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# Harvest SA

Issue July/August 2016

Securing South Africa's Food Resources

## Harvest of science

Improving fruit cultivars with the ARC

# Bright prospects

The sun is shining on SA citrus

ISSN 2305-0551 ***Harvest SA*** **wins gold at the international Tabbie Awards 2013 in the Best Single Edition Category**

TABBIES 2013 Award Winner

TABBIES 2014 Award Winner

# *Together we grow*

**South African women make a research breakthrough for the benefit of world mushroom industry**

**An unassuming farm in Bapsfontein, Gauteng, is home to Mabu Casing Soils, a company that has revolutionised the mushroom industry. The farm is a beehive of activity as trucks leave the premises laden with bags of sugar bagasse pith destined for the Eastern Cape.**

The activity is evidence that the environmentally friendly substrate produced by Mabu is a viable, cost-effective alternative to the peat soil generally used in button mushroom production, and progressively taking over the mushroom farming market.

After extensive research at the University of Pretoria by Dr Linda Meyer and Ané van Heerden, the duo found that mushroom casing pith from sugar cane bagasse, usually considered a waste product, can be used as an alternative to peat for growing mushrooms and seedlings.

With the assistance of the Technology Innovation Agency (TIA), one of the Department of Science and Technology's entities, Meyer and Van Heerden were able commercialise the product. TIA invested R4,2 million in the initiative, enabling the company to purchase the machinery it needed, like tractors and forklifts. Other funders of Mabu are the Innovation Hub, the Industrial Development Corporation and the University of Pretoria.

Casing is a top layer, applied to the spawn-run compost on which the mushrooms form, and also serves as a water reservoir to the mushrooms. Mushrooms require lots of water and do not grow well in uncontrolled compost – hence the need to cover the compost with casing.

Peat soil, an organic material previously used on 80% of South Africa button mushroom farms, used to be excavated for local farmers from Ventersdorp, Potchefstroom and Tarlton. In 2007, however, mainly because of environmental pressures and legislation on integrated environmental management, the South African Mushroom Farmers' Association (SAMFA) decided to stop using South-African-mined peat.

Among other negative environmental effects, peat excavation destroys wetlands, making the country vulnerable to floods and hurricanes, as well as reducing biodiversity. The extraction of peat is listed in terms of section (24)2 of the National Environmental Management Act, 1998, as an activity that must considered, investigated and assessed before excavation begins, and requires authorisation.

Until recently, South African farmers therefore had to import peat from the Netherlands, Canada and Ireland at huge cost. This increased the price of mushrooms sold in shops by about 10%.

But today 60% of the large-scale local mushrooms growers have switched to Mabu Casing Soils. SAMFA, which represents a majority of the mushroom sector, has given Mabu's workable alternative the thumbs-up, and the company boasts Denny's, Tropical and Boland Mushrooms among its clients. Agricon Mushrooms in Namibia is another client, and enquiries have been received from Malawi and Zimbabwe.

There are currently talks with Australia, Brazil, China, India, the European Union and New Zealand about purchasing Mabu's intellectual property so that they can produce their own pith, as this is in short supply and costs more than the Mabu product.

Dr Meyer explains that the biggest disadvantage of using peat for mushroom growing is that, besides being a threat to the ecosystem, peat (which consists largely of decomposing plant matter) accumulates very slowly, at a rate 1 cm or less a year, making it unsustainable.

The environmental benefits derived from Mabu's sugar cane bagasse pith are significant. Apart from saving wetlands, the product is made by adding value to paper-making waste from Sappi, a paper-producing company, thus contributing to a cleaner environment.

The innovation has also brought significant economic benefits. Mabu's exceptional water-holding capacity produces 25% more mushrooms than imported peat, and is an excellent source of water for plantlets. The company also currently employs 19 people in various jobs.

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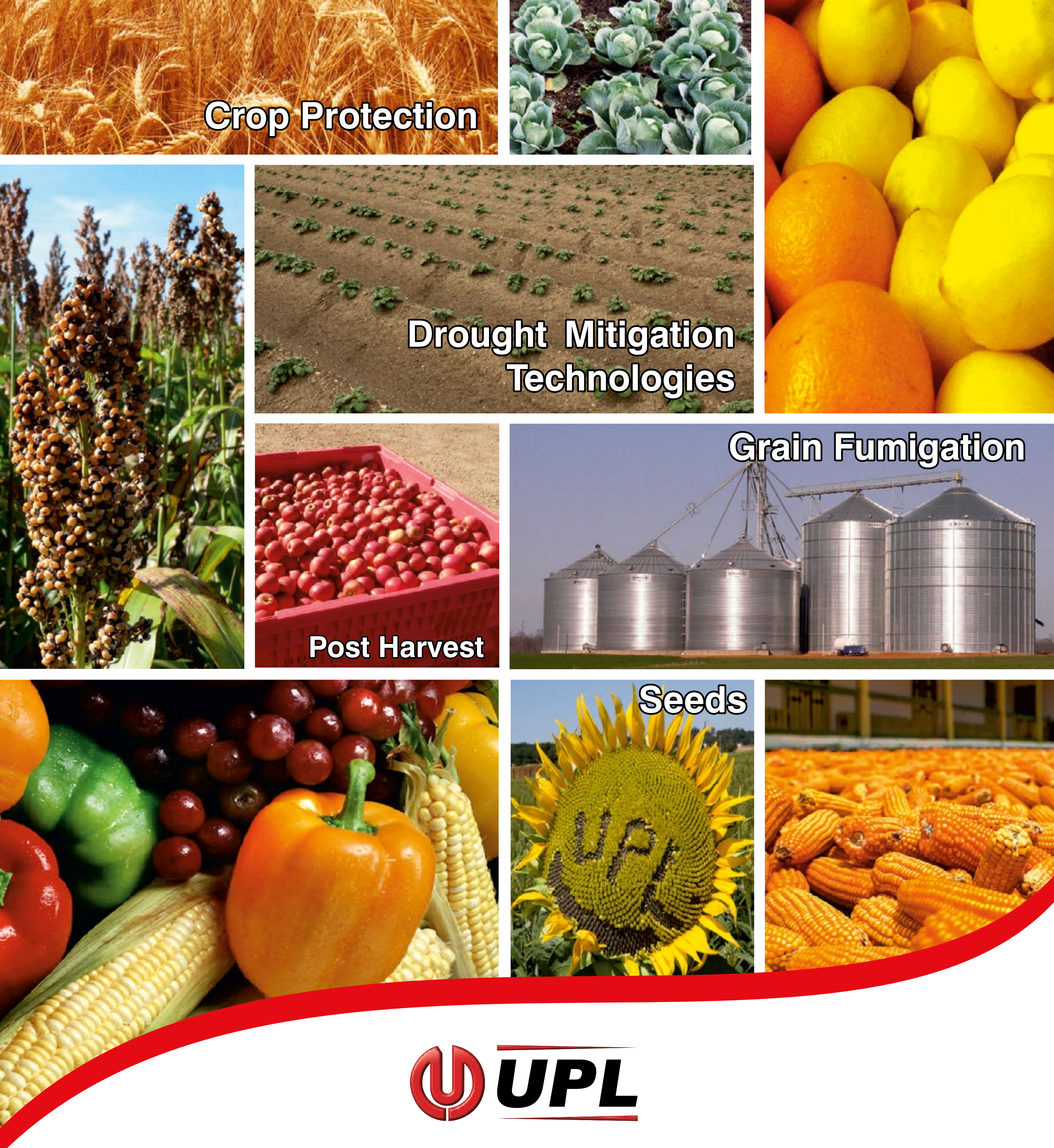
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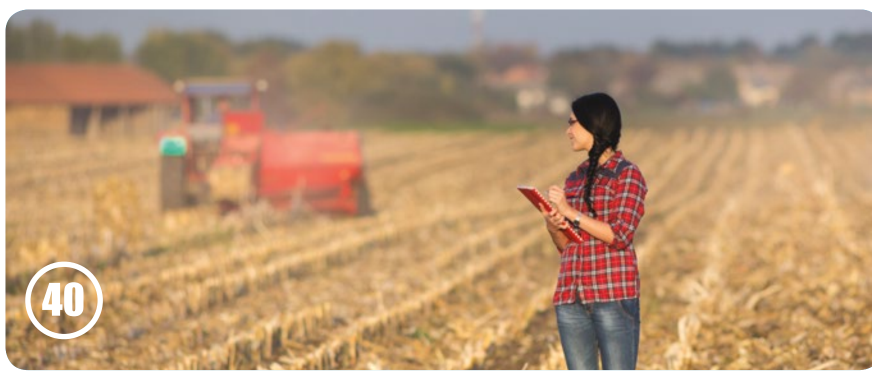




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CAPE MEDIA

# EDS NOTE

*GREG PENFOLD*
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**When times have been as hard as they have been lately, it's necessary to take encouragement wherever one can find it. Fortunately, encouragement is at hand.**

On Sunday 17 July, Microsoft founder and philanthropist Bill Gates delivered the 14th annual Nelson Mandela Foundation lecture in Pretoria. One of the key topics addressed in his speech was agriculture. Gates suggested that growing the agriculture sector could be a great economic opportunity for Africa. Although the sector is currently struggling, it could be transformed into a thriving business that could lift the economy as a whole. Innovation and climate change were key areas.

"Right now, most African smallholders suffer from an almost total lack of innovation. They plant unproductive seeds in poor soils in order to produce just enough to feed their family," he said.

Climate change is bringing more severe weather, which also affects agriculture negatively.

"... Doing more of the same is going to bring even more meagre harvests. The key to breaking this cycle is a series of innovations at every step along the way from farm to market," Gates said.

According to Gates, African farmers need better tools to avoid disasters and grow a surplus. They need seeds that are drought, flood, pest, and disease tolerant. It is necessary to develop affordable fertilizer with the right mix of nutrients to feed the soil.

Livestock vaccines have to be easy to administer, to stop flocks and herds from being destroyed.

"Second, farmers need to be connected to markets where they can buy these inputs, sell their surplus, and earn a profit they can invest not only in their family's basic needs but also back into the farm."

In light of these comments, the citrus sector is doing remarkably well, especially in terms of innovation and marketing. South African citrus is reaching new markets and the sector is growing.

From Gates' inspiring words to the inspiring deeds of farmers themselves, let us look to the future, innovate, and market ourselves.

# ALL SYSTEMS GO

Despite the drought and political upheaval in the UK, the outlook for South African citrus remains buoyant in the short and long term

**Summer in the northern hemisphere is a good time for South African citrus, and 2016 is no exception. North America in particular has extended a warm welcome, with Canada and the USA receiving the first shipments late in June.**

Although the states of California and Florida are famous for producing citrus, they are not capable of producing all year round. As a result, for the last sixteen years, South African citrus has been plugging the summer gap, with the result that this country's citrus, including easy peelers, navel oranges, and grapefruit, have become an eagerly anticipated and highly valued consumer commodity on supermarket shelves.

By way of promotion, the industry group Summer Citrus from South Africa took part in the United Fresh Produce Association convention in Chicago. Formerly known as the Western Cape Citrus Producers Forum, the organisation's aim was to showcase South Africa as a premier source of summer citrus.

SCSA representatives included Chief Executive Officer Suhanra Conradie, growers Stiaan Engelbrecht, Gerrit van der Merwe and Philipetri Fourie, and importers Capespan, DNE, AMC and Seald Sweet.

The new brand identity has a strong consumer focus. Among consumers in the USA, the popularity of South African citrus is increasing year after year, with South African citrus growers setting a high standard that has gained the confidence of the market.

According to the SCSA, despite the drought, the citrus crop has increased from last year and yields are likely to rise for at least five years to come. Navels account for 60% of SCSA citrus production, with Midknights next at 20%, easy peelers at 14%, and Star Ruby grapefruit and Cara Cara at 3%.

“We're pleased to see the demand of our products grow year after year with the support of our importers,” Conradie is reported as saying. “We have gained a lot of momentum with our collaborative approach and we intend to keep it going.”

Surprisingly, the drought that has plagued South African agriculture for the last years has not dented the appeal of South African citrus. On the contrary: according to Stiaan Engelbrecht, “Because of the drought we had this year, our citrus has quite an intense taste and very high sugar levels, so the quality is perfect. It's also the best eating quality we've had in quite a while.

“The fruit is a bit smaller this year, but it's perfect for bagging sizing, and we do see better movement these days in the bags, so we're quite happy with the size we have this year.”

“We're selling citrus here in the USA where California and Florida have always been the citrus suppliers, but we've been in the market for sixteen years, so people are getting used to us now.

Mark Hanks of USA citrus import organisation DNE World Fruit commented, “I give all the credit to the South African growers. They're doing the right job, they're packing the right quality fruit and the right ratio, and that's become very important. Not just physical appearance but also good taste keeps the consumers coming back. I think what they've proven over the past fifteen years is that they can improve every year, and every crop's different, but we have a standard now, which is great.”

Commenting on the importance of South African citrus, Hanks said, “It keeps the citrus shelf space full and consumers know they can get a good product year round, whether it's easy peelers, navel oranges, cara oranges, lemons or limes.”

**Brexit good for SA citrus**

Opinions differ as to the benefits of Brexit, as the UK's decision to leave the European Union (EU) is commonly known, but for the Citrus Growers Association (CGA) of Southern Africa has hailed the result as being positive for exporters overall.

U.K citizens voted by a tight majority to leave the trade bloc on June 23, but the process of leaving will take up to two years from the moment Article 50 of the Lisbon Treaty is formally triggered.

CGA CEO Justin Chadwick wrote in a newsletter that although the short-term impact of the weaker British pound might affect citrus imports into the UK, from a regulatory perspective, the long-term impact promised well.

“At present UK plant health regulations are the same as those of the EU, since these were harmonized in 1992. Entry requirements for citrus shipped from southern Africa to UK are the same as entry requirements for citrus shipped to mainland European member states of the European Union,” he said.

“An independent UK will in all likelihood introduce its own plant health regulations – or at least remove or rescind those regulations that have no impact on the UK.

“Since the UK does not have any citrus, plant health regulations on citrus imports should be easier to comply with than present EU regulations.”

This alone would constitute a ‘significant boost’ for southern African.

EU advisory bodies and scientific institutions would no longer influence the UK's decisions on plant health and food safety regulations. New negotiations between the UK and southern African countries around trade preferences and duties would be required.

“Present trade between the EU and South Africa is governed by the Trade and Development Cooperation Agreement (TDCA) and the recently concluded Economic Partnership Agreement (EPA),” he said.

“Since citrus would not be a sensitive product with regard to protecting domestic producers it could be anticipated that the UK would have reduced duty levels for southern African citrus. This would mean that UK citizens could potentially enjoy excellent quality southern African citrus at even lower prices.”

According to the European Fresh Produce Association (Freshfel), South African exports currently make up 36% of grapefruit, 27% of oranges, 19% of soft citrus and 11% lemons imported by the UK market.

“Over the past hundred plus years, the UK has been the biggest importer of southern African citrus (taking about 10% of total citrus exports),” Chadwick said.

“Brexit should see a normalization of citrus trade between southern Africa and the UK, unencumbered by protectionism, tariffs and technical barriers to trade.”

**Southern Africa’s citrus exports so far this season:**

- Shipments to the EU increased to 9.8 million cartons.
- Exports to the Middle East are up about 9 percent to 4.8 million cartons.
- Shipments to North America climbed 70 percent to 1.2 million cartons, while demand grew modestly in Asia and Africa.
- Russia is the only market where exports have slowed.

# Champions for change

## ClemenGold fruit pickers sign the world's first Comic Contracts®

**Exploring innovative ways in which to make contracts easier to understand for farm workers, Indigo Fruit Growers who produce, pack and supply ClemenGold mandarins to the local and international market, is championing change in the industry by offering their fruit picking employees the world's first Comic Contracts.**

Comic Contracts® is an idea developed by Robert de Rooy, a South African lawyer based in Cape Town and legal counsel for ClemenGold for many years. A Comic Contract uses visualisation to improve the understanding of contractual terms: the parties are represented by characters and illustrations are used to explain the terms of the contract. Challenging the taken-for-granted assumption that only text can capture the terms of a contract, a Comic Contract is a binding agreement using mainly pictures instead of words. The parties sign the comic as their Contract. Robert de Rooy explains: "It is based on the fact that pictures are easier to understand and easier to remember. The purpose of a Comic Contract is to empower the parties to understand each other, to understand what they expect from each other, and what they are committing to."

Comic Contracts® have been especially designed to address the needs of vulnerable employees: employees who either cannot read well or have difficulties understanding the language in which the contract is written. Whilst the legal system requires that all employees have an employment contract, it assumes that everyone can read proficiently and understand the contractual terms presented to them. However, this is rarely the case in South Africa. Especially in sectors employing low-skill workers (agriculture, mining, manufacturing, domestic workers), employees are rarely in a position to understand – or question – the contracts that they are given to sign.

For Robert de Rooy, "the way in which most contracts are drafted and presented ('this is standard, sign it or leave it') does not support a good relationship. Most employees don't read it, nor would they be able to understand it if they tried." This situation is perpetuating the power imbalance between employers and employees. Employees are bound to terms which they don't understand, can't live up to, and cannot use to hold their employers accountable. In such circumstances, misunderstanding and conflict in the workplace should come as no surprise.

Employing many workers who fall into the vulnerable category, Indigo Fruit Growers (part of the larger ANB Investments Group) felt it was important to address the contractual imbalance in the employer-employee relationship. "We are really excited about the transparency this contract brings to our employee relations. It creates a more equitable situation, which can only be the start of a more 'honest' relationship with our employees. I believe that workers can only commit fully to the content of a contract if they understand what they are signing," says Abs van Rooyen, CEO of ANB Investments.

Indigo recently initiated the implementation of the Comic Contracts®. First, the contract was presented to 50 fruit-pickers who had previously worked for Indigo. Following the successful induction of these 50 workers, the contract was presented the next day to a further 163 fruit-pickers. Commenting on the process, Faan Kruger, farm manager of Indigo Fruit Growers says: "The feedback was positive. No picker asked for the old contract. Although everything was new and there were many questions, the process went much faster than with a traditional contract".

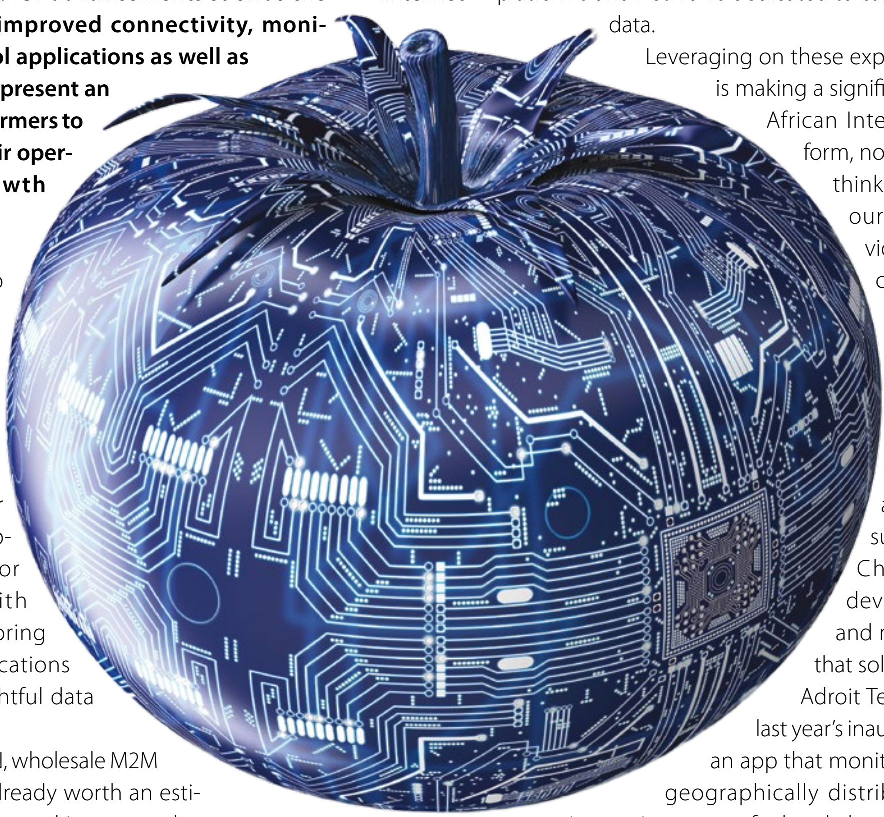
The Comic Contracts® used by ClemenGold™ were presented at the International Contract Simplification Conference in Switzerland (http://cgd.swissre.com/events/contract_simplification.html#tab_6), where it was received with great excitement. Following the presentation in Switzerland, Robert de Rooy has been invited to present the concept at The International Association for Contract and Commercial Management (IACCM) America's conference in San Diego in October. Robert de Rooy comments: "I am really grateful to ANB Investments for backing the Comic Contracts, financially contributing to realize something that had never been done before, and be willing to implement it!"

*Charlene Niewoudt*

# MACHINE TO MACHINE

## M2M technology is driving agriculture's industrialisation

**The agriculture and Information and Communications Technology (ICT) sectors are heading for a union that is being brought about by natural calamity, economic developments and changes in the ICT space. Natural disasters such as drought, coupled with farmers' security and the rising operational costs in the agricultural space are driving the quest to help improve safety, efficiency and stimulate growth. ICT advancements such as the Internet of Things (IoT), improved connectivity, monitoring and control applications as well as M2M technology present an opportunity for farmers to help improve their operations and growth steadily.**



IoT has opened up productive ways for farmers to make informed decisions when planting, cultivating soil, observing movements of their livestock and equipment checking for maintenance with the use of monitoring and control applications that provide insightful data and regular alerts.

According to MTN, wholesale M2M in the country is already worth an estimated R350 million, and is expected to grow to R1, 2 billion by next year.

Given the ability to automate many monitoring and control functions through intelligent devices, agriculture is a prime target for leveraging M2M capabilities. Whether collecting data from sensors connected to production machinery, livestock, vehicles, dam level or soil moisture monitors, M2M technology offers farmers an opportunity ripe for the picking.

The automation of basic functions allows producers to deploy their workforce to tasks in which they can further increase production output.

Telecommunications providers such as MTN, have responded to M2M developments in agriculture and other sectors by providing platforms and networks dedicated to carryout IoT connections and data.

Leveraging on these expected developments, MTN is making a significant investment into a Pan African Internet of Things (IoT) platform, not only to inspire innovative thinking and enable growth of our clients, but also to provide enterprises with greater control and advanced management features for their connected devices and SIM cards.

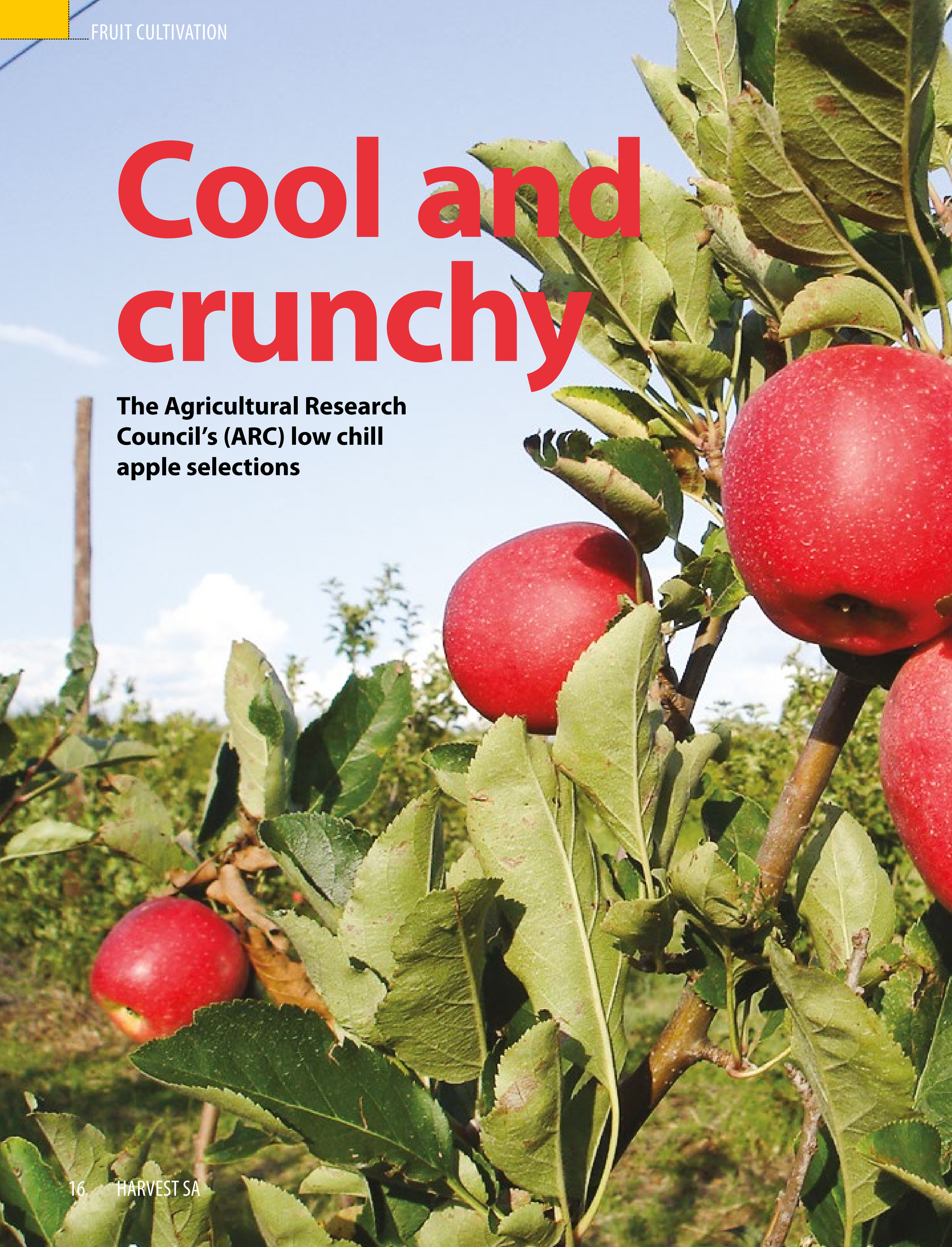
In addition to providing this platform, MTN – through MTN Business – has also introduced initiatives such as the Mind-2-Machine Challenge to encourage developers to create scalable and relevant business solutions that solve real-world problems.

Adroit Technologies, the winner of last year's inaugural challenge, developed an app that monitors, controls and manages geographically distributed generator sites by inspecting power, fuel and alarm systems. Given the wide-spread use of stand-alone power systems in agriculture, this solution is bound to find ready application throughout the sector.

*Mariana Kruger, General Manager for Private Sector at MTN Business South Africa*

# Cool and crunchy

**The Agricultural Research Council's (ARC) low chill apple selections**



**Over the past fifteen years, the ARC has put a bigger focus on breeding apples which are adaptable to South African conditions.**

Due to South Africa's 'warm' winters, only a few regions could be used to grow pome fruit, viz. apples and pears, and because of this Dr Iwan Labuschagne, the then apple breeder, decided to use the low chill cultivar Anna to breed selections which need fewer chilling hours than standard cultivars viz. Golden Delicious, Pink Lady and Granny Smith. As a result of their early flowering, harvest times for some of these low chill selections can be six to eight weeks earlier than Royal Gala in some regions. They therefore extend the apple season by two months and, although optimum cold storage time is shown to be around four weeks, they provide good quality fresh apples in late December and January when apples are not yet readily available.

The selections were planted in warmer regions of the country such as De Rust (Western Cape), Mookgophong (Limpopo Province) and Mgwali (Eastern Cape), as part of the rural development programme, and are flourishing in these areas. As these areas mainly plant stone fruit, it is a challenge convincing farmers to try out these apples, but with the success that Mr Paul Roos had in transitioning from stone fruit to apples in Mookgophong, more and more farmers were willing to plant a few trees as a trail, and are now starting to see the results.

The first of the low chill apple selections to be experimented with were planted at Elgin Research Farm in 2005 and six of these have now been protected with Plant Breeders' Rights (PBR). These selections, or the Afri range as they are now known, will be released by the AR soon. The Afri range is just the first of the low chill series, and more recently, there have been new low chill selections coming through, some of which have improved appearance, colour and taste. As some of these new low chill selections are only in their second year of Phase 2 evaluation, more research viz. evaluation and cold storage tests will be needed before they can be released.

To aid with this, the Phase 2 pome fruit evaluator, Dr Khashief Soeker, requested input from industry partners and Culdevco, ARC's head licensee, during orchard walks and fruit exhibitions, held during the season. The willingness of the industry and Culdevco to provide input led to nine new, promising, low chill selections being identified, with at least one identified for fast-tracking. New trees of these selections will be propagated and planted at various sites around the country to evaluate their performance and fruit quality. This process will be supervised by Culdevco, which deals with Phase 3 semi-commercial trials of ARC selections, with input from Dr Soeker.

*For more information, contact Dr Mogamat Khashief Soeker on 021 809 3100 or soekerm@arc.agric.za*

*Left to right: Burgert van Dyk (SAPO Trust), Potgieter van Zyl (Producer from Citrusdal), Anton Erwee (At Source Handmade Foods), Werner Pieterse (ARC Researcher) and Hein Agenbag (Culdevco)*

**ARC INFRUITEC-NIEVOORBIJ'S ANNUAL STONE FRUIT DRYING EVALUATION**

The Agricultural Research Council (ARC) hosted their annual stone fruit drying evaluation on Wednesday, 18 May 2016.

In order for a successful evaluation to take place, the post-harvest team prepares the fruit for scoring. Fruits are sun-dried for 2-3 days, followed by wind stacking for 10-12 days. Drying trays are stacked on top of each other allowing wind to flow through spontaneously. Once dried, the fruit is stored and sulphur dioxide and moisture content analysis are subsequently done.

The fruits are then put on display and evaluated by members of industry, producers, farmers and other role-players. Mr Dappies Smit - GM: Dried Fruit Technical Services, mentioned that this annual evaluation is part of the breeding project. "Industry spends about 8 million rand on breeding and evaluation projects, this being the biggest project. The panel is made up of industry and research personnel. We are looking for the best, from the best" said Mr Smit. Fruits are scored on appearance, colour and fleshiness. These results form part of the progress report and each cultivar gets a percentage and rating. Mr Smit said that "the information gathered lets us know if the cultivar makes the grade or not. They have to be evaluated for more than one season and get planted semi-commercially. Cultivars are then used to multiply material and go commercial."

# UNITY is STRENGTH

## Family businesses are the backbone of agriculture

**Session two of day three of Nation in Conversation at NAMPO focussed on family businesses in agriculture with anchor Theo Vorster, CEO of Galileo Capital, hosting a panel discussion with Tommie van Zyl, CEO of ZZ2; Pieter Karsten, Deputy MD of Karsten Group; Prof. Elmarie Venter, Director of NMMU's Unit of Family Businesses; and Danie Minnaar, Chairman of Senwes Ltd.**

Danie set the tone for the discussion by stating that about 80 – 90% of small businesses were family owned, adding that many huge brands like Monsanto and John Deere began as family businesses.

Prof Elmarie said it was an undisputed fact that family businesses play a massive role in economies all over the world while Theo mentioned that the concept of family businesses could be traced back to biblical times.

Tommie, whose family business (ZZ2) produces half of the tomatoes in South Africa, said it was important to ensure that the business remains united. "Make sure you have a good succession plan so that the next generation does not have to begin from scratch. Also ensure that everyone in the business shares the same vision and steer clear of greed."

Pieter added that "You need to accept that you are only in play now, in the present, and you're actually building for the next generation. Learn your lessons and take advantage of it going forward."

Elmarie reminded the panel that a family business was still just a business. "It will endure the same challenges of a normal business. You have business and ownership issues, in the family business you have the added family dynamics to contend with as well. You have to be aware of and manage issues like nepotism."

Danie said the two main challenges of running a family business are communication between family members and succession planning.

Elmarie concurred saying it was vital. "You have to discuss these issues in great detail and it should ideally culminate in a family constitution. This will ensure that everyone would have had an input in the way the business is run."

She added that the worst way to do succession planning was via a last will and testament.

Another challenge family businesses face is appointing the right person for the right position. "You need to manage the business professionally. Once the business grows to, let's say, several hundred employees, it cannot be managed in the same way it was when it was just mom and dad running the show. You also have to appoint someone best qualified for a position instead of whoever might be next in-line in the family," said Elmarie.

Pieter added that "As the second generation I was fortunate to grow up with the business as a 7 year old. I learnt that I had to earn respect and my dad helped by ingraining in me that this was a business and not my personal ATM."

*Marlon Abrahams*

# Risk and reward

## Making cultivar choices

**Following deregulation of the South African Citrus Industry in 1997, the previously, rather pedestrian pace of citrus farming has changed for growers and has become fast paced with more direct risks and opportunities. Growers have now become directly exposed to the 'marketplace' and its numerous requirements. Factors such as quality and taste, shape and size, colour and maturity of fruit can have a big impact on income and profit. This has led to the introduction of many new cultivars.**

Growers are looking for cultivars that differentiate their product offering to marketers and retailers that ultimately increase their farm gate returns. Breeders in turn are working on cultivar characteristics that could provide these returns, through the selection and development of cultivars, leading to a number of cultivars being released to compete for growers' interest. While there have been a number of cultivar successes, there have also been some failures, resulting in unhappy growers.

In this environment, faced with a number of cultivar choices, it is important that growers identify their own approach towards making decisions where all the information is not readily available. Broadly, growers may be classified into four behavioural categories based on their appetite for risk. Some are innovators, while others can be classified as early adopters, late adopters or laggards. Characteristics such as farm size, solvency of the farm, market position and age of the farmer sometimes explain the different adoption behaviours, but behavioural characteristics and appetite for risk are key determinants thereof.

Growers should recognize in which category they fall and upon this, base their approach to new cultivar adoption. Growers that are more comfortable with risk, tend to be more accepting that all cultivars do not perform well. Other growers are quick to point to agents, nurseries and breeders when cultivars do not perform as expected. Cultivar breeders, agents and nurseries do not provide guarantees on cultivar performance, so the onus still remains on the growers to remain informed and ask the right questions to make their decisions.

To guide growers, companies such as Citrogold categorizes cultivars according to their developmental status, viz. experimental, potential, semi-commercial and commercially recommended, thus defining the level of knowledge of them and associated risk of planting them. With semi-commercial and commercially recommended cultivars, some information on production and marketing performance about the cultivar is available, and growers will be recommended to make semi-commercial plantings of not more than 5-20% of the cultivar as part of their total plantings. With experimental and potential cultivars, growers should appreciate that marketing and production information is still being collected and evaluated, in trials of 5-10 top-worked trees (experimental) to 100-1000 trees (potential) across different climatic regions.

*B.V Offer1 and V.P Ramburan*
*Citrogold (Pty) Ltd*

*Citrogold is a responsible participant in the citrus industry, seeking in its business to balance the interests of breeders and that of farmers that are willing to share risk. It recognises that planting a new cultivar is a long-term investment, and encourages growers to invest in the required time, effort and costs to find the necessary information about new cultivars that will enable them to be comfortable with the level of risk of the cultivar concerned.*
*Citrogold has licensed over 10 000 hectares of plantings of cultivars in South Africa, thereby contributing significantly to the competitiveness of the South African citrus industry.*

# River Bioscience

**River Bioscience was establish in 2004 as the sister company of the Citrus Research International (CRI). The Southern African Citrus Growers' Association (CGA) is the full subsidiary of River Bioscience and, hence, we strive to provide the southern African citrus industry with the latest developments of CRI research.**

Our product range includes natural remedies which can easily be integrated into an existing pest management program with no negative influence on efficacy of other products. The environment will also appreciate the harmless effect on bees, fish, birds, beneficial insects and wild life. Registrations of our products ranges over many different crops, including citrus, avocadoes, litchis, tree nuts, macadamias, pecans, grapes, grains, oilseed, legumes, pulses, cotton, most vegetables, celery, peaches, plums, nectarines, mangoes, peppers, ornamentals, pomegranates, pomes, and persimmons.

Both CryptogranTM and HelicovirTM contain viruses that are natural diseases of the pests involved. Once the virus is introduced in an orchard or field, the virus can establish and improve management of the pest. M3 and Invader-b-lok ensures that the fruit fly populations stay under control when incorporated with a well-managed program. Because no harmful residue is present, no withhold period is applicable.

*For further information, or for a complete list of our products, please feel free to contact us or visit our website: www.riverbioscience.co.za*

River Bioscience

*The Natural Choice*

**River Bioscience** is a leading biocontrol company owned by the **Citrus Growers' Association**. By using our products, the citrus grower invests in their own business, giving us the opportunity to support them with the high quality research-proven products. Extensive research by **Citrus Research International** and other independent parties support our products and its promise to perform outstandingly. We bring you innovative developments and discoveries resulting from the latest industry-funded research. These developments are offered to citrus growers and other fruit producers to enhance their global competitiveness. Profits generated by sales are direclty invested in the industry's research and support structures under direction of the Citrus Growers' Association of Southern Africa.

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# Sappi Containerboard

## A complete solution of premium quality products for increased production efficiency and lower cost end-use products

**Celebrating its 80th anniversary this year, Sappi has been a loyal supplier to the paper packaging industry for many decades. Although evolving, Sappi's strategy and mission is still firmly based on wood fibre products and processes, with packaging identified as a strategic market segment with strong global growth potential. As a consequence, Sappi has been making significant investments in its manufacturing operations so as to manufacture worldclass products.**

Used in the manufacture of boxes and cartons, Sappi's paper packaging products contribute to economic growth through the export of fruit and vegetables in boxes. Sappi offers an extensive range of premium quality fibre-based packaging products, with an extensive supply-chain network set up to service customer needs throughout the country. Innovative products meet industry requirements in line with market trends for paper combining the advantages of light weighting and strength.

Sappi manufactures a range of fluting and liner paper products for the agricultural markets for packaging fresh fruit and vegetables. Sappi also produces packaging paper products for frozen meats and fish as well as the industrial market, where heavy-duty boxes are required for transporting and shipping automotive parts, domestic appliances, beverages and cans.

**Key benefits of products**

Products such as KraftPride®, UltraFlute®, UltraTest® and FusionTopliner used in box combinations offer customers versatility in application. For example, KraftPride, a 3-ply virgin linerboard available in grammages from 140-330g/m$^2$ combined with UltraFlute, a semi-chemical fluting made from virgin NSSC fibre in grammages 125-180g/m$^2$, can provide strength and cost optimisation opportunities to box makers. The products' superior burst and strength properties, together with high humidity performance, ensure that they retain strength over longer periods of time in changing cyclic humidity conditions experienced throughout the supply chain. The benefit to customers is that these properties prevent boxes from collapsing. The liner applications of KraftPride and FusionTopliner provide a superior print surface to enhance the aesthetic appeal of graphics on end-use boxes. This enables brands to differentiate themselves from their competitors. UltraTest has a 100% kraft appearance and can substitute recycled liners.

"Our product innovation is driven by market demand," says Richard Wells, General Manager Commercial, Sappi Paper and Paper Packaging. "Developing lightweighting products that address yield and cost advantages will assist box makers in constructing a box that is cost competitive, without compromising on performance standards. It not only maximises machine performance and runnability but also impacts positively with carbon footprint and benefits of reduced road, air and sea-freight costs."

Part of Sappi's value proposition to the industry is the services offered by the Sappi Technology Centre. Industry bodies are assisted with paper, board and box testing. Some of these include Cobb tests, Scott bond test, box compression (BCT), Shortspan (SCT) and Concorra Medium Test (CMT). All these parameters are critical measurements in box construction.

"We manufacture products that adhere to international standards and that carry ISO 9001 and ISO 14001 certifications. The woodfibre used in our process is a renewable resource that is FSC® (Forest Stewardship Council®) certified, biodegradable and recyclable. In addition, relevant products are certified safe for food contact through BfR (Bundesinstitut für Risikobewertuing). Paper packaging is an ideal medium to protect products from farm to market," ends Wells.

# SUCCESSFUL SUCCESSION

## The role of retirement annuities as a form of planning

**Planning is more about people and the future than money.Farmers whose estate planning is centred on ensuring that their agricultural legacy is continued by their children should be critically examining the way they are preparing for the future – relying on a single financial solution to provide financial means for family to inherit a farm that is a going concern may not meet the mark.**

Succession planning is not just about having life insurance policies in place. It is about understanding the benefits of various financial solutions, their correct structuring and having a holistic financial plan.

Above all, successful planning and avoiding pitfalls is about pulling advice from several sources and combining inputs to arrive at a workable estate plan.

The problem, traditionally, is that various professionals give their input to farmers. Unfortunately, when the financial advice from these various sources is combined, the outcome is often not satisfactory. The reason for this is that each has a limited perspective regarding succession planning and applies only the products they have against the farmers' request for assistance.

The emphasis now is to get these people working together. In the case of Standard Bank this means that the banker who grants a farmer credit, the estates expert who executes a will and the financial planner.

The objective of the team is to ensure that on a farmer's death, the farm's business is structured correctly so that the estate – and therefore the family – are in the best possible position to have credit granted. This means that the farm can continue to trade and that it has the liquidity to continue doing so. The outcome should be that succession plans can be implemented and that all family members benefit.

Relying on life insurance being paid into the estate may pay off farm debt, but the question of estate duty and capital gains tax could rear their heads with the result that up to 25% of the estate's value could be compromised.

**The role of life insurance and the beneficiaries of policies**

The cheapest way of creating liquidity is through life policies that, if correctly structured, can assist with paying inheritances, SARS and bank debt. The real question that has to be asked is where the payment should be vested. Often the obvious answer that the beneficiary should be the spouse is not the best solution. Often the beneficiary should be a company.

The farmer has one chance to have funds "mushroom: somewhere. It can mushroom in an estate, in a trust or to a company. Having it available through a business means that creditors can be paid, loan accounts settled or used for the benefit of shareholders. Cash can also be paid into the estate to account for estate duties. Liquidity housed

in the correct entity can therefore go a long way to solving many problems at the same time.

**The role of a trust**

A trust is still one of the most popular forms of estate planning. Although a trust remains the answer to estate duty problems, the game may change; instead of trying to avoid paying the duties on death, the emphasis should be on calculating the liabilities and ensuring that these can be met and the family can continue.

Trusts, and especially transactions – such as interest-free loan accounts – undertaken by a trust are increasingly coming under the SARS spotlight.

A trust, besides offering estate duty savings, has onerous tax administrations attached. To get assets in a trust can only be done by way of loan accounts or through donation – which attracts tax.

In addition, trusts can sometimes unwittingly spark family conflicts. A spouse may want income, children want capital.

A retirement annuity has additional benefits for farmers. It is not only a retirement tool; it should also be viewed as an alternative to a trust.

Consider that a trust's primary function is to administer assets for beneficiaries. An RA's function is to provide benefits for dependents. An RA is therefore a trust in its own right.

Its main benefits are that it has tax approval, is tax efficient and has benefits. Funds accumulated within an RA do not attract tax. Therefore, there is no capital gains tax; no tax on dividends from equities in which the RA is invested, and no income tax.

As a spouse is a dependent in terms of an RA, the spouse must be considered by pension fund trustees. Her maintenance needs must therefore be examined and met. Her income is also protected against creditors.

The advantage, again, is that liquidity is created. Above all else, when a person invests in an RA, he or she also qualifies for a tax deduction against income that can be as high as 27,5%.

**How succession planning can be fair to all offspring.**

Succession planning is about financial planning, estate planning and wealth planning being combined. Planning becomes extremely important when a farmer is planning to distribute his estate when there is more than one child to be considered. Above all else, succession planning should not be about money, it should be about people. Regardless of the value of the estate, there are many factors that have to be considered.

Many a farmer's inclination is to leave his farm to his only son. Points to be thoroughly thought through are:

- Securing the spouse's future through a usufruct guaranteeing her the right to live on the farm and also benefit from its income. A financial burden is then placed on the child continuing with farming. In the event of the farm enterprise failing, the spouse can lose her security and future.
- The farmer's son having to pay out siblings for their portions of the farm. This can set the son back to the point where the debt incurred can effectively put farm operations under stress.

What must be considered is that although the farm may have a substantial value, the son inheriting the land is also taking on a cost structure and the risks associated with farming. Therefore, a daughter can be provided for with an inheritance that may be smaller, but has no risk at all attached to it.

**Increasing farm size**

Increasing a farm's size through acquiring more land is not always a sound strategy.

A farmer will usually spend any available cash to buy more land. This may increase the value of the farm, but it also escalates the tax liability. Most importantly, liquidity that can be used for estate planning is absorbed.

In the end, succession planning is about people and the future, and to a lesser extent, about money. Making sure that plans for the future include financial planning, estate planning and wealth planning and holistically consider all possible future scenarios is the most important task any farmer can face.

*Errol Meyer, Senior Manager, Advisory Propositions at Standard Bank*

# Automation in agriculture

## Worldwide trends manifest in South Africa

**Gossamer Structures provides solutions that place our customers in the best possible position to benefit from the global trend toward automation. Gossamer has been at the forefront of design and manufacture of packaging equipment and solutions for 23 years and we have more than 1500 units operating worldwide, serving a variety of packaging needs.**

An excellent example of our expertise and innovative spirit is the Gossamer PP-Twin Automatic Citrus Packer. This single machine offers two packing heads in a footprint much smaller than two of our competitors' machines. The result of this ingenious design is that this machine has the ability to pack two different counts simultaneously through the two packing heads. One can even pack telescopic cartons on one side and open top trays on the other. This means use of your sizer at maximum efficiency, all while keeping only two of your personnel occupied with operating the PP-Twin machine. An additional feature of the Gossamer PP-Twin is the ability to pack lemons – our uniquely designed suction cups place us in a position to pack even oblong lemons. Because our suction cups are designed and manufactured by Gossamer, they are up to 90% cheaper than our competitors' imported cups. None of our competitors offer these unique benefits. An exciting new development on the PP-Twin is an optional sheet inserter. The machine can now be ordered with the ability to insert sheets of wax paper between layers of fruit, all while running at up to 400 cartons per hour through the two packing heads.

Gossamer is renowned for its corrugated carton packaging equipment. Our most recent development is a fully automated telescopic carton erector and sealer. One of the main problems with telescopic cartons is that existing machines can only erect and seal either inners or outers, meaning you end up with a stack of the one half and none of the other. Not anymore. The Gossamer TZ-201 telescopic carton erector erects and seals inners and outers simultaneously. This patented machine has two magazines, one for inners and the other for outers. The machine singulates a carton blank from each magazine alternately and erects the carton. The result is a machine that supplies a single inner, followed by a single outer, single inner, single outer, etc.

Another development is a fully automated robotic palletizing solution for the citrus industry. This solution can be tailored to your specific needs, be it telescopic carton palletizing, open top tray palletizing, or a combination of both. We work closely together with Yaskawa-Motoman, a world leader in robotic automation, seamlessly integrating our solution with the robot and your packhouse. Our solutions are 100% modular and can be tailor made to your packhouse design and your requirements.

Another important consideration is that all Gossamer machines are locally designed and manufactured - this means spare parts are available at extremely short notice. Parts prices are also lower, because the parts for your Gossamer machine are supplied directly from the manufacturer.

Contact us for more information, or to discuss your unique automation requirements at 021 851 2464, or visit our website at www.gossamersa.com. Alternatively, to see video material of the above solutions in high demand production environments, go to www.youtube.com and type "gossamer packaging machinery" in the search bar to link to our Youtube channel.

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## Robotic Palletizing
Unlock the potential of your packhouse with a fully Automated GOSSAMER Robotic Palletizing System.

## TZ-201
Erects Inner & Outer Cartons Consecutively Full Automatic Telescopic Carton Erector.

* Patent App Num: 2016/00518

## Paper Inserter
Automatically Inserts Paper between layers of Fruit - Integrates with a GOSSAMER PP-TWIN Citrus Auto-Packer.

* Patent App Num: 2016/03202

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# Waste to energy

## Microbes as drivers of energy production during anaerobic digestion

**South Africa alone consumes 45% of the total energy that is produced in Africa. Eskom supplies approximately 95% of the electricity that is used in SA and this electricity is primarily derived from the combustion of coal, over 90 million tons of which are used annually by Eskom. However, coal-fired power plants are environmentally disadvantageous due to the emission of copious amounts of greenhouse gases, the generation of large amounts of waste by-products that may contain harmful substances, and the destruction of habitat and landscapes due to coal mining. Initially, Eskom provided electricity at the cheapest rate in the world, but since 2008 the state-owned utility has been unable to supply electricity on a continuous basis to all the people of SA. This has resulted in frequent power cuts and the ever increasing price of electricity. Furthermore, the country's high dependence on non-renewables has resulted in South Africa being one of the top twenty greenhouse gas emitters in the world. There is a dire need for renewable energy to be exploited in SA.**

Another major problem in SA is waste management. At present, 566 million tonnes of waste is generated annually in SA. Most of the garbage that is produced is taken to landfills but some, especially in rural areas, is dumped alongside the roads where people stay. This contributes to a higher prevalence of air-borne diseases and emissions of greenhouse gases. Biogas production would serve as a dual solution to both the energy crisis and waste management in SA.

Biogas is produced during the anaerobic digestion (AD) of organic matter by bacteria and archaea in the absence of oxygen. The by-products of the AD process are various gases and a nutrient-rich effluent. The gases that are produced are primarily composed of methane which has a high energy value. Methane can be combusted directly for cooking, heating and lighting or may be converted to electricity or transport fuel.

AD is commonly used in farming practices, municipal waste management and the brewing industry. AD occurs naturally in oxygen restricted habitats such as wetlands, marshes and the intestinal tracts of ruminants. The process can also occur in man-made bio-digesters which are air-tight vessels that are designed to optimize biogas production. Numerous factors contribute to the success of the AD process, including the temperature at which the system is maintained, pH, agitation, moisture content and the hydraulic retention time.

AD can be broken down into four stages or phases. Microorganisms (bacteria and archaea) play an important role in all the stages of the AD process. The initial stage is hydrolysis, where fermentative bacteria convert the macromolecules such as proteins, carbohydrates and fats into soluble molecules such as sugars, amino acids and fatty acids. The second stage is acidogenesis, during which the products formed in the hydrolysis stage are further fermented to form volatile fatty acids, such as lactic, butyric and propionic acids. During acidogenesis, oxygen that may be introduced into the digester by mistake can be used up by acid phase bacteria belonging to the facultative anaerobes (microorganisms that can grow in the presence and absence of oxygen). This is very important in the creation of favourable conditions for the obligate anaerobes (microorganisms that cannot grow in the presence of oxygen) such as Pseudomonas, Bacillus, Clostridium, Micrococcus and Flavobacterium. Acetogenesis is the third stage of the AD process, where simple molecules that were formed during acidogenesis phase are further digested by acetogenic bacteria to produce carbon dioxide (CO2), hydrogen and acetate. The final stage is methanogenesis, where methanogens use the intermediate products formed from the previous stages and convert them into methane, CO2 and water. Some of methanogens that play an important role in this stage include methanobacterium, methanobacillus, methanococcus and methanosarcina.

It is clear that microorganisms are actively involved in all the AD phases. In order for the end product (biogas) to be formed, numerous microbial species need to work closely together. Any disruption in the microbiological process will result in a reduction in biogas production or even the collapse of the system as a whole. Hence, it is of utmost importance that the microbiology of the AD process be understood when attempting to operate a biogas digester.

The Agricultural Research Council (ARC) is currently undertaking biogas research that includes the microbiology of the AD process. This research is a collaborative effort between the ARC, the South Africa-Norway Research Co-operation (SANCOOP) and the National Research Foundation (NRF). The overall project is aimed at the establishment of low-cost, household digesters in a rural setup. Laboratory studies are also being conducted to enable a comprehensive understanding of the microbiological process when various feedstocks are used for biogas production.

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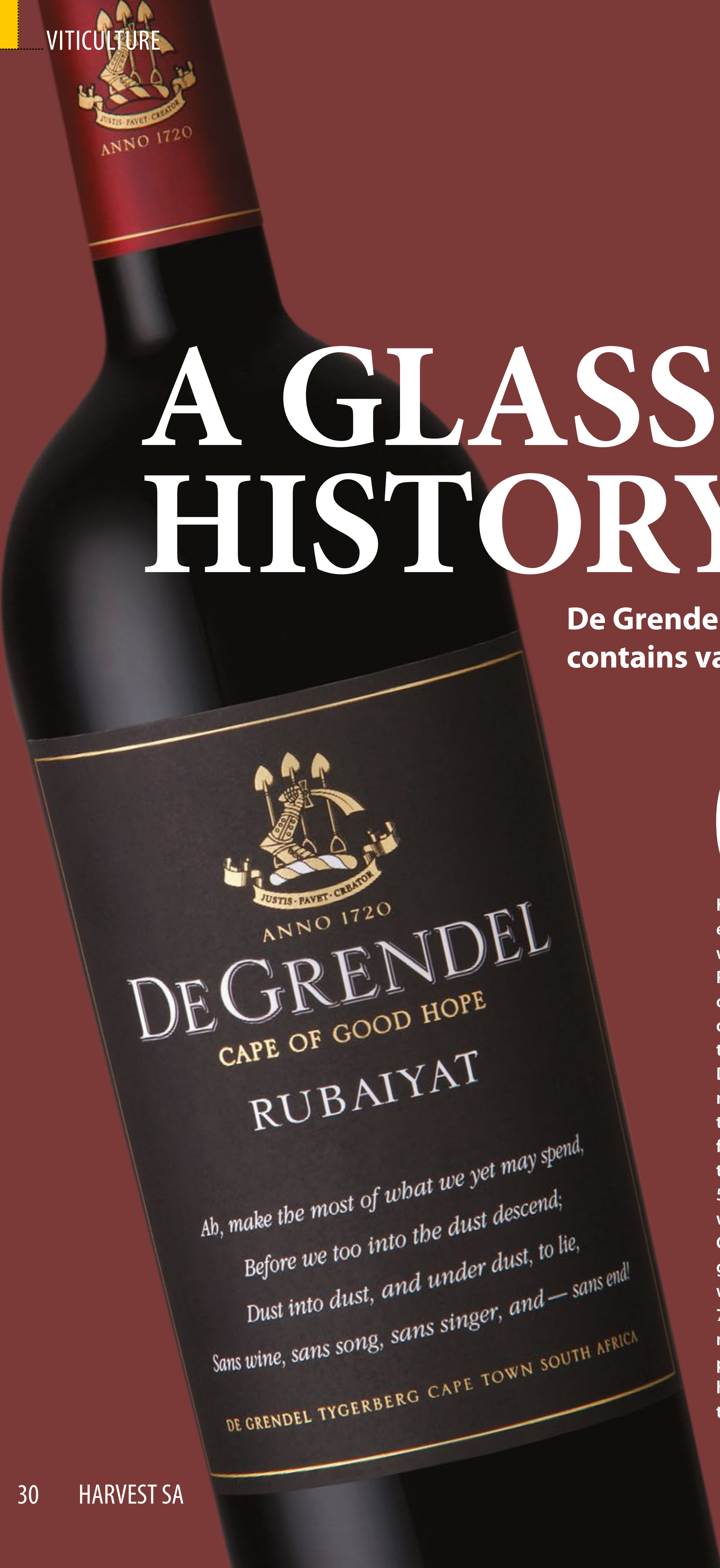



# A GLASS OF HISTORY

## De Grendel's success story contains valuable lessons

Chatting to Sir De Villiers Graaff, the Fourth Baronet of De Grendel Estate, is bit like being in a scene of Downton Abbey. The three Baronetcy titles, conferred by the British Crown in the 1911 Honours List to South Africa in the very early days of the Republic, were somewhat of a political hot potato. “Then President Louis Botha didn’t want to offend by refusing the offer but equally didn’t want to further entrench links to old England in the new republic,” Sir De Villiers tells me, “So selected three non-eligible bachelors in the hope that the hereditary honour would die with the first Baronets. Soon after receiving the title, my great grandfather David, then 52 years of age, married a much younger women, the daughter of the Groote Kerk Church Dominee (minister), and three generations later I inherited the title when my father David died at the age of 74 on 24 January 2015.” He explains that much like in Downtown Abbey, where the property is entailed to the eldest male heir, De Grendel may not be sold and the title is linked to the estate.

*Sir De Villiers Graaff*

Although today renowned for wines and its fine restaurant under executive chef Ian Bergh, De Grendel's agricultural start was initially in housing the Arabian horses and as grazing land for the prized Stud Holstein cattle, the oldest herd in the country at over a 100 years in age and with the finest global genetics.

Louis Botha's links to De Grendel are stronger than just the history of the title: two Norfolk pines were planted by Botha and his wife and still stand outside the main house where Sir De Villiers now lives with his family. Unlike the style where the male heir is called by his first name, spouses are known as Lady Graaff and De Villiers' mother is now, very Downtown Abbey, addressed as the Dowager Lady Sally Graaff while his wife is Gaedry, Lady Graaff.

As South Africa's closest link to the aristocracy I asked Sir De Villiers if having the title makes a difference to the business of De Grendel. "I'm not so sure that the title in itself makes a difference but having a story to tell does," he smiles sitting "soft", as he puts it, in the comfortable wingbacks of his De Grendel Office adding "because people are interested in the history, in our legacy. Our history is who we are and we want to enhance and protect it."

"While I was studying B Agriculture with Viticulture and Agricultural Economics as majors at Stellenbosch University I was friendly with Duimpie Bailey's daughter and chatting to him he said we should plant wine grapes at De Grendel.

"We have a joke in the family that when there is a good idea everyone takes credit for it but I suppose the credit should go to Duimpie. In around 1993 we dug profile holes and we sent the soil for analysis." He explains that the idea to plant wine grapes wasn't a sure thing: "'If we plant vines where will my cattle graze', my grandfather asked but when he came around my dad took the idea and ran with it planting the first vines in 2000," he says.

"In 2003 my dad came to me with the idea of building the cellar as we had to value add to make the vines viable."

Graaff explains that they recently consolidated planting to 85 hectares. "We planted initially on the advice of Distell but have now removed Cabernet and Malbec which weren't yielding well. We planted more Sauvignon Blanc and Petit Verdot which is a major component of Rubiaiyat, our Bordeaux-style blend with four varieties including Cabernet Franc, Merlot and Cabernet Sauvignon to match the quatrains of the Omar Khayyam poem my father loved so much. It is a very popular wine and much demanded in China and currently sold out."

"My father knew that the only way to make vineyards profitable was to make an exceptional and consistent quality product and made the important decision of hiring the right winemaker from the beginning in the person of Charles Hopkins. The challenge for medium-sized wineries in the Western Cape is that we can no longer over deliver on quality and undercut on price," he warns.

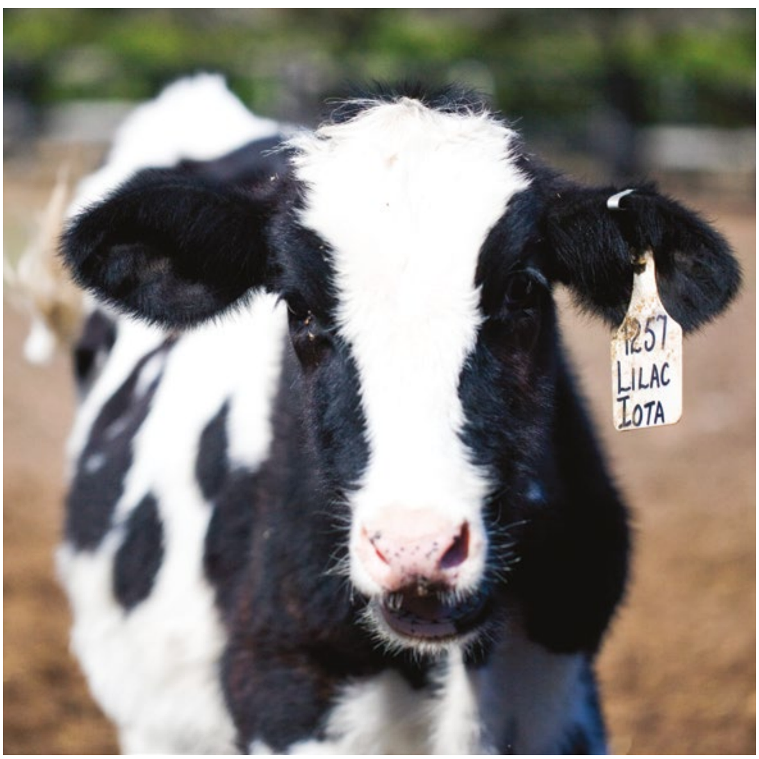
De Grendel is very happy with the sales of 2000 cases of 12 Sauvignon Blanc through Waitrose supermarkets in the United Kingdom. I ask if his chairmanship of The Waitrose Foundation—a not for profit community outreach—helped him get his wine into Waitrose but he stresses that the wine department and the Foundation are entirely different business divisions.

Currently exports, 35% of sales, are mainly to Holland, Germany and UK but China is a growing market for their red wines. "65% of our sales are local, 40% of which are through our distributor, and the rest direct: on the farm in the tasting room, restaurant and online, as well as through our loyalty club."

I ask about the other farming units and his role in the fruit business in Graaff Fruit and in Delecta. "I handed over the fruit farming to Graaff Fruit of which my brother Robert is Managing Director but I still attend monthly board meetings and visit the farms at least once a month. Most of my time is spent at De Grendel which includes Angus for beef, Holstein dairy cows, SA Mutton Merino sheep and now also game in the form of antelope such as Bontebok, Duiker, Grysbok and Eland which lived on the hills and plains of the Cape." Graaff tells me that apart from expanding into Craft Ciders which will be made by former assistant winemaker, Elzette du Preez, renowned for producing De Grendel MCC, who is now consulting to develop apple ciders based on Granny Smith, Golden Delicious, Fuji and Cripps Pink varieties, there are plans to offer walking and vehicle-based experiences through the farm to see the game. Blueberries are a new crop for De Grendel and they, from their position on the slopes of the Tygerberg overlooking Cape Town, will, according to Graaff, be well placed to get these highly perishable, but equally prized berries to market faster than most.

"Other new developments at De Grendel are small batches of different wines exclusively for our loyalty club which include just released "Amandelsboord" Pinotage, the re-release of our "Winifred" Sauvignon Blanc and a Brut Rose next year."

*Brian Berkman*
*See www.Degrendel.co.za*




# Discussing the drought

Our country's livelihood and sustainability rely on water, as do our farmers. Without farmers, we have no food. How can farmers adapt to the water shortage our country is currently facing? Water Wise investigates.

**Although we are moving away from one of the country's worst droughts in history, the importance of water, or a lack thereof, has clearly left its mark on many. The 2015/2016 El Niño weather pattern, which was caused by warming of the Pacific Ocean, resulted in lower than normal rainfall across southern Africa. In fact, the 2015 summer period was the driest in more than 35 years.**

The average rainfall calculated for South Africa for the period January-December 2015 was only 403 mm, as opposed to the average annual rainfall for South Africa calculated over 122 years, which is 608 mm. The effects of El Niño were further exacerbated by the poor rainfall season the previous year. The lack of sufficient rainfall, and higher than average summer temperatures has left the country's current dam levels at an average of 54.8% capacity as of May 2016, which is a 25% drop from the previous year.

Crops have suffered, livestock are dying off, and there are entire towns without access to potable water. Seven out of nine of the country's provinces were declared disaster areas, and approximately 14 million people were affected, with a limited access to food and water.

While the South African Weather Service Advisory indicates a chance for above-normal rainfall conditions during the winter season over the western and northern parts of the country, the consequences of the drought are expected to last for the next seven years. Rising food prices and a severe agricultural crisis may become the norm for South Africans in the near future. And while there are forecasts of the formation of La Nina next summer season, which is a weather phenomenon, that unlike El Niño, usually brings good rains to southern Africa, South Africans may be forced to reconsider the way they look at water.

In a recent survey conducted by Rand Water, it was observed that although people understood that there was a shortage of water in South Africa, many weren't sure of how they could contribute to making a difference.

The key to a successful reduction in your water use is to focus on how you can achieve the same objective with much less water. This may mean introducing new technology into your processes, such as soil-moisture meters, or rain sensors for your irrigation system.

Another important way to deal with drought conditions is to develop a drought management strategy. This requires a farmer to develop a set of processes that can be implemented in the event of a drought. For example, a cattle farmer should constantly keep track of herd numbers to know when to implement methods to reduce those numbers. Irrigation systems should be updated with new technology that can allow farmers to track rainfall received, crop water requirements, and soil moisture levels. Crops and livestock can be diversified so that if a drought forces you to miss a planting season, there are other sources of income for that period. Drought resistant seeds can be used to provide a higher yield. Farmers should constantly keep themselves up to date on weather patterns and expected disasters such as drought.

While a drought can have devastating impacts on a country's economy, livelihood, and environment, farmers need to be resilient. No water means no farming, and no farming means no food. Always be Water Wise.

*Samanta Stelli, Researcher, Water Wise and Research*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# Monetary mayhem

## The Rand is making the effects of the drought worse

**Despite a drop in global agricultural commodity prices in 2015 and earlier this year, South Africa, which is still reeling from the drought, has failed to capitalise on the slowdown due to the weakness of the Rand.**

The supply and price of agricultural commodities across the globe has been volatile in the past year. International prices of most agricultural commodities trended lower for most of 2015 before rebounding slightly in the last two months. The only exception was sugar, which increased on concerns over prospects of a global deficit.

During times of domestic supply deficits, imports are supposed to fill the gap. However, this has not been the case for South Africa as agricultural imports became expensive due to the weakening Rand.

Moreover, crude oil prices reached record lows and this resulted in a decline in international freight costs, making it cheaper to transport agricultural commodities globally. Nonetheless, South Africa still could not benefit from this decline.

The United Nations Food and Agriculture Organisation (FAO) recently projected global output of coarse grains for 2017 to 1.313m tons, almost 11m higher y/y.

Meanwhile, the United States Department of Agriculture (USDA) recently pegged the US 2016/17 production up 6% y/y at 366m tons in its May 2016 World Agriculture Supply and Demand Estimates (WASDE) report. The world production estimate came in at 969m tons for 2015/16 and 1.01 billion for 2016/17.

The implication of this bullish production outlook for 2016 is that international prices will retain the downside bias.

Domestically, the supply outlook from grains remains tight until mid-2017 when the 2016/17 harvest enters the market. Grain production is expected to rebound strongly in the season ahead due to the increase in planted area and better production conditions.

Recent weather forecasts indicate that the El Nino pattern is weakening and a transition to ENSO-neutral is likely during late Northern Hemisphere spring or early summer 2016, with an increasing chance of La Niña during the second half of the year.

As a result, we are likely heading for a good season as the La Niña weather pattern normally leads to above normal rainfall in the Southern African region.

The short to medium term outlook for food inflation remains biased to the upside due to supply constraints and a weaker Rand which makes imports more expensive. Risks to the Rand outlook include the aggressive Fed rate hikes, downgrade by credit rating agencies and the deterioration in the domestic socio-economic situation.

In the longer term, agricultural production is expected to bounce back in 2017 and it is then that we could realise a significant moderation in food prices particularly grains. Fruit and vegetables prices could still ease towards the end of the year should the improved weather outlook materialise in the next rainfall season.

*Paul Makube, Senior Agricultural Economist at FNB*

# WEATHERING THE (LACK OF) STORM

## New crop production technology and the drought of 2016

**El Niño wreaked havoc with South African farmlands last year, with five out of nine of the country's provinces being declared a drought disaster for the agricultural sector by November 2015. However, come the first quarter of this year and agriculturalists reported that crops (maize/sorghum/soybean/barley etc.) were fairly resilient in the 2015/2016 crop year. In fact, it was only the 10th lowest recorded yield in the past twenty years, making the crop yield (ton/ha) for the last year fairly average, despite the fear of drought and mass elimination of crops due to extreme weather conditions caused by El Niño. Producers planted less hectares to summer crops compared to the previous ten years as part of their risk management strategies to curb losses. That leads to a higher average national yield. Therefore, in combination with higher prices achieved in the free market environment, producers managed to limit losses.**

**Silver linings**

So how did yields manage to remain fairly undisturbed, if farmers were previously warned that if the drought persisted South Africa could be declared a regional disaster?

There is a simple answer – new crop production technology and world class experienced producers.

New crop production technology is largely used to describe the use of: genetics/GMOs in farming; precision farming (utilisation of space and nutrients i.e. podding and soil water conservation); and biological farming (carbonisation of soil). To be more specific, new crop production technology results in the effective use and management of resources.

And where does South Africa fair in relation to new crop production technology? We are fortunate to have some of the best imported crop production technology available. The challenge comes in with additional funding that is needed in order to improve our own research capacity, so that South Africa can produce our own technological developments targeted specifically at our own local needs and challenges. Currently, we mostly look to the United States when bringing in products and services in new crop production technology – this also has its challenges, as imported crop related technology needs to be approved by government before farmers in South Africa are legally allowed to use the imported inputs for production in order to facilitate their crop production. Our farmers need to have timely access to the same production technology e.g. seed or pesticides that lowers production costs as our competitors do. Otherwise our producers do not compete with imports on an equal footing.

**Against the odds**

However, despite all this, South African farmers have shown to be resilient, maximising the use of new crop production technology that is available to them, and are able to compete on a global scale and produce the best quality crops in the world.

NAMPO and other similar trade shows are evidence of this resilience. These events are key for the farming and agricultural industry. Changing weather conditions are a constant challenge for the agricultural industry, and it is through these events that farmers are exposed to alternative solutions when developing their farming strategies to shield themselves from external challenges.

*Wessel Lemmer, Senior Agricultural Economist at Absa*

# Where there's smoke ...

## Is food security and tobacco growing incompatible in Africa?

**The SADC Regional Vulnerability Assessment estimates that an alarming 16% of the region's population are food insecure. The effects of the current El Nino phenomenon have further deepened food insecurity in Malawi and the region more broadly. Indeed the volatility of climate change presents arguably the greatest threat to food security and, by extension, human security in sub-Saharan Africa. Hunger and poverty are directly and closely correlated and any threat to food security has a direct knock-on effect on the region achieving the United Nations Sustainable Development Goals. SADC has acknowledged the looming crisis in its "Declaration on Agriculture and Food Security".**

One constructive international response to the threat is the G8's New Alliance for Food Security in Africa. The objective of the Alliance is to encourage re-investment in agriculture in order to allow low-income food deficit countries to improve agricultural productivity and thus reduce their dependency on food imports and food aid.

Confronted by the ravages of climate change and global food crop price fluctuations, what is the correct balance between food crop and cash crop production in sub-Saharan Africa? Some contend that cash crop production discourages food crop production and intensifies human insecurity, yet the tobacco sector may point to a new, better way.

While recognising the high cash value of tobacco, which is seven times more profitable than maize and fourteen times more profitable than cotton per hectare, tobacco production in sub-Saharan Africa is increasingly conducted as part of a balanced, holistic and integrated agricultural production system.

Food security is dependent on a raft of factors, not least of which is Good Agricultural Practices (GAP). Good Agricultural Practices are a series of codes, standards and regulations that seek to achieve four key objectives: ensure safety and quality in the agricultural produce chain, capture new markets by modifying supply chain governance, improve natural resource use, worker's health and working conditions, and to create new markets and opportunities particularly for farmers in developing countries.

Defined by the United Nations Food and Agriculture Organisation as those objectives that "address environmental, economic and social sustainability for on-farm processes and result in safe and quality food and non-food agricultural products", tobacco companies subscribe fully to GAP objectives and go far beyond the minimum required for mere compliance. While GAP should be fully aligned with national government's own agriculture, sustainability and development programmes, there are, however, economic and material costs to compliance. In this regard the FAO warns that small-scale farmers may not be able to seize export opportunities unless they are adequately informed, technically prepared and organised to take advantage of compliance certification opportunities.

Guided by the principles of GAP as well as responsible Agriculture Labour Practices, the Integrated Production System (IPS) of tobacco meets and surpasses these FAO guidelines and allows small-scale farmers to seize the opportunities outlined by the FAO. Indeed IPS tobacco farmers don't need to "mind the GAP", they now "take the GAP".

IPS provides for holistic support to the farmer, which includes dedicated agronomist support, as well as the provision of seeds, fertilizer and cash loans. Little surprise then that IPS farmers are growing tobacco at a better quality, greater yield and securing a higher price than through traditional methods. With a guaranteed volume of tobacco being purchased from the farmer at prices higher than the national average, IPS farmers are better placed to utilise the cash generated from tobacco to further diversify their agricultural production. Consequently, IPS tobacco farmers are more food secure farmers. More food secure farmers are critical to stabilising and sustaining rural areas, which, for most African countries, is the backbone of the economy.

It may come as a surprise to learn that as part of tobacco companies' Integrated Production System, tobacco farmers are encouraged and supported to grow food crops such as maize and soya beans as part of a sustainable and responsible growing and procurement system. Access to technical training and support and the availability of fertilizers, pesticides and improved seed are critical for food security: in some countries and/or regions it is only smallholder farmers contracted with tobacco companies that have such access and support.

A benchmark is for contracted IPS farmers to grow food crops at least in equal weight to tobacco. In some sub-Saharan African countries, IPS farmers are now growing more food crop than tobacco by weight. Perhaps even more surprising is the productivity of tobacco farmers growing food crops. IPS tobacco farmers in sub-Saharan African countries are growing food crops at a yield 50% to 300% higher than the national average. Up to 60% of IPS tobacco farmers maize production feeds into the national market, thereby contributing directly to national food security. Due to their productivity under IPS, tobacco farmers, are now net contributors to the food crop supply chain in southern Africa.

Notably, the efficiencies gained from the IPS system provide for more time and labour to be spent on the production of food crops. The IPS system ensures that small-scale farmer production is balanced, sustainable and GAP compliant.

There is much that can be learnt from the tobacco IPS system, not merely concerning better tobacco yields, but more fundamentally, about how to implement Good Agricultural Practices, sustainable environmental and labour practices and most importantly for millions across Southern Africa, food security. While the main tobacco growing countries within SADC are already in discussions to coordinate and share sustainability best practices, this knowledge and experience can be shared and tapped into for the benefit of the entire Continent of Africa.

Progress, true progress, is not a zero-sum equation, rather it is defined as a positive sum outcome, more commonly-known as a "win-win". IPS tobacco production in sub-Saharan Africa is an example of a regional win-win.

*Reuben Maigwa*
*President of the Tobacco Association of Malawi (TAMA) (www.TAMAlawi.com)*

# UP IN FLAMES

## Farmers cautioned to put measures in place to mitigate against veld fire risks

Farmers that are already struggling financially due to the impact of the drought could face further losses as the risk of veld fires increases due to the dry winter period. Given the current situation in the agricultural sector, veld fires have the potential to put farmers back into crisis as the industry has still not fully recovered from the severe impact of the recent drought. During the dry winter season, veld fires can spread quickly, destroying farms and leaving relentless distraction.

It has never been more important to put measures in place to protect farms against veld fires. Farmers have exhausted most of their resources and simply cannot afford to deal with another major catastrophe.

Veld fires can lead to severe production shortages, especially for wine, sugarcane and livestock farmers, further impacting on food price inflation and our ability to supply the export market. Livestock farmers who are currently re-building their herds could also suffer major setbacks due to damaged pastures, grazing land, water and transport infrastructure.

Although veld fires are not unique to the country, their impact has been heightened due to changing weather conditions. As a result, farmers must not sit back and wait for the worst to come. Long-term disaster risk management strategies should be put in place to manage and control the risks.

Farmers are advised to consider implementing the following measures to mitigate against veld fire risks:

- Fire management plan – this plan provides farmers with polices and guidelines of how to protect their farms, workers and livestock against veld fires. It further advises farmers and employees on the steps to take during fire situations and who to contact for emergencies.
- Collaboration – both government and the private sector should be commended for their role in educating and raising awareness on the risks associated with veld fires. It is important for farmers to continue working together, share ideas and solutions on how to tackle this risk.
- Maintaining farm and fire equipment – faulty machinery can lead to veld fires if it is not checked and maintained on a regular basis. Farmers must regularly check and ensure that farm and fire-fighting equipment is in good working order. This is essential to protect livestock, other assets and employees in the event of a fire.
- Firebreaks – although firebreaks cannot completely protect farmers against large spreading veld fires, they play an important role in containing and controlling fires on the farm and are compulsory by law.
- Educating staff – employees should constantly be educated and trained on how to deal with fire situations.
- Insurance – without adequate cover in place, farmers would not be able to recover from financial losses in the event of a fire or accident.

While the above tips are by no means conclusive, they can go a long way to help farmers put together risk management strategies to pro-actively deal with fire risks as we approach the winter season.

*Dawie Maree, Head of Information and Marketing at FNB Business Agriculture*

# EMPOWERING AGRICULTURE

## Government set to priotise small farmers, women, and farm security

**Agriculture, Forestry and Fisheries Minister Senzeni Zokwana says South Africa would like to see smallholder and family farmers' issues enjoy rights status at the G20 platform.**

"Our line of thought is a focus on ensuring that the needs of these farmers, particularly women and youth, are taken into account, giving priority to increasing investment in agricultural technologies within agriculture value chains, as well as research and innovation from seed production up to the plate," said Minister Zokwana.

He was speaking at the G20 Agriculture Ministers' Meeting held in Xi'an, China. The meeting is a gathering of all G20 Agriculture Ministers, guest countries as well as international organisations to share policy experiences and discuss innovative ways to advance agricultural development and food production in a changing global environment.

Addressing the gathering, the Minister said South Africa would welcome initiatives that seek to address water security in line with the aspirations of the G20's investment in infrastructure, taking into account that Africa depends on rain for agricultural production and food security.

"The G20 Agriculture Ministers' Meeting could consider investment in water infrastructure for irrigation to assist smallholder and subsistence farmers in building resilience during times of drought.

"We need to offer innovative financial products such as tailor-made insurance scheme and soft loans in support of this target group. We also believe that farmer incubation, mentorship and exchange programmes can enhance farmer production and productivity," said Minister Zokwana.

South Africa would also like to see sustainable partnerships established within Africa and in the developing world, with other international programmes advancing agriculture and food security.

"We need to pace ourselves well in this regard and where possible, accelerate our efforts to achieve the ideal of finding synergies with each other," the Minister said.

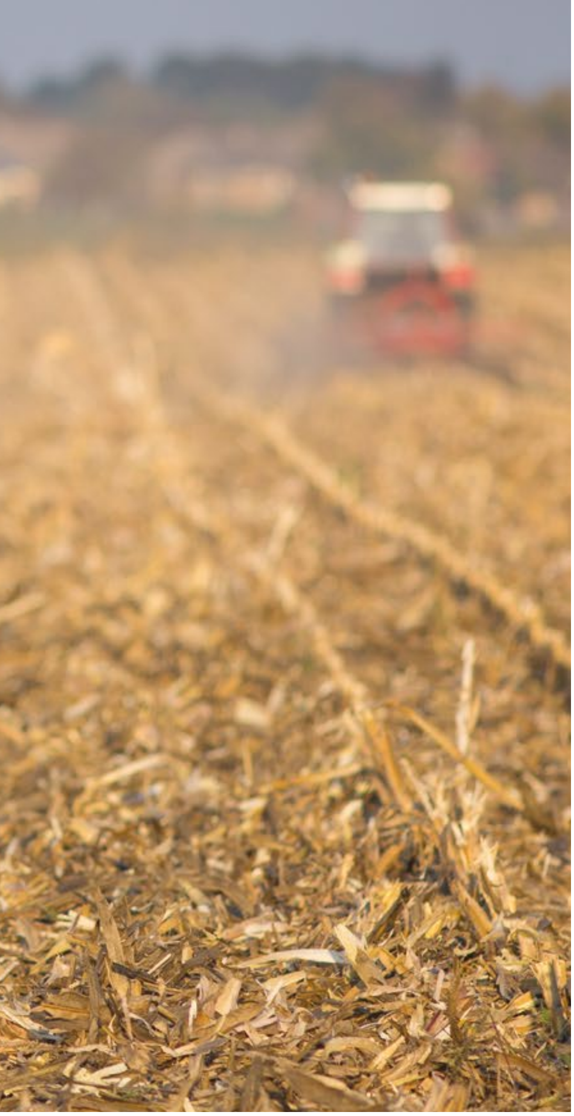
### Food security

According to the Food and Agriculture Organisation (FAO) of the United Nations, world food production needs to be increased by 60% from 2005-2050 to meet the global food demand.

One of the goals outlined by the G20 Summit of 2016 was to improve food security and nutrition.

The G20 goals are in line with what South African government strives to achieve. Poverty reduction and food security remain on top of the list for government.

South Africa has made significant strides and achieved the Millennium Development



Goal 1 of halving the number of hungry people through food security programmes.

Minister Zokwana committed the country to do more to build resilience within the coping capacities of households.

"The Sustainable Development Goals (SDGS) 2030 Agenda endorsed by world leaders provides a blueprint and a guide to monitor progress on targets for each member state going forward.

"As the Ministry of Agriculture, Forestry and Fisheries, we align well with SDGs 1, 2 and 12 of aiming to end poverty, hunger, achieve food security, improved nutrition, and sustainable consumption and production," the Minister said.

**Women to benefit from agriculture programme**

A partnership between government and the private sector will empower 5 000 women-owned maize farming cooperatives in the next five years.

In May this year, Small Business Development Minister Lindiwe Zulu launched the Women-in-Maize initiative in partnership with the South African Breweries (SAB) and Agricultural Research Council in eKangala.

"The initiative seeks primarily to promote the inclusion of black women-owned cooperatives in SAB's supply chain; develop skills of women farmers; improve food security and stimulate local economies by increasing procurement from local suppliers," Minister Zulu said.

She said the 11 selected farming enterprises, who are part of the initiative, will have an estimated R11 million in profits.

The Department of Small Business Development and the Small Enterprise Finance Agency (sefa) has trained farmers on cooperative governance. Currently the farmers are also receiving business skills training.

"We are determined to encourage and support women across the length and breadth of our land to establish small businesses and cooperatives in order to change their lives for the better and also to contribute to the socio-economic development of our communities," Minister Zulu said.

The department has placed the issue of women empowerment high on its agenda.

"We are convinced that the economic empowerment of women will help us win the war against poverty, inequality, unemployment and abuse.

"Promoting women's economic empowerment facilitates the achievement of other important public policy goals such as economic growth, human development and reduced violence," she said.

Minister Zulu thanked SAB-Miller for its investment which included infrastructure, machinery and implements.

"We remain determined and committed to work with our private sector partners to build viable and thriving small businesses and cooperatives. We will not rest until all women of our land are economically empowered," she said.

**Police tighten efforts to stop farm crimes**

The South African Police Service (SAPS) is to set up multidisciplinary teams to prioritise the investigation of farm related crimes.

Police will work with various stakeholders such as AfriForum and other organised agricultural unions around the country. There will also be a push for increased representation of farming communities in Community Policing Forum structures countrywide.

Acting National Police Commissioner, Lieutenant General Khomotso Phahlane, announced this on Wednesday, after meeting with AfriForum.

He said police have also identified hotspots around the country that will be targeted, including Gauteng, North West, Limpopo and KwaZulu-Natal.

"We have resolved to properly define these incidents as acts of violence against persons residing on, working on or visiting farms and small holdings—whether with intent to murder, rape, rob or inflict bodily harm. This includes farm owners, farm workers and all other citizens of this country, irrespective of race, colour, creed, religion or sex," said Phahlane.

He said focus will also be placed on all acts of violence against the infrastructure and property in rural communities aimed at disrupting legal farming activities.

The SAPS has detected that there is a particular modus operandi during the commission of these incidents of violence and crime on farms and small holdings. There is a major shift in target selection from small holdings to more isolated farms and the attacks occur mostly between Thursday and Saturday night while the crime victims sleep.

"The number of perpetrators at a time ranges from two to eight, split into two groups in most incidents. They have been identified as mostly male, comprising foreign nationals between the ages of 20 to 35, while the majority of victims are 50 years and above," Phahlane said.

Police stats show that the reported incidence of violence on farms and small holdings in the 2010/11 financial year stood at 532, which declined to 446 in 2015/16.

Reported murders on farms and small holdings stood at 80 in the 2010/11 financial year but the number dropped to 49 in the 2015/16 financial year.

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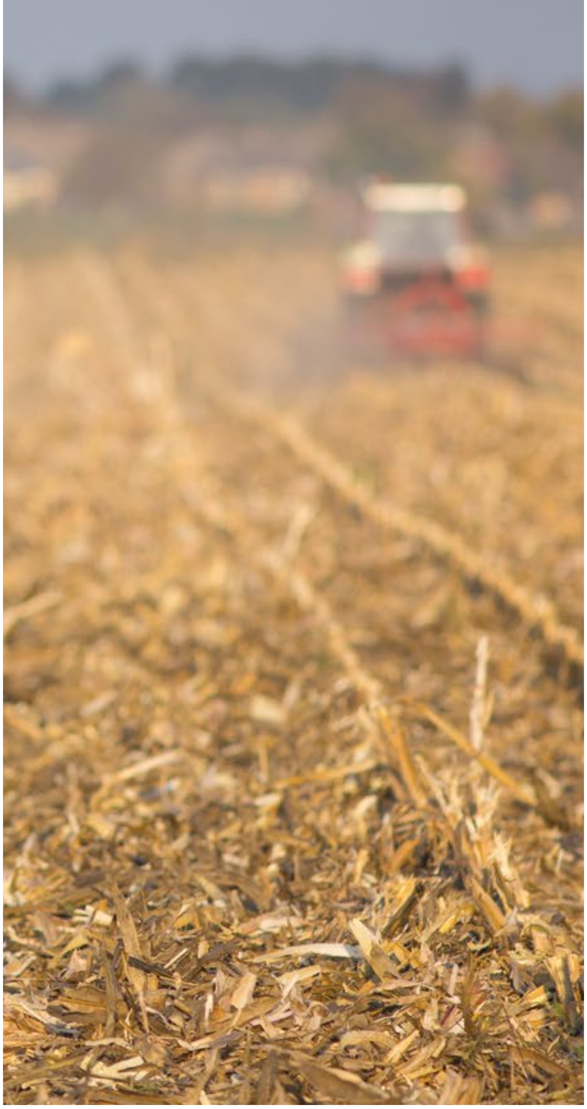

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