent solutions, but also peace of mind.

Adama has seized a unique opportunity by becoming the world's first China-Global integrated company. This ground-breaking partnership with ChemChina ensures that we have first-rate access to raw material at a time of limited availability, and that we can still supply the highest quality products available on the market today.

In addition, Adama invests extensively in research and development of facilities, products, technologies and knowledge to ensure our continued growth and expand our ability to provide farmers with solutions that will simplify their businesses. We focus not only on traditional crop protection products, but also technologies that can support farmers in using these products more effectively.

Adama South Africa has been doing business for 21 years and during this time we have established ourselves locally as a market leader providing innovative solutions, quality products and value for money to farmers. We invest in renewing our offering to the main crop sectors to support farmers in growing their businesses and increasing their profitability. Adama South Africa will continue its commitment to support the South African agricultural industry.

Adama.
Simply. Grow. Together.



Best of breed

Make money with the right type of calf in the feedlot

Breed is not a term generally used in a feedlot, as the focus is rather on the right type of animal according to specific market needs and circumstances. In general, the market prefers medium-frame types as the carcass handles a lot easier and because of the size of the cuts sold to the consumer. However, if deboned cuts are used, the focus will fall on large-frame, late-maturing types. The reason for this is that the meat-to-bone ratio is better, lowering the processing costs. These late-maturing animals are also more profitable with a negative purchasing price and positive feeding margin. The mass at which animals are purchased is also important, as light calves less than 190 kg usually take a lot longer to adapt in the feedlot with regard to feeding and behaviour. Their ability to adapt can, however, be affected by frame type, age and condition. Mass also plays a role when determining the purchase price, as the heavier the animal, the greater the interest liability. As heavier animals usually need a shorter period to finish, the mass added decreases and with a negative feeding margin it is more profitable to purchase heavier animals with a positive price margin.

Gender plays a role at purchase, as heifers grow slower than bullocks and bullocks grow slower than bulls. Heifers are always discriminated against and the percentage of heifers in a group is always reflected in the price. On average there are approximately 30% heifers in a feedlot. Castration is only performed on animals that will develop male characteristics. Horns are clipped to prevent unnecessary injuries and especially bruising during marketing. Condition plays a role at purchase as it determines the duration of the feeding period directly.

Calves can be divided into three groups, namely fat, medium and dry. The fatness of the calf determines the duration of his time in the feedlot. It is usually weaned calves that are sold to the feedlot, that have fat on them. Newly weaned calves are usually highly stressed and become sick easily as they have less resistance. Weaning time usually corresponds with the turn of the seasons and winter months which further exacerbates problems. If the calf has been weaned for two months already and is dry, the feedlot has an additional benefit with regards to compensatory growth.

There are certain points on the animal with which his condition score can be determined. The following are the most important:

- Appearance of fat at the base of the tail;
- Thickening in the crotch that refers to fat deposits; and
- Appearance of fat deposits in the brisket area.

With quality, the focus falls on muscle development potential: the better the quality, the better the performance and the greater the profit per animal. It is important to note that good condition can on the surface appear to be muscles.

The following are places on a calf where a buyer can look for muscle development:

- The appearance of the muscle on the bottom part of the upper leg, just above the knee. Very little fat appears here, even in fat animals.
- The front stance of the animal. The wider the stance, the bigger the muscles.
- The bone structure (thickness) of the animal.

General feedlot finishing information and tips

Processing:

The three R's are important at receipt:

- Rest 12-24 hours.
- Re-hydrate to combat the moisture loss during transport of animals.
- Rumen – to provide the rumen balanced nutrients to get the animal out of a negative energy status as soon as possible.

Animals must be subjected to a full processing program within 24 hours after arrival before being put into a feeding pen:

- Identify with an ear tag

- Treat against internal and external parasites with dosing in summer and vaccinate in winter.
- Vaccinate against general viruses and bacterial feedlot diseases, particularly respiratory disease in cattle.
- Virus inoculations: IBR, BVD, PI3, RSV
- Bacterial vaccination against Pasteurella, Clostridium –species
- Consult your veterinarian regarding specific products.
- Application of an ear implant, immunisation, inoculation and regular weighing is critical.
- Treat with antibiotics as prescribed by a veterinarian if necessary.
- De-horn cattle.
- Provide roughage/hay during processing
- Remove and give special attention to sick or morbid animals.

Complete processing quickly but calmly:

- Minimise dust and mud and avoid processing or activity during extreme high temperatures.
- Place the animals in groups according to weight and gender at the beginning of the feeding period. Do not change the group after the feeding period. New animals in the group disturb social pressure/structure and cause competition.
- NB: Contact your veterinarian before applying the above mentioned processing tips. This information is a guide only and procedures may change in different situations.

Feeding pen specifications:

- Feeding pens must ideally be place at an angle of 1-7 degrees to ensure adequate drainage and to prevent problems such as foot rot.
- Provide clean cool drinking water, ± 40 litre/head of cattle/day.
- Feed trough space of 10-15m^2/head of cattle.
- Feed trough space of 20cm per head of cattle.
- Height on feeding side maximum 40cm for cattle.
- The feed trough must be 600mm in width for cattle.

Feed trough management:

- Feeding costs are high and therefore it is important to maintain good feed bunk management.
- Prevent feed from getting wet.
- Keep the feed bunk clean to prevent the development of mycotoxins.
- Fill at least twice a day with fresh feed. During the warm months, it is advisable to give 40% of the diet in the early morning and 60% of the diet in the afternoon. Animals eat little or no food during the hottest part of the day. Feed, especially when high in moisture, are negatively impacted when placed in the feed trough during the hottest part of the day. It is important that the animal eat the whole diet within 24 hours.
- Ensure that the feed trough always contain food to prevent the animals from overeating during feeding time and thus preventing bloat and diarrhoea.
- Dry material intake of cattle is 2.8-3.0% of the body weight after the adaptation period.

Cafeteria fattening mixes are extremely effective for backgrounding on winter grazing, or for preconditioning at 1-1,5% of the body mass on summer or winter grazing or in paddocks with long hay to prepare the rumen for the feedlot diet.

Correct adaptation of animals on a complete diet is very important:

- Day 1-5: Limit the complete diet to 1.8% of the body weight per animal per day plus long hay ad lib.
- Day 6-10: Complete diet plus long hay ad lib if animals are totally adapted and shows no sign of acidosis. The complete diet is fed ad lib after day 10.

CAFETERIA AND COMPLETE BEEF FAT 33+ DIETS FOR CATTLE

Mix instructions*		***1***	***2***	***3***	***4***	***5***
Molatek Beef Fat 33+	***kg***	*160*	*160*	*160*	*160*	*160*
Molatek Molasses meal	***kg***	****	*80*	*80*	*80*	****
Maize / Hominy chop	***kg***	*840*	*760*	*660*	*600*	*120*
Maize silage (35% DM)	***kg***	****	****	****	*350*	****
Maize cob meal	***kg***	****	****	****	****	*720*
Roughage	***kg***	*Ad lib*	*Ad lib*	*100*	*50*	****
Total	***kg***	***1000***	***1000***	***1000***	***1240***	***1000***

Feeding instructions for cafeteria adaptation phase:

Maize can be partly substituted with small grains (50% with barley or triticale, and 20% with wheat) and 50% with grain sorghum or in total with hominy chop.

Roughage or pasture must be available at all times *ad lib*:

- Day 1-2: Limit mixed concentrate intake to 1% of the body mass (2 kg/220 kg head of cattle/day) plus ad lib hay/roughage or winter pasture.
- Day 3-4: Limit mixed concentrate intake to 1,4% of the body mass (3 kg/220 kg head of cattle/day) plus ad lib hay/roughage or winter pasture.
- Day 5-6: Limit mixed concentrate intake to 1,8% of the body mass (4 kg/220 kg head of cattle/day) plus ad lib hay/roughage or winter pasture.
- Day 7-10: Limit mixed concentrate intake to 2,3% of the body mass (5 kg/220 kg head of cattle/day) plus ad lib hay/roughage or winter pasture.

Dr Vlok Ferreira, National Technical Manager Ruminants, RCL FOODS
vlok.ferreira@rclfoods.com

**Beef Fat 33+ Reg No. V17357 (Act 36 of 1947) Molasses meal Reg No. V7264 (Act 36 of 1947) N-FF0666*

Poland exports 40 million euros worth of honey a year

Farming at the fore

Poland seeks new markets

In May this year, *Harvest SA* took part in an international media mission to Poland coordinated by the Polish National Support Centre for Agriculture (KOWR). It was a whirlwind journey through landscapes of outstanding natural beauty, towns and cities steeped in the most dramatic, turbulent, tragic and romantic history—and people whose fiercely independent spirit is tempered by a pragmatism born of a long and close acquaintance with the soil. In other words, people that South African farmers can identify with.

Helping agriculture grow

A visit to the National Support Centre for Agriculture on a sunny spring Warsaw morning provided a snapshot of the state of Polish agriculture.

Historically, agriculture and forestry constitute the backbone of the Polish economy. Farming uses more than 60% of Poland's total land area and employs 12% of the workforce. Although the sector contributes only 3.5% to the country's economy, more than 60% of Poland's total land area is taken up by farming, and 12% of the country's workforce is employed in the agricultural sector.

Agriculture is currently the fourth largest economic sector in Poland, with a GDP contribution much higher than the EU average. Rural areas constitute 93% of Polish territory, and are home to nearly 40% of the population. The agrifood sector is an important component of the country's economic potential as it accounts for almost 8% of the total gross added value. It also provides employment for nearly 20% of the economically active population. Agrifood products accounted for 13.4% of Polish exports, up from 11% in 2010.

According to Martyn Mieczkowski, Head of Analysis and Strategy, for a number of years, the sector has been achieving a favourable balance of trade. The number of modern farms using innovative production technologies has risen considerably. Growth has benefited from subsidies provided to some 1.5 million farms—a notable benefit of belonging to the EU. Indeed, Polish agriculture and food processing companies have made good use of the opportunities afforded by access to EU food market. Today, Poland is a leading producer of fruit, vegetables, milk, poultry and meat products.

Factors contributing to the strong position of the Polish agri-food sector on the international arena include the use of modern processing technologies, high quality raw materials, the manufacturing of traditional products based on original recipes, and an active policy of promoting Polish food.

For this last, Polish farmers can thank KOWR itself. Founded on 1 September 2017 upon the merger of the Agricultural Property Agency and the Agricultural Market, the KOWR was established to meet the need for an agriculture and rural development institution to optimise existing organisational solutions and launch new instruments necessary to conduct an active national development policy for agricultural and rural areas, with programmes coordinated at central and local levels. In effect, KOWR is active at every level of the agriculture value chain, from rural education projects to promoting Polish products abroad.

KOWR's monitoring activities include monitoring the milk market, monitoring contracts for the delivery of agricultural products,

monitoring and supervising tobacco farming and the production and sale of raw tobacco.

In a country that is still very much reliant on coal-fired power, KOWR is active in promoting the use of renewable energy sources, as it monitors the market for bio-components and liquid biofuels, bioliquids production, and agricultural biogas production, and registers agricultural biogas micro-installations.

Tradition, quality and science

The road to Świeży Owoc (Apple Factory) meanders through the Grójec district, a patchwork of villages, fields, forests and rivers so naturally intertwined that you might be surprised to learn that it is not only the biggest apple-growing area in Poland but the biggest apple orchard in all of Europe.

Apples have a special place in the Polish soul. Świeży Owoc's director, Bartłomiej Brodzik, has been in the apple farming business since he was "this high" and his passion for his business was evident in every word and gesture as he took us on a tour of his orchards and packhouse. Here, science and tradition work hand in hand, from environmentally friendly fertilization and spraying methods to the state-of-the-art cold storage system that allows apples to be stored for as long as a year. Then there's the pasteurization technique that allows cold-pressed Polish apple juice to keep the natural flavour and health benefits of fresh apples. With no additives, artificial colours or preservations and 100% fresh juice content, this product would meet with the approval of South African consumers used to a juice content of 50% or less.

"Fruit farming implemented by Apple Factory is part of the Polish tradition and its cultural heritage," says Brodzik. "We have been growing fruit on our territory since 1545. From this passion, a group of Apple Factory fruit producers was born. We are faithful to the tradition of producing premium grade apples, which we export to the whole world. In the production of our fruit, we care especially for

One Day More

Polish agriculture by numbers

Cereal grains and preparations
- 3rd producer of cereal grains in the EU
- Key products: bakery products and pasta from different kinds of cereal, including gluten-free products
- Increasing share in Polish agri-food export structure
- Main destinations of cereal grains: EU countries, Saudi Arabia, Nigeria, Algeria, Mozambique, Egypt, South Africa, Norway, Cuba
- Main destinations of cereal grain preparations:
- EU countries, Saudi Arabia, South Africa, Senegal

Poultry
- 1st producer and exporter of poultry in the EU (16% of EU production
- 10th world producer (2% of world production)
- Main export destinations: EU countries, Hong Kong, China, Congo, Benin

Pork
- 4th producer of pork in the EU
- High quality pork (thanks to quality assurance programs)
- Other export destinations: UE countries, USA, Hong Kong, Vietnam, Canada, Chile

Beef
- 7th producer of beef in the EU
- Over 90% of production is exported
- High quality beef (thanks to quality assurance programs)
- Main export destinations: EU countries, Israel, Bosnia and Herzegovina, Turkey

Milk and dairy
- 5th producer of milk in the EU (8% of EU production)
- 12th world producer (2% of world production)
- Main export destinations: EU countries and Algeria, China, Saudi Arabia, Vietnam, Indonesia, Cuba, South Africa.

Horticultural and fruit products
- One of the biggest European producers of fruit and vegetables
- EU leader in the production of apples, carrots and soft fruits (sour cherries, cherries, strawberries and currants)
- Fruit juice exports include apple, sour cherry, currant, strawberry and chokeberry

Frozen fruit and vegetables
- Poland is the world leader and exporter of frozen fruit and vegetables and concentrated juice
- 2017 exports amounted to 345 000 tonnes of frozen fruits and 445 thousand tonnes of frozen vegetables
- In 2016, Poland was the EU and world leader in the world production of concentrated juice (423 000 tonnes)
- Poland is the leading world exporter of apple juice (292 000 tonnes in 2016)

Source: National Support Centre for Agriculture

Poland's largest apple orchard

food safety, protection of the environment and all living organisms surrounding our orchards."

On a side note, it is worth mentioning that the apple farmers of Grójec, and their workers, appear decidedly happy. It's tempting to attribute this to the increasing prosperity of entrepreneurs in the agriculture sector. According to official statistics reported by Radio Poland, farmers' families could count on 1576 PLN (375 euros) per person in 2017, as opposed to 424 PLN (100 euros) in 2016—a growth rate of 37%.

From the farm to the fair

Even habitués of NAMPO might be impressed by the extent of the sprawling Poznań Congress Centre, Poland's biggest trade exhibition space and home to the annual Polagra Food Exhibition. People came from far and wide, including 3221 representatives of the Polish food industry as well as exhibitors from Belgium, Bulgaria, China, France, Spain, South Korea, Lithuania, Macedonia, Germany, Sri Lanka, Switzerland, Ukraine and Hungary.

This year, the dairy industry took pride of place, unveiling numerous new products based on the latest consumer research. It was impossible not to be impressed by the likes of Mlekovita, which has grown from a small cooperative in 1928 to become Central-Eastern Europe's largest group in terms of milk processing volume and dairy product sales. Dairy manufacturing's most valuable brand, Mlekovita produces more than 800 product types and owns 16 manufacturing plants, 30 distribution centres, 24 laboratories and an R&D centre, not to mention a growing network of more than 100 of its own stores. Mlekovita exports to 144 countries, including 116 outside the EU—and South Africa is one of them, although you would never know, since the famous retailer that stocks its UHT milk is not obliged to divulge the information on the carton.

Visiting stalls, what came across with particular force was the extent to which agro-processing has been embraced by Polish entrepreneurs and the ingenuity with which they apply themselves to the opportunities at their disposal. One example was the Amkez food company, which makes snacks —but not just any snacks. Driven by the purpose of producing healthy food of the finest quality, founder Paweł Kamiński developed his own proprietary technology to make, for example, dried fruit that loses none of its original freshness or flavour. The taste is unbelievable—as the gruff, burly Kamiński clearly knows, to judge by the twinkle in the eye of this unlikely Willy Wonka as he watches people sample the product. Pressed for details about how the technology works, he deadpans like a movie gangster: "If I told you, I'd have to kill you—or marry you."

Another, more recent success story is that of One Day More, a start-up of young Polish women who have attached the snack market with a vengeance. Their concept was simple: use science to produce snacks containing specific combinations of nutrients so as to be certified for European Union food label categories such as "good for men", "good for women", "good for athletes", etc. Once the lab-work was done, these remarkable young women applied successfully for an EU grant to help them develop and market their product in supermarkets throughout Poland and the EU.

South African retailers take note: new markets are of the greatest interest to Polish food producers keen on allowing them to make the most of their impressive production potential—especially as oversupply of fresh produce threatens to drive prices down to unaffordably low levels.

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