

Issue 37 • November/December 2018

Harvest

Securing South Africa's Food Resources

Growing Gauteng

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transformation

Lose fewer lambs

Beating embryonic loss

Intelligent irrigation

Insight from Lindsay Africa

Excellence through
innovation

ARC boosts beef

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EDS NOTE



GREG PENFOLD
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Data and tenure are the topics of the day in agricultural circles. Agriculture 4.0, which is slowly but surely taking the world by storm, is driven by (big) data harvested by sensors, drones, probes and all manner of other technological innovations. It is the great hope for the future, enabling greater efficiency and precision at reduced cost. It was a big talking point at the EIMA 2018 agricultural machinery show in Italy, where the promise of technology is somewhat thwarted by the generation gap. Quite simply, the older generation of farmers is put off by technology, perceived as complicated and perhaps unnecessary. However, the younger generation of

digital natives is poised to reap the benefits of digital agriculture to the full. Not only are new forms of agricultural entrepreneurship now possible, but entire careers are opening up in engineering, research and other fields that were simply not possible before. Of course, South Africa is no stranger to smart farming, as witness the achievements of firms like Aerobotics, who recently reach the major milestone of having processed 10 million trees in their software, making their artificial intelligence and solutions stronger and more efficient. "This is not just a major milestone for our company because of the massive number of trees we have processed, but also for the agriculture industry as we are better positioned to help tree and vine farmers around the world. This type of highly accurate data empowers farmers to make better decisions in the field, so they can increase their yield and produce a more balanced crop," reads an Aerobotics statement, and we couldn't agree more.

As regards tenure, uncertainty continues to bedevil the land reform process, as more and more questions are being asked. One that I have not found an answer to is, assuming for argument's sake that justice is served by expropriating white-owned land, whether the same can be said for expropriating land purchased legally after 1994. Be that as it may: in this area too, the private sector is

developing its own solutions. Most recently, on 16 November, 70 residents of the Karoo town of Aberdeen became home owners, with full freehold title made possible by the generosity of businessman Johan Rupert and his wife Gaynor, who are significant sponsors of the Free Market Foundation's (FMF) Khaya Lam (my home) land reform project. On 3 December, in Stellenbosch, Johan and Gaynor Rupert will present a further 326 title deeds. The FMF points out that "titling in South Africa is a painstaking process complicated by lack of records of ownership and bureaucratic complexity. Each area has its own issues and complications. It takes time and commitment to work through individual difficulties to eventually be able to present the right title deed to the right recipient. It requires sponsors like the Ruperts who are willing to fund this process. Titling is particularly complicated in the Aberdeen and Graaff Reinet areas.

"The 1913 Natives Land Act prohibited black South Africans from owning land in so-called 'white areas' – restricting the question of land ownership entirely to the ethnic authorities in the reserves, later known as homelands. Black people in the cities thus lived as tenants on property owned by the local municipality, which developed into what we know today as 'townships'. Not much has changed and as many as 5 million families still live as tenants or without ownership rights across SA. Khaya Lam offers hope to these citizens 20 years after the end of apartheid."

Farming with ones and zeros

Digital farming is disrupting the Agri sector as we know it. The adoption of existing and emerging technologies is helping to cement a more sustainable future.



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Shoots of growth

GDARD contribution to food security in the country

Mr Lebogang Maile, GAUTENG MEC FOR ECONOMIC DEVELOPMENT,
ENVIRONMENT, AGRICULTURE AND RURAL DEVELOPMENT





GAUTENG PROVINCE
 AGRICULTURE AND RURAL DEVELOPMENT
 REPUBLIC OF SOUTH AFRICA

Gauteng, the dynamo that drives South Africa's economy, is associated in the popular imagination with gold mining, but it is also a breadbasket supporting thousands of farmers whose produce contributes substantially to the food security of the province. There to lend a helping hand is the Gauteng Department of Agriculture and Rural Development (GDARD). We spoke to MEC Lebohlang Maile to find out more about how the department operates.

What are the key programs that the department is focusing on to combat food insecurity

Through the GCR overarching agriculture and agro-processing strategy the department is focusing key programmes including Farmer Support and Development, Household food security and agro-processing.

- The farmer support and Development Programme (is responsible for increasing agricultural development support to households, developing famers and commercial producers for sustainable.
- agricultural development. It is aimed at transforming the agricultural sector, providing necessary support for food security, skills development and strengthening of extension services in the province. 4 043 smallholder producers were supported within all five corridors of the province.

- The Household food security programme focuses on supporting food production at household and community levels through Homestead Food Gardens, Community food gardens and school food gardens. So far, 31 642 households, 259 community groups and 242 school benefitted as a measure to alleviate hunger and poverty in the Gauteng City Region, particularly among vulnerable women and children, unemployed youth and people living with disabilities.
- Following the adoption of agro-processing as the niche market for the Province by the Gauteng Provincial Government, the Gauteng Agroprocessing Strategy was developed as a key component in the implementation of the Transformation, Modernisation and Re-Industrialisation programme. The implementation of the strategy involves provision of entrepreneurs in the Agroprocessing space with Infrastructure as well as machinery and equipment. Over 20 entrepreneurs have already been assisted with an array of agroprocessing equipment and machinery. To date, the department has intervened in key agroprocessing projects including Super Grand Feed Milling (in partnership with DRDLR), Ekandustria Beef Abattoir (in partnership with City of Tshwane)

and Tshwane Poultry Processing centre (in partnership with the South African Poultry Association). The agro-processing programme enhances access to markets for the smallholder agricultural sector and contributes immensely to the township economies.

How do Agri parks contribute to food security

The Gauteng Department of Agriculture and Rural Development has been rolling out the Agripark programme for small holder farmers in urban, peri-urban and rural settings to economically transform agriculture through provision of strategic agricultural clustered infrastructure for primary production or value addition or processing. Eight agriparks have been established with 120 jobs having been created in the process. The programme has created 14 agric-enterprises in the form of cooperatives with 98 beneficiaries – 60% women and 31% youth.

What is the department approach on climate change

Climate change is already evident in the change of weather patterns over the years and there is a need to reduce the amount of greenhouse gases released into the atmosphere.

Adapting to the impacts of climate change is necessary, and this will be achieved by assessing the vulnerability of Gauteng Province to climate change and developing an adaptation strategy and action plan.

To this end, GDARD has developed the Gauteng City Region Climate Change Over-Arching Response Strategy and Action Plan: Climate Change Strategic Action Plan. This Strategy adopted a programmatic approach to direct specific action on climate change and also enable the successful implementation of climate change key policy directions that have been identified for the Gauteng City Region.

Ten focus areas that have been identified include natural resources; agriculture and agro-processing; disaster risk reduction and management; water security; commercial and institutional buildings; human settlements; energy supply; industry and mining; transport; and waste management. In addition, a range of

cross-cutting projects including research, green procurement and governance or monitoring and evaluation, have been proposed.

GDARD together with the Gauteng City Region has developed and published a Vulnerability Map using the Gauteng Quality of Life Survey to develop a vulnerability index.

What progress has been made towards implementation

GDARD has made tremendous progress in the implementation of programmes that have climate change mitigation and adaptation significance, particularly in the areas of agriculture and natural resource management. Climate change awareness campaigns have also been undertaken

across the province in recent years. On an annual basis the department holds climate change school awareness campaigns at various schools across the province. The department also holds a green and public transport campaign during Transport Month, which takes place in October.

In addition, GDARD established the Gauteng Climate Change Forum in 2015. This forum provides a platform for all relevant departments and local authorities to share information on their climate change-related policies and interventions and to build capacity. The department also holds an annual climate change Indaba.

The department has also developed a Gauteng Climate Change Project Register to register and track all provincial climate change-related projects.



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The Carraro Ibrido hybrid tractor concept

The future, today

Digital innovation takes centre stage at EIMA 2018

Agriculture has to change if the world is going to feed itself beyond 2030 – and for that to happen, farmers have to adopt smart technology as quickly as possible. That was the overriding message of the 43rd edition of EIMA International, the biannual agricultural machinery show organized by FederUnacoma and held from 7-12 November at the Bologna Fiera exhibition grounds in Bologna, Italy.

So important has digital become, in fact, that FederUnacoma general director Simona Rapastella announced at a press conference on 6 November the launch of the new EIMA Digital space dedicated to precision electronic and computer systems, software for agricultural machinery, control units and agricultural drones.

Of course, just as in South Africa, the older generation find it difficult to adapt to new technology, so it is up to the younger

generation to take up the reins, Rapastella emphasised. For that reason, EIMA 2018 made provision for new agricultural entrepreneurs, the future generation of professionals interested in the agricultural machinery industry and in the sales and assistance networks, and secondary school and university students seeking specific training in the sector.

Equally central to EIMA 2018 was the topic of water, as reflected by the launch of the new Idrotech Exhibition, intended to become a reference for the technical, political and strategic aspects of water.

EIMA 2018 was visited by 317 thousand people, 11% more than the last edition (2016), including 50 thousand foreign delegates from 150 countries, with 1 950 exhibitors occupying a massive 375 000 square metres of space.

Big data and Agriculture 4.0

The use of big data in agriculture was the theme of Image Line's conference

"Data and Agriculture — more income, more efficiency, more traceability". As FederUnacoma president Alessandro Malavolti underlined, data collected by new digital technologies make it possible to optimize the operations in the field, manage expenses in a targeted manner, and cut production waste.

"Big data is not only tables of numbers, it is also photos, images, videos, emails, exchanges of messages on social media, or sharing of information between machines, for example between tractors and equipment," said Cristiano Spadoni, head of Marketing at Image Line.

"Already today 40% of farms employ productive techniques that fall under agriculture 4.0, while 70% of farmers sampled are interested in using integrated platforms for data management and decision-making support systems on smartphones," said Filippo Renga, director of the Smart Agrifood Observatory, in presenting the preliminary results of a study

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Case IH wins Tractor of the Year

conducted with the Milan Polytechnic and the University of Brescia.

As always, the real challenge is to reduce production costs – and costs are only going to rise. The solution lies not only in big data and artificial intelligence but also the remote management of machine support services. Soon, according to Erik Hogervorst, president of the CLIMMAR agricultural machinery dealer association, dealers will be able to remotely manage a wide range of services on mechanical vehicles. In the not-too-distant future, any kind of problem will be managed and solved through digital processes, eliminating the need for direct human intervention.

A second conference promoted by Dronitaly predicted that agriculture could become the second largest user of drones in the world by 2023. As noted in a statement by Dronitaly, “the use of drones in agriculture has drawn attention to the need to reinvent traditional professional figures in the sector to bring agriculture towards the 4.0. era”.

In the context of climate change, drones can prove to be valuable allies of farming communities.

Slaking the world's thirst

Agriculture is the most water-hungry production sector, absorbing some 69% of the world's total water resources. However, sensors, drones and satellites can save up to 30% water savings to cope with the increase in population.

The disruptive effect of drought on food production and prices came to the fore during a panel discussion entitled

“Water resources, a global challenge”, featuring speakers including Stefano Baldi (Nomisma), Marco Bezzi (Tera Engineering), and Jacopo Fratus De Balestrini (Assomao/FederUnacoma).

A study by Nomisma showed that the amount of irrigated farmland is growing internationally, standing at 334 million hectares today. However, the projected increase in world population to 9.7 billion people in 2050 compared to the current 7.6 billion requires new water-wise strategies. The answer lies in smart technology, from sensors capable of measuring soil moisture to satellites capable of providing valuable data on the state of plant health every five days, but it all needs to be integrated into a single system. This in turn requires campaigns to raise awareness among farmers in order to encourage technology transfers.

Tractor of the year

The title of Tractor of the Year 2019 and Best Design 2019 went to the Case IH Maxxum 145 Multicontroller. Launched last year alongside three smaller 116-135hp (rated) models, the highlights of the 145hp Maxxum 145 Multicontroller include its ActiveDrive 8 eight-step semi-powershift transmission and the Multicontroller armrest and joystick, attributes recognised by TOTY judges — professional farm machinery journalists from across Europe — for aiding ease of operation and enhancing efficiency. Maxxum tractors are also available with four-step powershift and continuously-variable transmissions.

Among the many other technological innovations (28 in total) on display at EIMA 2018, Carraro Agritalia's hybrid diesel-and-electricity tractor was a market first. Eco-friendly and cost-effective, it also requires little maintenance and guarantees greater productivity compared to traditional means.

Sustainability was the hallmark of several other new products. For example, Aermatica 3D exhibited a drone that enables variable-rate pesticide distribution according to the needs of land and crops. This does away with unnecessary dispersion even under extreme conditions, such as on particularly steep slopes.

Another particularly innovative offering was Cima's pneumatic sprayer with anti-drift diffuser, which significantly reduces pollution by improving pesticide accuracy.

MDB impressed with a tracked machine somewhere between a tractor and a telescopic handler, its simultaneously operating mowing arm and front shredder affording greater visibility when moving grass and shrubs than traditional crawlers.

Empowering African women

Defeating poverty by helping women to become agricultural entrepreneurs is the aim of the Africa Hand Project, an initiative for the development of sustainable agriculture created by the non-profit organization CEFA and presented at EIMA.

The project will provide training and services to women farmers in Mozambique to help them become financially autonomous. In a country where 44% of children under the age of five suffer from malnutrition, empowered women can change the future.

“Agriculture is still the first sector in which to fight poverty,” said FederUnacoma president Alessandro Malavolti on the occasion of the launch. “Africa is suffering from a gap: it only owns 2% of the world's tractor fleet. In a scenario characterized by an agriculture that is still too manual, we must exercise humility and bring advanced but simple agricultural machinery. And we must teach the population to cultivate, to sow, to fertilize to harvest, reasoning on an agriculture of proximity and making sure that they, the African farmers, are the ones taking the road of self-development.”

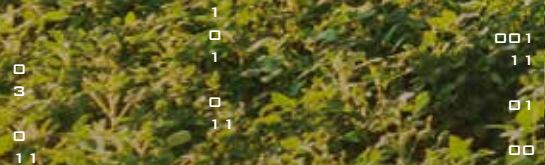
“Our goal is to promote the development of a sustainable economy in Mozambique, which is characterized by extreme poverty, through a primary sector such as that of agriculture,” explained CEFA president Raoul Mosconi.

The project is funded by remote donors who contribute 150 euros a year, enough for a Mozambican farmer to buy a cow and receive the appropriate training to start milk production and sales. The end result: a value chain that contributes to the development of the entire territory.

The Africa Hand Project will be rolled out in other African countries in due course.



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Innovation brings opportunity

Talking farming with ones and zeros at the Datacentrix Agri Indaba

Datacentrix, a provider of high performing and secure ICT solutions, recently focused on the topic of digital adoption within the local agriculture sector, at its second annual Agri Indaba held at Zebula Golf Estate in Limpopo.

Backed by technology specialists including Cisco, ITR Technology, Lenovo, McAfee, Skybox Security and Veeam Software, the event took an introspective look at how

industry can support farming communities in embracing technology, better equipping these agri-businesses with information on existing and emerging solutions that can help transform business processes, increase performance, and deliver a better customer experience.

Speaking at the 2018 Agri Indaba, Datacentrix chief digital officer, Rudie Raath, explained that, as a continent, Africa will feel the greatest amount of change when it comes to disruptive technologies, and

that this type of innovation is transforming Africa's economic potential. "With disruption comes great opportunity, where Africa will use technology to improve our competitive advantage on a global scale.

"Agriculture plays a critical role in meeting Africa's developmental goals, with a huge focus on increasing agricultural production in a sustainable way, while also decreasing costs. Here, technology like the Internet of Things (IoT), analytics and blockchain can help to shift this industry beyond a

'business-as-usual' farming approach to one of transformation, without cost to the environment."

According to Raath, the barriers to technology entry for the agricultural sector are being lowered, with cloud computing, drones, IoT, automation and more now within reach of the average farmer.

"Organisations within the sector have acknowledged that agriculture is a complex environment, highly variable and affected by a number of factors (like rainfall for instance) that are out of the control of the farmer.

"However, this type of setting is also ideal for machine learning and IoT sensor measurement, meaning that the local Agri sector is starting to transform itself – and its products – to help make farming smarter, more efficient and more sustainable."

But, Raath stated, connectivity remains one of the biggest stumbling blocks for the local Agri sector, with a direct correlation to the adoption of new technology within this market. "We see many farmers dealing with little to no connectivity, and some depending on satellite phones or two-way radios to communicate.

"And, while the National Development Plan (NDP) 2030 does cater for basic connectivity to all, we understand the challenges that internet service providers (ISPs) face when

deploying expensive infrastructure in low density areas, like farmlands, where the cost of infrastructure is not aligned to the number of users in the area.

"It is here where industry and government need to work together to find solutions – like opening microwave spectrums to sectors – allowing private organisations to develop these purpose-built networks, such as those needed within the Agri sector.

The barriers to technology entry for the agricultural sector are being lowered, with cloud computing, drones, IoT, automation and more now within reach of the average farmer

"Essentially the private sector needs to work hand-in-hand with government to ensure the success and sustainability of local agriculture, but we need to take the first step together," he added.

"Datacentrix was gratified to see an attendance increase of over 100 percent on last year's Agri Indaba, with particular interest from C-level attendees," said Josua Taljaard, event owner and business unit manager at Datacentrix. "We believe that this is indicative of the real value delivered in terms of content at the event, which not only emphasised how digital adoption can support local farming communities and mapped technology solutions to assist with the transformation process, it also provided real customer success stories."

Alf White, group executive for information technology at Senwes, one of the leading agricultural companies in South Africa and



Josua Taljaard

a Datacentrix client, presented one such testimonial, sharing Senwes' unified communications journey with the Agri Indaba 2018 attendees.

"By moving away from our use of analogue voice communications and centralising network management for more than 140 sites nationwide with the implementation of a unified communications solution supporting both voice and data, Senwes should achieve a 40 percent reduction in call charges," clarified White.

"We also completed a travel analysis of Senwes staff, finding that the 2,500 staff members using the network were travelling a cumulative total of approximately four million kilometres per annum. It was decided that a more collaborative solution would deliver greater productivity by allowing for video conferencing and document sharing features, as opposed to physical travel.

"The ROI for the project should be realised, in less than five years," said White.

For more information on Datacentrix' Agri Indaba, please visit <https://www.datacentrix.co.za/agri-indaba18.html> or contact Josua Taljaard on tel: 087 741 5000 or email: jotaljaard@datacentrix.co.za



Rudie Raath



To eat or not to eat?

Avoiding a Day Zero for food

In his presidential address during the TAU SA annual congress, with the theme “Day Zero for food on the table”, Mr Louis Meintjes said the following:

“Day Zero for food on the table — this clearly is a tough theme which can certainly evoke negative reactions. Working with developments which are continually unfolding in South Africa means this scenario is not too far-fetched. Should government not have a change of heart, then this may well become a reality. Day Zero could well become a certainty if a rapid reality check is not forthcoming from government very soon. Concern exists that should the ANC’s internal differences continue, a leader may well emerge but the question is — to what extent will this leader enjoy real support? The rate at which the wheels come off under the ANC’s leadership creates more and more misgivings about the future.”

The position of the ANC, bearing in mind what has been stated to date, cannot just be regarded as simply a negative outlook. It has the potential of becoming reality. With unemployment and poverty increasing each

year, it is perhaps time that responsible citizens unite and define what the principles guiding the economy and the national interest should be to ensure stability and growth.

Currently the self-serving interests of the governing political elite clearly receive priority above that and the general wellbeing of the country and its citizens. Under such circumstances it is difficult, if not impossible, to strive for and contribute to create a better life for all. It cannot be emphasized enough that the government’s role should be to ensure a safe environment for citizens and to create a climate which will attract investors who wish to get involved because they respect and trust the policies and direction in which the country is heading. However, the reality is that on both those issues the ANC government fails miserably... and still people vote for them!

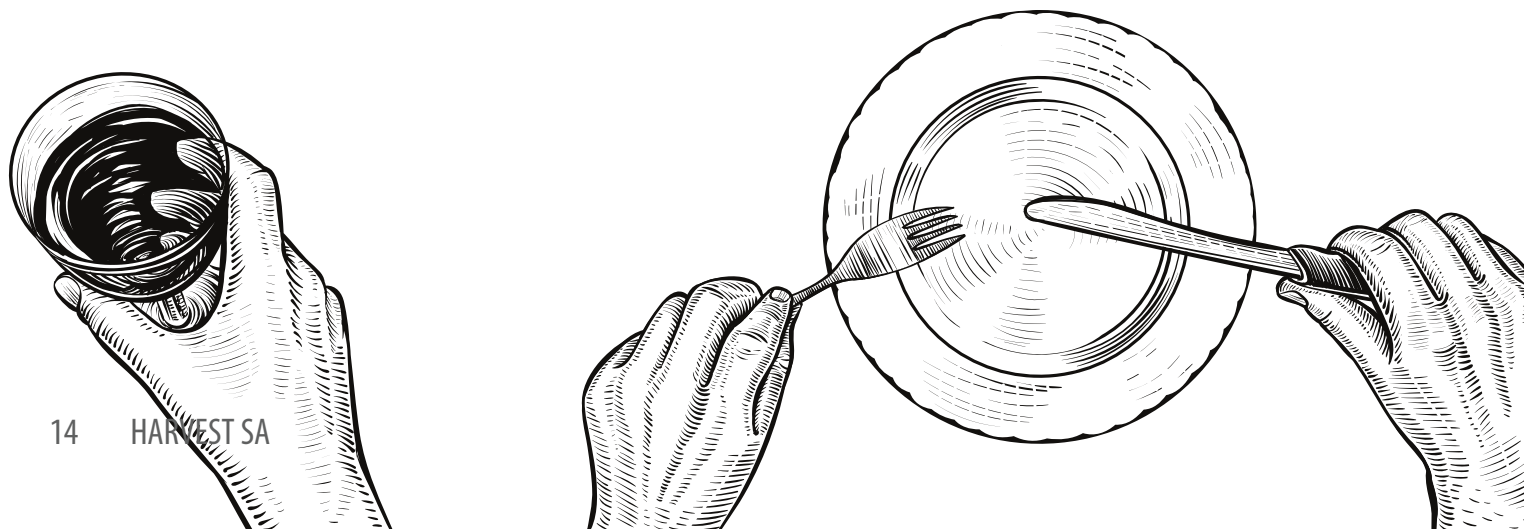
By continuing to remain silent we could end up being mutually responsible for undesired outcomes. Our silence actually condones what is being said and done.

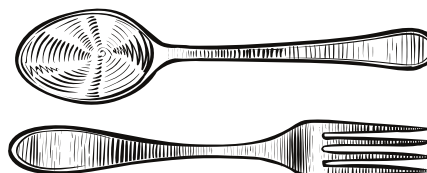
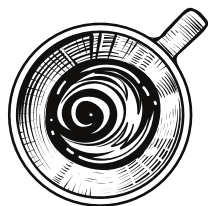
It is therefore of utmost importance that all role players should analyse what the ANC

is blatantly stating in its policy documents. Such documentation constitutes the very core of exactly what is driving the National Democratic Revolution and what they eventually wish to achieve. The price of our naivety and lack of insight in these matters will be very high — maybe too high when efforts will belatedly be made to correct matters when it is too late.

Food on the table is an important and crucial issue. Unfortunately we are already aware that many in South Africa go to sleep at night without having had a balanced meal. The result is that people not sustained by a healthy diet during their formative years will become victims of “stunting” from which they can rarely recover. The only way in which this situation can be rectified is to be able to produce enough healthy and good quality food at affordable prices. With more than 70% of South Africa’s population already urbanised, it goes without saying that productive commercial farmers should be cherished as one of the country’s major assets.

Throughout the world it is common knowledge that South Africa’s agricultural potential is marginal and to be effective it will not





only a question of owning land but also inculcating the special qualities and knowledge required by farmers who also have to accept the responsibility for what it takes to produce food commercially and on a scale which makes financial sense. Furthermore, the utilisation of technology, developing the necessary skills which are freely available, is crucial. Added to this and perhaps most important is living the passion to be a farmer.

A survey by the South African Institute of Race Relations indicated that the following are important aspects to SA citizens and which therefore demand attention:

- Economic growth
- Job creation
- Service delivery
- Health care
- Corruption
- Housing
- Violence and crime.

The government however chooses to make expropriation of land without compensation their priority. In the process a deluge of unmanageable expectations was created whilst the risk for potential investors remains too high. At the end it will also be a too high price for the country to pay.

It is quite clear that the government is convinced that not elevating the land question above all other essentials will result in

lost political support. However this issue is complicated by the fact that:

- Their point of departure consists to a large extent of lies and distortions. TAU SA for example states unequivocally that none of its members stole their land. This is confirmed by the existence of legitimate title deeds which are respected by the state and financial institutions.
- During the approach to the new dispensation in 1993, a negotiated settlement was reached. The result of that settlement was the Constitution of South Africa. It was agreed that the future would be based on what was set out in the constitution. Current efforts to amend the constitution and claiming that land was stolen are a direct manifestation of the lack of integrity of the ANC. It is now deviating from the negotiated Constitutional settlement.

The government has had ample opportunity to provide access to land to black people during the normal course of business activity. This deficiency must be laid squarely at the feet of the ruling party. Project after project has failed dismally. Throughout the country the remnants of once successful agricultural enterprises litter the landscape. Millions of Rand were invested in such farms

and businesses, whilst in some cases such investments were recapitalised.

Five years ago TAU SA made a proposal to ASUF that if we wish to save agriculture from the ideology-driven road to failure, a strategy for agricultural sustainability should be introduced by utilising the existing expertise within the sector. Recently other role players undertook to become involved and TAU SA will ensure that its principles are tabled for consideration in order to produce a joint working document.

If we are not honest with ourselves, we are wasting time. What should be done in these circumstances?

Responsible role players should strongly oppose this policy of expropriation without compensation and initiate different actions to protect the principle of private ownership. In the process we must pursue sustainability. In this regard there are many role players who understand the current situation and know what the essentials should be that our country need to get the much needed economic growth. At this stage we need role players that are principle driven and have at heart only the interests and well-being of the country at large but also the citizens in particular to bring sense to the table. Then we can say at the end — yes we can eat!

Bennie van Zyl, General Manager, TAU SA

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Unshackling agriculture

African trade agreements could increase SA's share of agricultural products across Africa

Although South African agriculture contributed about US \$ 10 billion to the nation's exports at the end of 2017, it has yet to benefit fully from exports to African nations that spend more than US \$ 60 billion annually on food imports. However, discussions on the removal of trade barriers and creation of future trade zones could result in this situation changing.

So says Nico Groenewald, Head of Agribusiness at Standard Bank, who states that agricultural trade barriers in Africa, which take the form of geographical borders and high import tariffs, have been instrumental in limiting trade in food and food products. Presently, only about 16% of the continent's agricultural production is traded between African countries. The rest is exported.

"There is no doubt that agricultural exports have for many years been artificially constrained by tariffs and border controls. We cannot, therefore, take advantage of the lower logistic costs associated with intra-Africa trade that would benefit us — particularly in sub-Saharan Africa countries."

"It is hoped that initiatives such as the African Continental Free Trade Area (AfCFTA) and the Tripartite Free Trade Area (TFTA) could change this picture in the future. The AfCFTA agreement that was recently signed

by 44 of the 55 African Union member states will improve matters. The agreement commits countries to removing tariffs on 90% of goods, with 10% of 'sensitive items' to be phased in later. It will also liberalise trade in services and might in the future include free movement of people and a single currency."

"AfCFTA will now have to be ratified by each country. By creating a free-trade zone significant strides could be made in ensuring that food produced in Africa stays in Africa. The beneficiaries would be local and regional economies and the continent's burgeoning population."

"Loosening the controls over agricultural imports could also give a boost to creating production facilities for the local beneficiation of imported crops. Significant economic and job opportunities could be created by in-country food processing factories meeting the needs of consumers in participating countries. Estimates by the African Centre for African Transformation say that about 1.2 billion people and states with a combined GDP of US \$ 2.2 trillion could be impacted on. The opportunities for South Africa exporters would be massive."

However, says Mr Groenewald, the promise offered by the AfCFTA agreement could be muted by the non-participation of some major countries. Concerns about the impact that creating a trade zone would have on employment, particularly low-level jobs,

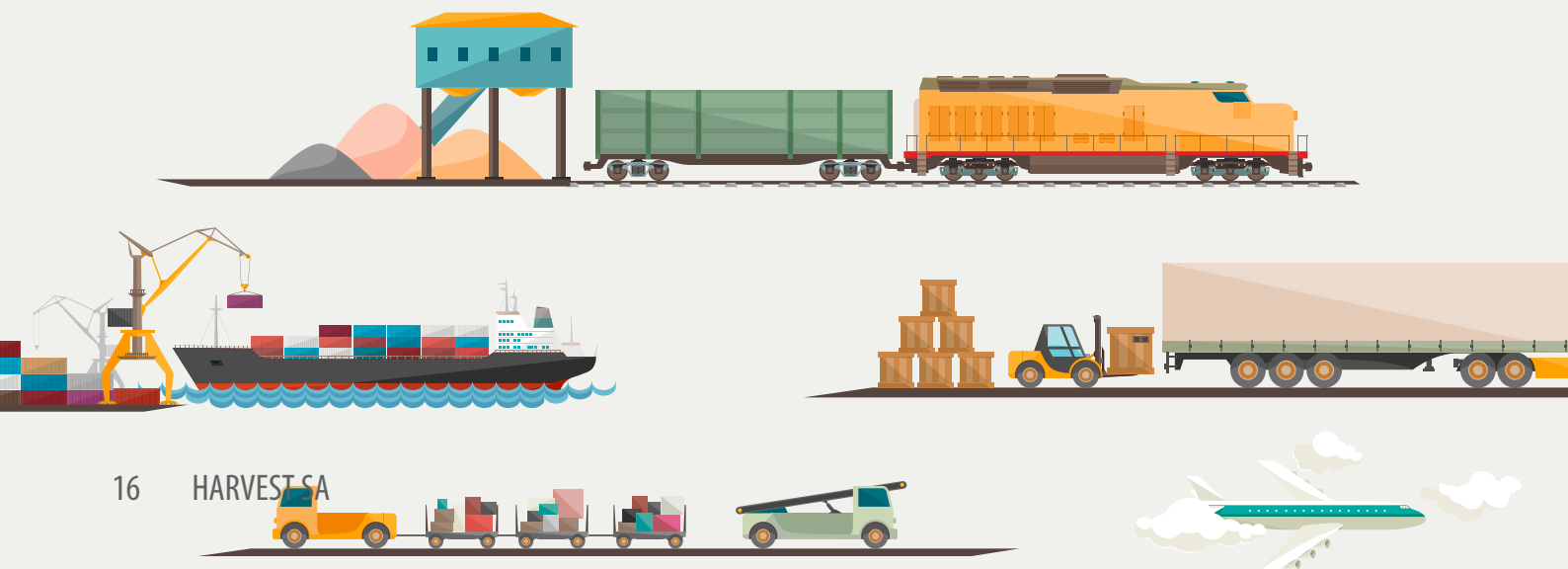
could delay introducing the ground-breaking agreement in member countries.

Discussing the Tripartite Free Trade Area (TFTA), launched in June 2015 in Egypt, as a basis for engaging in the ongoing AfCFTA negotiations, Mr Groenewald said that South Africa became signatories in 2017. The parties for the agreement are the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC) and Southern African Development Community (SADC).

South Africa signed the Agreement in July 2017, which will only come into force once ratification is received by 14 member states.

"The TFTA has been used as a basis for engaging in the ongoing African Continental Free Trade Area (AfCFTA) negotiations. Ratification by South Africa will send a strong signal of South Africa's commitment to regional integration. It will also bring South African exporters a step closer to enjoying preferential treatment under the TFTA."

"Both these trade agreements have the potential to transform intra-African trade in agricultural products and related goods. As negotiations between countries are complex and involve the consideration of local and international issues, finalisation of these accords may take several years to conclude. The results, as far as South African agriculture is concerned, will be worth waiting for," he says.





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Acknowledging excellence through scientific innovation

Presenting the winners of the 2018 ARC National Beef Performers Awards

The National Beef Recording and Improvement Scheme of the Agricultural Research Council, established almost 60 years ago, has played a central role in the improvement of the genetic potential of the national herd through the application of recording services and associated technologies. The overarching objective of the scheme is to enhance the sustainability and profitability of beef production, ultimately contributing to food security, job creation and human capital development. Investing in the activities of the Scheme has since its inception shown to yield significant positive returns, benefitting the entire South African beef production industry as a whole. It has enabled producers to “produce more from less”, in particular under resource-limiting conditions.

The primary aim of the National Beef Performers Awards of the ARC is to acknowledge farmers that have excelled in line with our vision. It has become a showcase and a platform for our country's top achievers when it comes to breeding genetically superior animals using performance recording as a tool. It is with gratitude and admiration that we reflect on our country's top performers at our annual awards ceremony, one that has become a highlight on our country's agricultural calendar.

This year marked the 40th anniversary of the Scheme ensuring that top-performing producers, across the spectrum of industry sectors, are recognised and given a platform to display their achievements. The Awards

are widely supported amongst key role players of industry including government and Farmers' Weekly and as such have become one of the highlights on our country's agricultural calendar.

This year, awards were presented in eight categories:

i. The ARC National Special Performance Test Class – 38 Awards Presented

Bulls that have completed the standardised growth test (Phase C) of the ARC's National Beef Recording and Improvement Scheme during 2017 and that received either a Gold or a Silver Merit certificate feature in this award category. A new development in this category involves the inclusion of Residual Feed Intake (RFI) data (where available) as a criteria of evaluation.

ii. The ARC National Best Elite Cow Awards – 42 Awards Presented

Cows are evaluated based only on performance data and have to exhibit outstanding reproduction figures whilst having excelled in other economically important traits that include maternal ability and pre-weaning growth rate (weaning weight). Cows from all breeds are eligible to participate in this category, which will be contested for the 40th time this year.

iii. The ARC National Platinum Bull Awards – 14 Awards Presented

For a bull to be eligible to contest in this category it must be bred from an elite cow whilst displaying exceptional performance figures at the same time. Indeed this is a very tall order in breeding terms and it is thus not surprising that this category is also known as the “the best from the best” category.





Braunvieh cow and calf of Cois Harman

iv. The ARC National Emerging Beef Farmer of the Year Award – Winner is Ms Thokozile Mathelela

This award marks its 16th anniversary since inception in 2003. The category recognises members of the Kaonafatso ya Dikgomo Scheme whose herd management practices as well as herd performance improved significantly over the past year. The Scheme's development approach assists emerging cattle farmers to apply beef recording and improvement technology to facilitate accurate selection for economically important traits and increase productivity and profitability of their herds. To date more than 8 000 are registered on the INTERGIS national database, which has already uploaded data for more than 86 000 animals.

v. The ARC National Beef Cattle Improvement Herd of the Year Award – Winner is Mr Christopher Sparks

This award category is probably one of the most prestigious in the South African beef industry and acknowledges breeders and producers for exceptional achievements

when it comes to performance testing, genetic improvement, breeding and management. It also highlights the impact and advancements that performance testing can facilitate, as the finalists' performance credentials demonstrate.

vi. The ARC National Mentor of the Year Award – Winner is Mr FJN Harman

Participants are also evaluated in terms of their leadership skills, involvement with, and acknowledgement by the formal structures of industry. Breeders who are prominent stud breeders themselves and who have a track record of how they plough back their wealth of knowledge and experience in industry are eligible to participate.

vii. The ARC National Commercial Beef Producer of the Year Award – Winner is Mr Nsikayekhaya Shabalala

This award aims to recognise a commercial beef producer who actively participates in performance testing and who has made great progress in his/her own enterprise through the application of available performance recording technologies.

viii. The ARC National KyD Province of the Year Award – Winner is KwaZulu Natal

The award recognises the province with the highest number of participants in the scheme. These farmers must be registered on INTERGIS and must have loaded data on the database between March of the year preceding the award and April of the year of the award.

About the Agricultural Research Council

The Agricultural Research Council is a premier science institution with a national footprint that conducts research with partners, develops human capital and fosters innovation in support of the agricultural sector. The ARC provides diagnostic, laboratory, analytical, agricultural engineering services, post-harvest technology development, agrochemical evaluation, consultation and advisory services, food processing technology services as well as various surveys and training interventions. For more information, visit the ARC website at www.arc.agric.za or call (012) 427 9770 or download the ARC Hub App at archub.agric.za, also available on Android and IOS.

Landmark for beef

Chinese investment stimulates local beef industry

As the first China International Import Expo (CIIE) held in Shanghai came to an end, attention turns to the South African beef industry, one of the clear winners of increased favourable relations between China and South Africa. The two nations signed a landmark trade agreement in 2017, allowing SA to export its beef products to China, in turn creating a booming local beef industry.

Successful Public Private Partnerships (PPP) are essential to unlocking lucrative trade agreements that stimulate economic growth.

This is the view of Louw van Reenen, CEO of Beefmaster, who was a guest of the department of trade and industry (dti) at the prestigious CIIE held in Shanghai from 5 to 10 November 2018. Beefmaster is a renowned South African beef producer fast cementing its reputation as an international specialist supplier of world-class products, with a customer base that stretches throughout southern Africa to the Middle East, Far East, and beyond.

"Since the start of the trade agreement with China, Beefmaster's exports have doubled. This is despite the limits created by the volatile maize price, the shortage of weaners, which made introducing fresh stock to our herd challenging, and a pervasive country-wide drought," said van Reenen, speaking from Shanghai.

He added that agreements such as these ensure that the meat industry remains profitable, a stable source of revenue and employment, and stimulates the growth of commercial and emerging farmers.

Beefmaster is currently only one of three beef producers in the country that has been exporting its products to the Chinese market under the trade agreement. Due to the quality of beef cuts supplied by Beefmaster, the Chinese market has gradually increased its demand for select cuts.

Recent reports echo this trend, with the Organisation for Economic Co-operation and Development (OECD) suggesting that beef will be the fastest-growing import sector in China in coming years. China's official beef imports have grown almost 20-fold from 23,702 tons in 2010 to an estimated 460,000 tons in 2015.

"Our status as a preferred supplier of red meat to the Chinese export market is as a result of our leading-edge technology in the areas of herd management, productivity, purchasing, marketing, hygiene and housekeeping," said van Reenen, adding that its state-of-the-art technology allows the company to customise and "produce to order".

Van Reenen believes that PPPs will go a long way to help strengthen the local farming industry and create a trustworthy export industry that is renowned for its beef quality products.

"We are committed to working with emerging farmers. We run mentoring and educational programmes, often alongside Government, to empower smaller farmers in the meat and fodder industries. We want to see more farmers reach the scale and high-quality herd standards required to take advantage of export markets. It is only by all parties working together that we will be able to achieve this," said van Reenen.

Sectors that participated in the CIIE from South Africa and on invitation from the dti included agro-processing, footwear and leather, engineering, petro-chemicals, railway components, defence, and information and communications technology.

"The CIIE was an excellent platform to promote South Africa's trade and investment capabilities, and it was an honour to be part of it. Our purpose in attending was to thank our existing customers in China for their continued business and further cement our good relationship with them," said van Reenen.

According to reports, total trade between the two nations grew from R205 billion in 2012 to R318 billion by the end of 2017.

Q&A with Roelie van Reenen, supply chain manager at Beefmaster

What accounts for the superior quality of Beefmaster cuts?

Our state-of-the-art technology and continual investment into cutting-edge technology, which allows us to tailor-make beef products according to clients' specifications, sets us apart. Our facilities are compliant with the highest health and safety standards, the FSSC 22000. This certification allows us to ensure best possible shelf life for our meat through optimal meat handling processes as well as superior cold chain management, and effective cooling systems. Lastly, our traceability system is another factor that sets us apart from our competitors, allowing us to track our product through the supply chain. This allows us to confidently promise a quality end product.

Where does Beefmaster source its beef from?

Our primary focus is to build strong and enduring relationships with cattle farmers, from whom we source cattle (we then process the meat at our facility). Good relationships with our farmers are critical to ensure the provision of a superior product. We focus not only on established farmers, but also emerging farmers, in line with our strong sense of responsibility in respect of the sustainability of all our farmers, along with a focus on ethical working and operating conditions on their, and our farms. Beefmaster is assisting a number of emerging farmers, via mentorship programmes. We have also established a number of offtake agreements with these emerging farmers, which effectively commit us to buy or sell portions of their future production.

What cattle breeds predominate in this market?

South Africa has a semi-desert arid land and there are a number of breeds that thrive in these conditions. When it comes to meat

processing, each cattle breed offers both pros and cons when it comes to beef production.

Please tell us more about your leading-edge technology.

We are proud of our rigorous food safety systems and compliance. As an FSSC 22000-accredited and certified company, we continuously train and upskill our staff (close to 1000 employees), while developing their awareness in respect of occupational health, safety, hygiene, and procedures to ensure we supply quality beef products that meet the specifications of buyers and end consumers. Line managers are also tasked with daily mentoring and training to ensure each staff member is equipped with the skills necessary to perform their jobs optimally, while mitigating risks and ensuring safety and systems compliance. Our traceability system allows us to track and trace our beef throughout the supply chain. This means we can confidently promise a quality end product, but is also vital to help prevent the main human and animal health consequences of food hazards.

Our extensive supply chain, over which we have complete control, allows us to process our own cattle as well as cattle from other approved feedlots. In addition, our state-of-the-art deboning facility allows us to package and meet the bespoke requirements of both the wholesale and retail meat industry in South Africa, and abroad.

Why are PPPs the way to go?

PPPs will go a long way to help strengthen the local farming industry and create a trustworthy export industry that is renowned for its beef quality products. It is only by working together, with government, that we will be able to see more farmers reach the scale and high-quality herd standards required to take advantage of export markets. The current trade agreement with China allowing SA to export its beef products to China is already paving the way. Agreements such as these ensure that the meat industry remains profitable, a stable source of revenue and employment, and stimulates the growth of commercial and emerging farmers.

How do your mentoring and training programmes work?

We work with farmers – established and emerging – to make training available to them that will help them with specific and pre-identified challenges. Our training efforts have received recognition for three consecutive years, from 2013, from the Red Meat Abattoir Association. We also have a close relationship with National Emergent Red Meat Producers' Organisation (NERPO) resulting in assistive collaboration. We also offer internal programmes to employees.

What success have your efforts lead to so far?

The trade agreement enabling SA to export its beef products to China came into play at the end of 2017 so it has only been in the last year that the local beef export industry has taken off. There is very little information available about emerging farmers entering the export market because it is still early days. However, we are working with all industry players to ensure that the emerging farmer benefits from this agreement.

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Hola Harvest!

Roof-top agri kicks off in Jozi

SAB and AB InBev Africa has introduced its first group of 'urban farmers' in Johannesburg's inner-city and surrounds with the installation of three 200m2 rooftop farms, facilitated by its youth entrepreneurship programme, SAB KickStart, in partnership with the City of Joburg, the Department of Small Business Development (DSBD) and the Small Enterprise Development Agency (SEDA).

The farms, situated at the top of 1 Fox Street in Braamfontein and at Outreach Foundation in Hillbrow, are run by 7 young agri-entrepreneurs between the ages of 18 and 35. They are Sibusiso Mahlangu (Outsauce Pty Ltd); Sibongile Cele (Mcebo Unlimited Wealth Pty Ltd), Fezile Msomi (Hazile Group Pty Ltd); Puseletso Mamogale (Midi Agricultural Farm); Khaya Maloney (Afri-Leap Pty Lt); Siyabonga Mngoma (Abundance Wholesome Foods) and Themba Baladzi (Rutegang Agricycling Co-op).

The Rooftop Farms are supported by a newly formed brand called "Hola Harvest", under which they produce a wide range of fresh produce such as leafy vegetables, strawberries, chillies, violli flowers. The produce will be sold to restaurants and local communities around Johannesburg Central and the profits will go to the entrepreneurs themselves to assist them in managing their businesses. In addition, the farms have opened up opportunities for three agro-processors to run enterprises

based on the produce that they convert into condiments and sauces.

"SAB looks to innovative ways to help tackle youth unemployment effectively in South Africa. The Urban Agriculture initiative is one such initiative, which involves commercial hydronic farming. This initiative closely aligns technology and food security, as well as consumer education to facilitate job creation amongst young unemployed graduates.

"Global ecological challenges present opportunities for intrepid entrepreneurs to develop innovative solutions, which not only address the problem facing the sustainability of our earth and the survival of its people, but assists the drive towards creating helps to create much-needed jobs. Through this project, we are also demystifying the misconceptions of agriculture by making farming more attractive to the younger generation" says Phumzile Chifunyise, Enterprise Development Manager, SAB and AB InBev Africa.

As a means of promoting awareness and knowledge of the urban agriculture concept, consumers are able to tour the various technologies used in a demonstration farm on site at 1 Fox Street.

"Rooftop farming is a concept growing in popularity for being a smart and no-fuss solution to helping address, on a small scale, eco-social and economic challenges. It requires minimal infrastructure and can be developed over a short period of time to yield quick results. We are always looking for innovative ways in which to improve people's lives and society as a whole, and urban agriculture provides us this platform.

"We are helping to demystify some of the perceptions of farming especially that of a traditional sector only accessible to those with high capital, land and infrastructure, years of experience and knowledge. And what better way to address this than rooftop farming," says Chifunyise.

The Urban Agriculture Project develops the rooftop farm entrepreneurs by providing infrastructure funding and support in the form of business training to assist with how to operate and manage the farms, and training in urban farming practices.

An incubation programme with the young entrepreneurs was hosted in partnership with local organisation, Wouldn't It Be Cool (WIBC), which focuses on developing young entrepreneurs through innovation.

The Urban Agriculture entrepreneurs participated in a 3-6 month training programme after which they present their business model on how they would solidify themselves in the market. They are then provided with the rooftop farm infrastructure and access to market.

The programme uses hydroponic technology through which fresh produce is grown in A-frame shelved racks. Props are used to hold the plants upright allowing their roots to reach the nutrient-rich water sitting below them.

The rooftop farms are well equipped to accommodate all seasonal weather conditions. Plastic sheet roof tunnels keep the plants warm in winter, and protect them from severe weather such as storms and hail in the summer months. The sheets can be retracted to release heat, if necessary.

End-to-end irrigation

Cherry Irrigation is a leading irrigation business specialising in the design and implementation of all types of agricultural irrigation systems. We are an authority on the design and installation of irrigation and climate control systems for the greenhouse market. Based in the Western Cape of South Africa, we proudly serve a variety of businesses, both large and small, across Sub-Saharan Africa.

Consultation, assessment, planning and design, implementation and after-sales support are all part of our offering.

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company member and all our designers are sabi approved.

Environmental sustainability. Minimising our impact on the environment is imperative to us. Our system designs are created with maximum efficiency in mind and include rainwater harvesting of rainwater and run-off water treating and recycling.

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Efficiency is the goal

Technology is making irrigation simpler and more profitable



Irrigation has always demanded answers to the same questions: “When?”, “Where?” and “How much?” In previous times, approximate answers were good enough. Now, however, precision and rigour are required if farmers are to keep farming. Fortunately, digital technology has made irrigation management both a much simpler and a much more accurate proposition.

“Some farmers copy what their neighbours are doing and others what their fathers were doing, and their fathers’ fathers before them,” says Frederik Nel, Commercial Manager: RSA and Namibia at Lindsay Africa. “Few apply technology to irrigation management, but this is changing and can be seen in the hundreds of FieldNet units (Irrigation Management Software for pivots) installed on pivots annually, just for our brand, during the last years.”

Smart water management

Digital technology is revolutionizing the how farmers are growing cash crops like maize, soybeans, alfalfa, cotton, and many more. It’s all about getting the soil water balance right to avoid not only underwatering—which can lead to yield-reducing water stress—but overwatering too. As Nel points out, “Farmers don’t always realise that over irrigating is as bad as under irrigation. Run-off and deep percolation wastes water, nutrients and energy and can hurt yields and reduce profitability.”

Good irrigation management is therefore key to providing the right amount of water

at the right time. Thanks to technologies such as FieldNET Advisor, it is now possible not only to track the available water throughout the field but also to schedule irrigation to replenish water levels before the yield-reducing stress point is reached while avoiding overwatering.

“FieldNET is a single integrated platform that can monitor and control practically any pivot regardless of age or brand throughout the field, sending real-time status alerts that are accessible around the clock,” says Nel. “This enables farmers to make irrigation management decisions in an automated and simplified way. A field-specific, hyper-accurate weather forecast is used to predict the crop’s future water needs in order to alert the farmer to schedule irrigation before any part of a given field becomes stressed.”

To simplify matters, the system automatically generates Variable Rate Irrigation prescriptions that are dynamically optimized every day according to the specific crop and soil requirements of the area under irrigation. “No longer is it necessary make complex calculations or juggle multiple tools, and it takes out the guess-work,” says Nel.

Variable Rate Irrigation

Many farmers will apply a single depth of irrigation across an entire field and even across different crops, without taking into account obstacles, variable soil types and variable terrain, with the inevitable result of over or underwatering. With Variable Rate Irrigation, however, it is possible to get the right amount of irrigation at every point in the field simply by pointing and clicking with

a mouse. Site-specific agronomic data readings form the basis of a customized irrigation plan entered into the Precision VRI controller and relayed wirelessly to the pivots. This level of precision results in savings of 15-20% on water, pumping, and input costs. Plans can be saved and reused throughout the year.

“At the end of the day, whatever form of irrigation you have, the goal is to make that as efficient as possible,” says Lindsay Africa Commercial Director Alan Edwards. “Our technologies are helping to drive that. If we want to carry on farming, we’re going to have to realise that the water is not going to be just as freely available as before.”

Edwards agrees that climate change is also driving the demand for precision irrigation. “I used to work on a project up in Mozambique before joining Lindsay,” he shares. “It was an old estate that was set up by the Portuguese and the British over a 100 years ago when, and the whole place used to be rain-fed, without a drop of irrigation. Now everything is irrigated, otherwise it’s just not worth planting.”

Clearly, technology is going to play an increasingly important role in cutting down on waste. “If you don’t have a system like VRI, you’re going to be irrigating for the worst-case scenario,” says Edwards. “Take a field with sandy soils and clay soils—you know you need to apply the water on the sandy soils but it means you’re probably running off on the clay soils because they can’t absorb the water. What VRI does is adapt the irrigation application quick enough along the pivot itself so you control each and every sprinkler, mapping into where the soil changes or if

you've got roads or streams or other areas that you don't want to put the water onto."

The ultimate platform

FieldNet, VRI, FieldNet Advisor, Corners—just how many platforms does a farmer need? What if a farmer has more than one brand

of centre pivots or more than one type of irrigation system?

"That is the beauty of FieldNet," says Nel. "All of the Lindsay technology are all manufactured in house and can be operated by the FieldNet Platform and App. That means all of the technology (FN, VRI, FN Advisor

etc.) is on one platform and it doesn't matter what brand of pivot. The competition still need to get all of their technology on to one platform. We can put FieldNet on any brand of pivot. FieldNet can also be installed on other types of irrigation systems," he concludes.



Irrigation tips for selected crops

Wheat.

For wheat, sprinklers are key. "Wheat is a winter crop," explains Nel. "In the winter rainfall areas, wheat is extensively grown under dry-land conditions. In summer rainfall areas, a lot of wheat fields are irrigated. Hence most of the water is going to come from irrigation with little or no rain. Therefore your sprinkler package (nozzles, sprinklers, regulators) should be in a good condition. Wheat is usually the crop where farmers see that their nozzles need to be replaced or something is wrong with the sprinklers. It is difficult to see with high crops like maize. Wheat is a short crop so it's easy to see rings or uneven growth."

To test the sprinkler package, Nel recommends placing rain meters randomly in the field or the nearest Zimmatic dealer to assist. "After the field is irrigated the rain gauges should be inspected," he advises. "Similar readings mean the system is still applying water uniformly, so it is still fine. Otherwise, replace components like nozzles and regulators, and do the required maintenance."

Sugar cane

For sugar cane, pivots are an excellent alternative to drip and flood. Nel explains: "Centre pivots have a life-span of 20-30 years (or up to 40 years in the case of Zimmatic pivots). Dripper lines have a

life span of 5-7 years but with similar yields obtained with pivots. Compared to the flood method, pivots give you more control of the water applied and more efficient water use."

Potatoes

Here, low-downtime is the key. "Look for a brand that has few breakdowns and has a strong dealer network with good aftersales service. Because of these factors, Lindsay's Zimmatic centre pivots is a popular brand in difficult high-risk irrigated potato regions such as the Sandveld on the South African West Coast," he says.

Potato farmers can boost their income with Zimmatic Corner technology. "Potatoes can only be cultivated once in every four to seven years on the same field," says Nel. "So if a farmer has a 40ha pivot and is able to add 8ha with the corner, in five years he would have irrigated an additional 40ha, for a total of 80ha in 10 years."

Tall crops

Because of the good prices of permanent crops such as fruits and nuts, more and more farmers are converting irrigation land to tree crops. "The most cost-effective way to convert fields from cash crops to tree crops would be to keep your pivot and just change the centre point and pivot tower height, converting your standard clearance pivot to a high clearance pivot that can irrigate tree crops," says Nel.

Suppressing infestation

How to combat red spider mites in orchards

The common red spider mite is the most important mite pest of apples and pears in certain production areas. Particularly severe infestations were noted in certain areas of the Western Cape in the 2017 to 2018 season, due to the heat and drought conditions experienced.

So why do red spider mite problems vary from year to year? The answer has a lot to do with the environment.

Environmental conditions that result in high populations include hot and dry conditions, the destruction of natural enemies by spraying pyrethroids and hard chemistry (a lack of predators stimulate females to lay more eggs), highly infested crops and weeds nearby, as well as insufficient water supply to the crop.

Mites are often less in numbers after rain that can wash their populations from leaves, while humid conditions favour dew and create conditions favourable for predators that control red spider mite populations.

Know your enemy

The more farmers know about mites, the easier it is to control them.

The red spider mite is a small yellow/olive-coloured mite which have dark (red or crimson) patches on either side of the body, and is less than 1mm long. They are not insects or spiders, however they are related to ticks, spiders and scorpions and they have eight legs.

Mites can normally be found on the underside of leaves and tend to have patchy distribution in orchards. As the population increases, the mites will aggregate at certain sites such as the growing points of the plant. Even though the mites are found in high numbers on the underside of the leaves, a magnifying glass might still be needed to see them.

Damage is caused by the mites sucking sap from the cells on the underside of

the plant leaves. The mites have piercing-sucking mouthparts and they feed on the chlorophyll thereby reducing photosynthesis and destroying the leaf epidermis with a consequent loss of moisture.

This damage is similar to that of severe drought conditions and could cause substantial weakening and possible virus transmission in orchards.

White speckles are quite noticeable in the early stages and will occur on the upper leaf surface. As the mite population increases, the leaves take on a bleached appearance and start dying. Other symptoms include stippling on the leaves, chlorotic spots, or leaves can change colour to bronze, rusty, purple or yellow-brown. Severe attacks from red spider mites will cause the leaves to drop, causing a setback in tree crops.

When there is a high infestation, the plants will be covered with a fine webbing. This webbing does a few things. It protects the mites from natural enemies. It also protects the mites from insecticide sprays, especially the contact insecticides. It anchors the mites and their eggs to the plant and act as walkways between the leaves and other plants for the mites. It is also therefore a method of dispersal. Females will disperse from plants on threads of webbing and they will drift or be blown onto other plants. This is also called ballooning. Wind is an important method of dispersal, but humans, animals and machinery also play a role.

Temperature is critical to the life cycle of the red spider mite. Normally population reproduce over 14 days at 21°C, but at 30°C this lifecycle can be brought down to less than a week. There are five developmental stage and overlapping generations do occur.

The adult females lay eggs after one to two days and they will lay between 70 and 150 eggs in their lifetime of three to four weeks. Females don't need to mate as the unfertilised eggs will produce male

mites and the fertilised eggs will produce female mites. Distinguishing characteristics between males and females are that males have more pointed abdomens and are smaller than the female mites.

The eggs are laid on the underside of the leaves which is also where the adults occur. During high infestations they can also occur



on the sides of leaves, on stems, as well as on the fruit. When the humidity is high the egg laying rate of the mites are less.

As the summer comes to an end the mites will turn deep red and migrate from the plants to hibernate in cryptic habitats such as cracks in the ground, under tree bark, crevices or in crop debris. Red spider mite can get through winter without feeding and re-emerge in the spring

and summer to re-infest the apple and pear trees. During moderate winters, the mites will continue to feed when plants are available.

Take control of the orchard

To control red spider mite, farmers need to keep a close watch and spray in accordance with infestation levels.

Regular scouting is essential to identify the problem early. If more than five adult mites occur per leaf, a chemical spray should be considered. A well-timed application should limit the number of applications. Most products such as systemic products will not kill the eggs. Regular inspections are required and a repeat application may be necessary at a 10-14 day interval.

If the population is very high, an ovicide should be considered in combination with a contact or translaminar acaricide.

The following spray tips are important:

- Ensure good coverage of the lower leaf surfaces as the mites hide on lower surfaces and spin webs which can protect them from the contact sprays.
- High spraying pressure is important to ensure smaller droplets for deeper penetration or use systemic/translaminar products that penetrate leaves also from above.
- Spot treat clusters of mite infestations before applying a general application over the rest of the orchard.
- It is essential to alternate between different groups of pesticides with different modes of action. Mites develop resistance to pesticides quickly, and have developed resistance towards most acaricides, making control difficult. Resistance develops quickly as mites produce large numbers of

offspring and their lifecycles are very short, resulting in successive generations within a short amount of time.

Few insecticides are effective and some may aggravate the problem by killing natural enemies such as predatory mites (*Phytoseiulus* spp.). When mite populations are high, these predators are ineffective.

Given the relative ineffectiveness of insecticides, farmers have to combat mites by also addressing the factors that can lead to plants being more attractive to red spider mites.

Examples are excessive application of nitrogen fertilisers, trees that grow in dusty places such as adjacent to dusty farm roads, and trees that are stressed by low moisture and high ambient temperatures. Scouting of trees right next to dirt roads is essential because it is from here that infestations spread to the rest of the orchard.

Weeds are important alternative hosts for mites, especially solanaceous weeds and *Oxalis* spp. Therefore, weed control in orchards is important to reduce pest reservoirs.

Humans and animals are unfortunately important sources of infestation. Mites are brushed off onto moveable objects in infested orchards and may drop off at any time, infesting new areas. Movement in infested orchards should be limited and infested orchards should never be visited before moving to a clean orchard.

Syngenta's solution

Syngenta's Agrimec Gold® and Voliam Targo® offer good protection against mites.

The mode of action of Agrimec Gold® is translaminar and has stomach and contact action. Translaminar means that

it penetrates the leaf tissue and forms a reservoir of active ingredient within the leaf.

Abamectin, the active ingredient, targets the nerve cells. The red spider mite does not die instantly, but feeding is immediately inhibited, followed by paralysis and eventual death.

For fruit growers that want to export their pome fruit, Voliam Targo® represent a unique one-can formulation that can address numerous problems. Voliam Targo® is IPM compatible ensuring the beneficial insects in the pome orchard can contribute to controlling the mites.

The combination of a miticide to suppress spider mite populations along with a lepidoptera active ingredient in Voliam Targo, ensures that both codling moth and mites can be targeted. These two pests can occur in the orchard at the same time.

Unlike pyrethroids, Voliam Targo® will not induce the females to reproduce more. When mites are only moderately abundant and a broad-range pyrethroid is applied, a dramatic increase in mites can result. Pyrethroids kill all the natural enemies, and stimulate mite populations, as more female mites are produced.

Tia Ferreira (Insect Control Lead, Syngenta) and Christian Giesel (Campaign Lead Cereals and Deciduous Fruit, Syngenta)





Overcoming embryonic loss

Optimal conception percentage during mating is the insurance policy for a successful lambing season

The main reason for the difference between ovulation rate and lambing percentage is the failure of embryos to be implanted during the first month after mating. The loss of a fertilised ovum, embryo, foetus and lamb can be caused by a nutritional deficiency or imbalance. The amount of embryonic loss is accompanied by poor body conditions and/or nutritional status of the ewe before mating.

Insufficient nutrition can result in embryonic loss after the 25th day after fertilisation. With a protein shortage, it has been found that up to 55% of ewes absorb their embryos.

Ewes at a nutrition level of 50% above maintenance had a higher embryo survivability than the group that was fed 25% under the maintenance level.

Overfeeding, on the other hand, can also be detrimental because it causes poor quality ova and insufficient uterine function, as well as impairing the access channels of the placenta to the embryo, possibly as a result

of excessive fat depositing, which can lead to larger embryonic losses.

Where ewes were covered under poor conditions (body condition score of 1) and were close to cover (14 to 21 days before mating), a high degree of embryo loss occurred which was not the case when ewes were in good body condition (2.5 to 3 condition score).

Although normal fluctuations in nutrient levels under practical conditions do not have a significant influence on embryo losses, variation in feed intake during the year or the change in feed composition during the mating period may cause significant differences in the reproduction of sheep. An indication of embryonal mortality includes the abnormal long oestrus cycles of 20 days and more.

In multiple births, there may be a loss of one or more embryos and only one that survives. In the case of single fertilisations, no embryo survives and therefore the ewe skips.

Change in nutritional status during the implantation phase (starting day 14 to 16 and complete day 28 to 35 after ovulation) has a greater influence on embryonic losses

than during the pre-implantation phase (first 15 days after fertilisation). When a ewe is in heat after an embryo loss ($\pm$ 20 days later or longer) and is fertilised, they usually give birth to lambs with lower birth masses than the average. This is due to the non-transferability of the resorbed embryo's cotyledons to the embryos that survive. The feeding capacity of the former cotyledons is lost for the rest of the pregnancy period. Embryonic loss after implantation also disturbs the distribution of foetuses between the two uterine horns, which increases the size variation between twins of the same ewe. This situation is especially found in young and old ewes as well as twin ewes. However, if the embryo dies before day 12, the ewe comes back on heat after the normal cycle length. However, it will result in a lower lambing rate in ewes potentially capable of multiple births because the ovulation rate with the second heat cycle is lower. Losses are estimated at 10% to 40% of fertilised eggs. Most of these losses occur during the first month of pregnancy, while 80% to 90% of the embryo losses occur within the first 18 days after fertilisation.



The losses during the first month of pregnancy are mainly affected by body condition and nutrition. These losses can be limited to a large extent by ensuring that the breeding ewes are in a good condition (body condition score of 3.5) during mating and then they should be kept on a maintenance feeding level during the period afterwards. Ewes must be kept at the same feeding level for at least four weeks after the rams are taken out from the flock to prevent resorption of the embryos.

It is recommended to supply the following: Molatek WOOL SHEEP LICK (ready-mixed) or mix 850 kg WOOLMASTER CONCENTRATE with 150 kg of salt as maintenance licks or mix 150 kg of WOOL SHEEP LICK with 100 kg of grain or mix 500 kg Molatek WOOLMASTER CONCENTRATE + 400 kg of grain + 100 kg of salt and provide at 300 to 400 g/ewe/day as a production lick during late pregnancy and lactation.

Where the lamb-cage-system is used, ewes must be adapted to the complete diet, which they will receive after lambing, at least four weeks before they go into the lambing cages. Start feeding 500 g/ewe/day of the lamb-ewe ration and then gradually increase the amount (e.g. weekly) so that at the time the late-pregnant

ewes go into the lambing cages, the ewes pregnant with single foetuses eat more or less 1.0 kg to 1.5 kg and those pregnant with multiple foetuses eat about 1.5 kg to 2.0 kg/ewe/day. Depending on the body condition of the ewes, mass and number of foetuses, the maximum feed intake in the lambing cages of late-pregnant ewes prior to lambing is approximately 2.5% to 3.0% of body weight, and the feed intake of ewes that have already

lambled is about 3.0% to 3.8% of body weight. As soon as the complete diet has been fed, all lick supplements must be discontinued. Examples of a grinded complete lamb-ewe ration are provided in Table 1. Clean drinking water must be available at all times.

Dr Vlok Ferreira, National Technical Manager, Ruminants – RCL FOODS

Table 1: Complete diets for late pregnancy and early lactation

Mixing Instruction		1	2
Molatek Concentrate	Kg	250	200
Woolmaster	Kg		
Maize / Hominey Chop / Barley	Kg	450	450
Roughage	Kg	300	
Lusern	Kg		350
Total	Kg	1000	1000
Intake / ewe / day		<i>Ad lib</i>	<i>Ad lib</i>

Dr Vlok Ferreira, National Technical Manager, Ruminants – RCL FOODS

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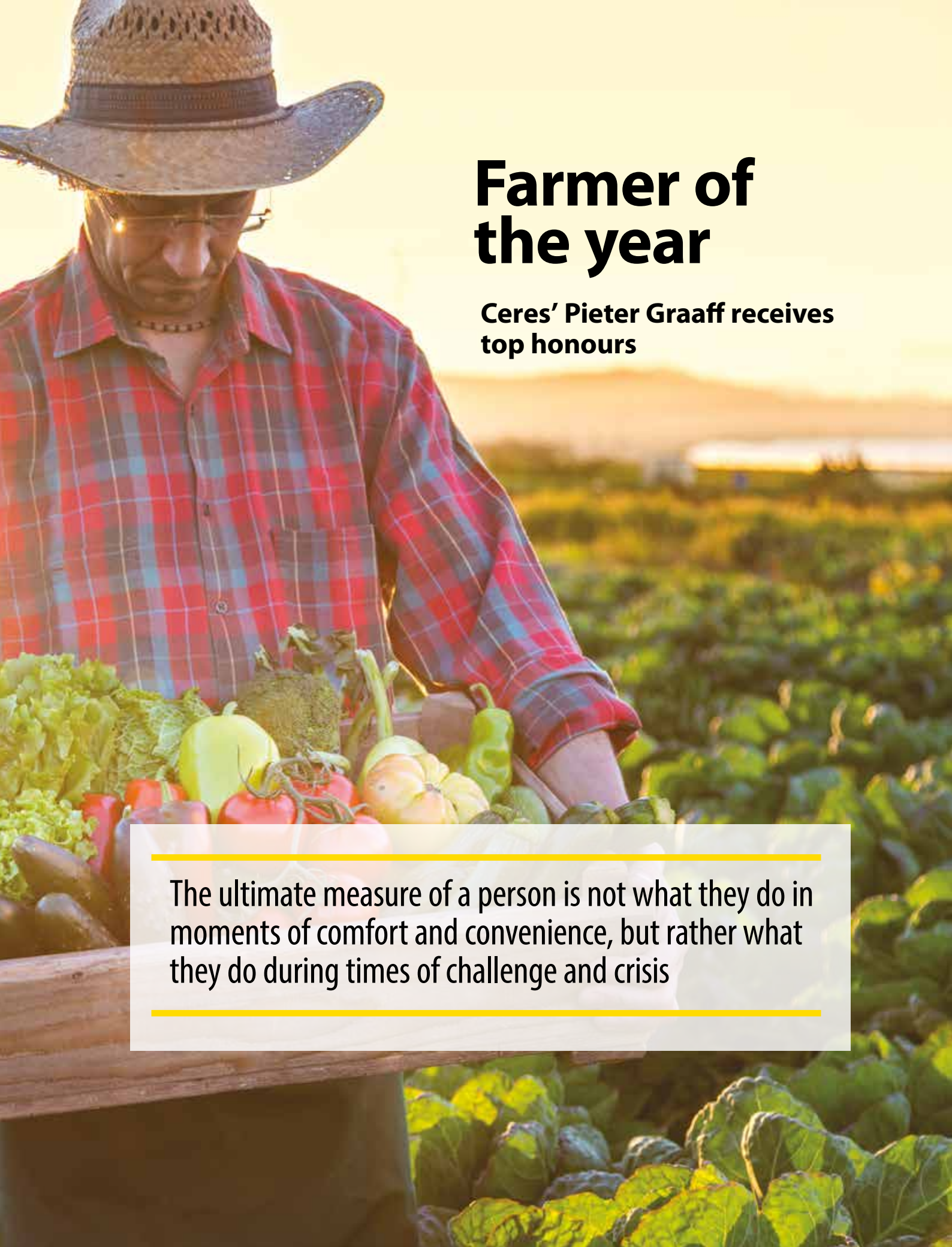
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A photograph of a farmer, Pieter Graaff, wearing a straw hat and a red and blue plaid shirt. He is holding a wooden basket filled with fresh vegetables, including lettuce, tomatoes, and eggplants. The background shows a vast field of crops under a warm, golden sunset sky.

Farmer of the year

Ceres' Pieter Graaff receives top honours

The ultimate measure of a person is not what they do in moments of comfort and convenience, but rather what they do during times of challenge and crisis

At a gala event held in Stellenbosch on November 16, 2018, Agricultural Writers SA announced the winners of the 2018 National Farmer, New Entrant into Commercial Agriculture and Agriculturist of the Year.

The 2018 National Farmer of the Year is Pieter Graaff, a farmer from Ceres in the Western Cape.

The 2018 New Entrant into Commercial Agriculture is Leonard Mavhugu, a farmer from the former Ciskei region of the Eastern Cape.

The 2018 Agriculturist of the Year is Wandile Sihlobo, an agricultural economist from Gauteng.

Annually, Agricultural Writers SA acknowledge outstanding achievements of commercial farmers, new entrants into commercial agriculture, and agriculturists. One of the aims of these awards is to give prominence to the role that farmers and agriculturists play in the agricultural sector in South Africa. It is also important to note that the award recipients also impact on the broader economy of the country and the southern African region.

This year's candidates were:

Agriculturist of the Year

- Gauteng – Wandile Sihlobo
- Limpopo – Frits van Oudtshoorn
- Mpumalanga – Johann du Preez
- Western Cape – Prof. Eugene Cloete

New Entrant into Commercial Agriculture

- Eastern Cape – Leonard Mavhugu
- Gauteng – Mbali Nkabinde
- Western Cape – Wayne Mansfield

Farmer of the Year

- KwaZulu-Natal – Joseph Baynes Estate (Pty) Ltd (Myles van Deventer)
- Limpopo – Mahela Boerdery (Edward Vorster & seuns)
- North West – Johan Styger
- Western Cape – Pieter Graaff
- "Every day we are met with the challenge of feeding a growing world population. With these awards, Agricultural Writers SA acknowledges

the role that farmers and agriculturists play in the agricultural sector and in addressing food security. I am sure that although we will not hear the words, future generations will thank you for your contributions and efforts to create an enabling environment that facilitated growth, success and food security in our lovely country," said Magda du Toit, chairperson of Agricultural Writers SA.



"The ultimate measure of a person is not what they do in moments of comfort and convenience, but rather what they do during times of challenge and crisis. That shows resilience and that is the match that ignites hope, excellence, innovation and forward thinking. And that is what all our regional winners managed to do."

The 2018 Farmer of the Year in the Western Cape and National Farmer of the Year Pieter Graaff took over farming business Witzenberg Properties just outside Ceres from his father Dr Jan Graaff in 1984. Under his leadership five farming units were added to the original farm resulting in better productivity and an increase in the total turnover and profit. Pieter Graaff also expanded his farming business vertically into the complete value chain.

The six farming units are all situated in four unique climate zones within the Ceres area, spreading the climate risk of the farming business. Each of the six units are operated independently with its own infrastructure. The combined production of the separate farming units makes Pieter Graaff the single largest individual apple producer in South Africa.

Other farming activities includes the cultivation of pears, nectarines, peaches, cherries, wine grapes, vegetables, grain, forestry with a sawmill, cattle, sheep and a thoroughbred stud.

Since the onset of his career, Pieter Graaff has made the conscious decision to rather be "a small fish in a big ocean,

as opposed to being "a big fish in a small pond".

Unlike many other entrepreneurial farming companies, Witzenberg Properties chose to develop in partnership rather than alone. With this philosophy a business was built with far greater influence across the whole value chain.

Witzenberg Properties has a proud tradition of taking care of its people. It is an employer of choice within the greater Ceres area and renowned as a company where people work until retirement. It provides employee benefits beyond the minimum requirements, to provide every employee of Witzenberg Properties the opportunity to live a life of dignity.

Tru-Cape managing director Roelf Pienaar says: "Tru-Cape Fruit Marketing was over the moon when our chairman Mr Pieter Graaff was confirmed as the Western Cape Farmer of the Year, earlier this month, but the news now that he has been awarded by the Agriculture Writer's Association as South Africa's National Farmer of the Year has filled us with pride at our close association with him. Our heartiest congratulations go to Pieter.

"As the largest exporter of South African apples and pears, Tru-Cape needs innovative growers like Pieter Graaff and others to maintain our competitive edge. His forward-thinking and business-like approach to growing the best South African fruit is a large part of our success."

Brian Berkman

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THE PROFIT CENTER

(In)security of tenure

Land reform is vital but requires careful implementation



The debate around land reform and expropriation continues to be a topic of conversation throughout South Africa. Some see it as a golden opportunity to achieve the structural transformation perceived by many as necessary to enable the majority of South African citizens to escape the poverty trap bequeathed by apartheid; others unashamedly treat it as a political football for purposes of demagoguery and mischief. Few seem to agree on how best to go forward. We asked Andrew Bembridge, director and head of ENSafrica's property and real-estate department, for his considered opinion.

Are constitutional restraints hampering land reform? If not, what accounts for the failure of land reform progress to date?

There is a general acknowledgement that the restitution of land under the current legislation, the Restitution of Land Rights Act, 1994 (the "Act"), has been a failure. The Act has been in place for some 23 years and has not resulted in the land reform that was anticipated. Some reasons for this are:

- the requirement that to claim restitution, a claimant would have to show that he or she was dispossessed of land as a result of racially discriminatory laws (i.e. a burden of proof);

- the practice of distributing land to communities (through a communal property association or trust) and not individuals;
- the distribution of farms to communities without the capital or know-how to continue farming;
- corruption;
- budgetary constraints; and
- the lack of willingness of the State to expropriate land for agreed distribution.

The constitutional restraints (if they exist) were not a contributor to the failure of the restitution process, but rather a failure by the State to implement the programme.



What effect would altering the Constitution have in terms of economic uncertainty, investor confidence and the viability of financial institutions, such as the Land Bank?

Leaving aside that it is arguable that the Constitution does allow expropriation without compensation, a clear amendment to the Constitution followed by a practice by government to expropriate without compensation would create great uncertainty, dampen investor confidence and have a real effect on financial institutions.

The effect of expropriation without compensation would, in effect, allow the State

to interfere with the current land registration system and the security of tenure that it creates. It would also upset the certainty that financial institutions rely on in securing debt. If the Constitution were amended, additional legislation would be required to implement the land redistribution programme and much thought will have to go into that legislation. The Restitution of Land Rights Act set the requirements for a claimant to claim land, i.e. being dispossessed of land by racially discriminatory law. It is not clear what the test will be to expropriate land without compensation and what the requirements will be to transfer land to communities or to individuals.

Without altering the Constitution, how can South Africa deal with the historical injustice of land?

The government presently has the Restitution of Land Rights Act and the Expropriation Act to achieve a redistribution of land. However, those do require payment of fair value for land taken for redistribution.

There are many ideas on how to redistribute land, but these will most likely only be effected over a long period of time.

Having said that, legislation is required to fast-track mass housing delivery to partly deal with the problem.

How can land reform be implemented in a way that improves the lives of rural people?

Large tracts of land are currently occupied by people and communities under state ownership or traditional leadership, such as in the Transkei area and in Kwa-Zulu Natal.

A decision will have to be taken as to whether that has a negative effect on the lives of rural people. If, by granting title to occupants of land, the lives of rural people will be improved, then legislation is required to simplify the transfer of state land to individuals. At present, much of that land is unsurveyed and not held by separate title. The steps to create separate title on state land are onerous and very time consuming. If there is a willingness, all that land should be surveyed around existing habitation, and the land transferred to the respective occupants.

How can the land reform programme draw on the strengths of the private sector to achieve success?

For the agricultural sector, in particular, the private sector should be relied upon to uplift and upskill communities through participation in their farming ventures and a relaxation of the Subdivision of Agricultural Land Act to give title of smaller pieces of land to previously disadvantaged communities, together with the upskilling of their abilities. In the absence of a willingness to do so, the government should consider tax benefits in vesting land in previously disadvantaged communities/people.

What elements might a successful rural development strategy include?

As mentioned above, given that vast tracts of land are under communal ownership, a rural development strategy would include surveying currently occupied properties and transferring land to the occupants. However, that strategy would have to bring to account the complexity of the determination of which individual/s should receive that title. In addition, there are a number of communal areas that are shared by communities for grazing and cropping, that could vest in communities.

In addition, the private sector farming community, through their willingness to allow benefits to pass to communities, should be entitled to do so without statutory constraints.

Above all, a successful rural development strategy must be free of corruption. If bureaucrats are to decide upon who the land must be settled, in the absence of an objective test, the opportunity for corruption exists.



Andrew Bembridge, ENSafrica



Adapt and thrive

SA wine industry grows its vines, its people

The South African wine industry is entering a new phase of revival and reinvestment following a long and arduous cycle characterised by drought and ongoing profitability pressures. However, the industry has and will continue to adapt on all fronts. Not only to maintain a sustainable source of income, but to be able to nurture and grow its two biggest assets – its people and its vines.

South Africa is the eighth largest producer of wine in the world and contributes 4% to global production. The industry contributes R36 billion to the country's gross domestic product (GDP) and employs close to 290 000 people.

"The only way to a sustainable supply going forward is increasing the prices of our wines, so that wine grape producers have sufficient financial means to plant and renew vines, increase production, and are able to accelerate the already significant investment in socio-economic aspects including further training and upliftment of their people," says Rico Basson, MD of the wine industry body Vinpro.

"It is encouraging to see wine grape producers now getting back to establishing, replacing or expanding existing vineyards," says Rico. This growth comes after a five year lag in investment due to profitability pressures which led to a shrinking area under

vines which, along with the drought, resulted in a significantly smaller crop in 2018.

An increase in sales, drop in production and stock levels reaching equilibrium implied a significant shortage of wine to service these markets at 2017 levels. The local and global wine shortages resulted in wine prices inching higher.

Although producers are optimistic about the 2019 wine grape harvest following very good winter rainfall in most areas, they've also learned to adapt to climate change by making use of alternative practices and technology, investing in new, drought-tolerant clones and cultivars, continuously evaluating the financial viability of vineyard blocks and venturing into new geographical regions.

"Nearly five jobs are created for every R1 million invested in the South African wine industry. It is the industry's collective responsibility, with government and civil society, to drive transformation, ethical trade, socio-economic development and talent growth and retention at every level," says Rico.

Wine businesses spent R125m on 172 socio-economic investment projects in 2016/17 and thanks to collaboration with industry, the Western Cape Department of Agriculture secured national government funding of R12 million in 2017 for enterprise development on black-owned farms.

A Wine Industry Transformation Unit manages 20% of the statutory levies paid by wine grape producers and cellars, with R72

million being invested in transformation programmes over the past four years.

Hortfin, the first ever blended finance scheme for the fruit and wine industries, aimed at fast-tracking the uptake of new entrants and supporting expansion of existing black-owned enterprises, was launched recently. This is a partnership between the South African deciduous fruit, table grape and wine industries, as well as the Jobs Fund, and Land Bank.

Ethical working conditions is an important part of the industry. South Africa is the largest producer of Fairtrade-accredited wines, and two-thirds of the country's wines carry the Wine and Agriculture Ethical Trade Association (Wieta) seal.

"Talent development and retention remains a priority for the South African wine and brandy industry. We are actively working with other stakeholders on fast-tracking this through various initiatives," says Basson. This includes training at different levels and tracking and monitoring progress through a learner management system.

Vinpro represents 2 500 South African wine grape producers, cellars and wine-related businesses, while providing strategic direction, rendering specialised services and driving people development. For more information phone 021 276 0429, e-mail info@vinpro.co.za or visit www.vinpro.co.za.



VinPro represents 2 500 South African wine grape producers, cellars and wine-related businesses, while providing strategic direction, rendering specialised services and driving people development.

Objectives



PRODUCER: Improve productivity & profitability through tailor-made services, products, information & training.



SOCIAL COMPACT: Form partnerships and align goals between Government, industry and labour through round table discussions.



PROCESSING/VALUE-CHAIN: Help create an enabling environment through innovative wine-related business solutions and advocacy on regulatory issues.



TRANSFORMATION: Take sustainable transformation forward through involvement in career development programmes, land reform initiatives and support to BEE businesses.



INDUSTRY: Give a voice to industry in the public domain and address them through close collaboration with industry stakeholders.



EFFICIENCY: Improve efficiency within the company through training, development of personnel and driving innovation.

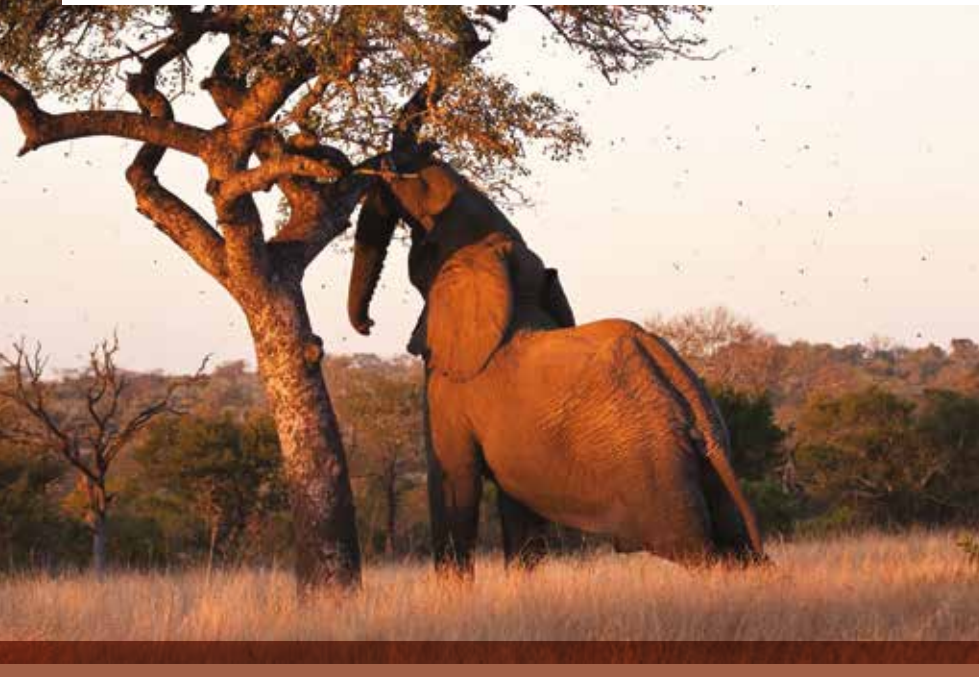


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The future belongs to builders

Agritourism Africa speaks out on agritourism opportunities and challenges at inaugural World Congress on Agritourism



“The farmer driven by self interest has a better chance of prosecuting the war against hunger than the state with all the resources and knowledge at its disposal. We simply need to find ways of identifying African champions who through demonstration on the ground can influence and inspire others to join the food supply train”. These words, spoken seven years ago by Dr. Brylyne Chitsunge, Africa’s first ever Pan African Ambassador for Food Security, ring just as true today as an increasing number of farmers seek to diversify their product offering, not least through agritourism.

Speaking by invitation at the inaugural World Congress on Agritourism held from 7-9 November at the Italian town of Bolzano,

Agritourism Africa Founder and Managing Director Jacqui Taylor comments on best practice, opportunities and challenges within South Africa and the continent’s agritourism sector.

Citing challenges constraining the growth of agritourism both in the South African and African context, Taylor comments, “Access to farmers in terms of distances and infrastructural considerations are among key challenges impeding growth of the critical Agritourism sector”.

Taylor says that when analyzing factors influencing current and future Agritourism initiatives, one needs to consider the proximity of farms to transport infrastructure as this tends to affect how long it will take a visitor to drive to an Agritourism destination when planning their travel itinerary.

“Language barriers, issues around safety and security, the impact of climate change, lack of signage and mobile device connectivity and available currency, rank equally, among challenges faced by existing and prospective stakeholders in the agritourism sector,” Taylor adds. She says that all too often roads are not tarred in rural areas and that many agritourism destinations are not mapped on the likes of Google Maps as there is a lack of mapping of agritourism facilities.

“Best practice for agritourism farmers must achieve ten principles,” says Taylor. Here is her list:

- It must generate employment in rural communities.
- It must generate additional income for those who work on farms.
- It must improve the living and working conditions for farm workers.
- It must prevent the migration of people to major cities.
- It must develop new skills in entrepreneurship and hospitality.
- It must help spread awareness of food security to all.
- It must enhance the community pride and rejuvenate regional culture.
- It must reduce the impact of seasonality on rural communities.
- It must support farmers and the Agricultural industry.
- Farmers must be provided with advice on diversification and income generation for the benefit of all.

Agritourism for Africa

Taylor says people often ask her “Why Africa as an agritourism destination?” Taylor responds with the following reasons:

- Unique foods, rich biodiversity, pristine locations, and natural beauty

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- Africa's indigenous crops offer unique food experiences
- Educational experiences in crop and livestock farming, for example
- Experiential/Cultural/Heritage Tourism
- Environmental preservation which helps ensure that our natural heritage remains untampered
- Rich diversity in terms of the continent's cultural and natural heritage
- One of the world's fastest growing tourism regions, according to the United Nations World Tourism Organisation (UNWTO)
- Activities and attractions in agricultural regions are uniquely African
- Opportunities abound for 'out the box' partnerships with rural communities, where poverty is the primary influencer
- Scientists and international companies are already investing in this regard.

Taylor says that the best way to empower smallholder farmers is to incorporate the farmers into an Agritourism Route, thereby opening doors to a potential tourism market which can help keep their farming sustainable. To a certain extent, Agritourism allows these farmers to diversify, mitigating the effects of climate change and other risk factors. Working together creates an opportunity to share information and strengthen communities so as to facilitate a sustainable future which allows for additional income sources for farmers.

Taylor cites agritourism-facilitated socio-economic development in rural South Africa as:

- Improving utilisation of natural and built rural resources;
- Enhancing environmental conservation and management;
- Promoting rural products;
- Supporting rural traditions and cultural initiatives;
- Developing Agricultural areas;
- Developing Youth and Social Tourism; and
- Enhancing the relationship between city and countryside.

Transforming African agriculture

According to Taylor there are six ways to transform African Agriculture, namely:

- Provide the means to make small farmers more productive (yields in Africa are one third of those in the west). This can be achieved through seeds, fertilizer, and more efficient, holistic solutions-based farming practices, to name three examples.
- Get more land into cultivation, however identify priority crops.
- Build value chains, for example effective storage of harvested produce such that it does not go off before it reaches the marketplace.
- Subsistence agriculture requires government intervention, as farming in this manner involves high levels of unpredictability, for example drought.
- Infrastructural development: roads, railways, etcetera.
- Information-sharing through technology: disease outbreak communicated via cellphone, for example.
- Taylor concludes: "Africa is one of the fastest growing tourism destinations, with significant opportunities in particularly agritourism. The availability of agritourism data is scarce and an opportunity exists in this regard for cross-country collaborations."

Africa's key indigenous crops

- African Eggplant, a fruit that is enjoyed as a vegetable
- Bambara Bean, a ground bean that is in the same family as the peanut
- Baobab – meets three basic needs for survival: food (leaves, fruit and seeds), water, and shelter;
- Cowpea, a legume similar to the black-eyed pea
- Dika (West Africa) – trees that produce fruits and seeds
- Egusi – looks like a watermelon but very different, with dry, bitter flesh, however the seeds have nearly 50% edible oil and a further 30% of the Egusi comprises protein
- Enset, a member of the banana family, however it is not grown for its fruit but for the starchy pulp in its stem and corn
- Pigeon Pea, a legume with a high nutritional value
- Finger millet, one of the world's most nutritional cereal crops
- Fonio, Africa's oldest cereal, with high nutritional value
- Lablab, a legume whose pods, seeds and leaves are all edible
- Locust Bean, a tree whose fruit pulp and seed extracts provide nutritious ingredients for soups, sweetmeats and condiments
- Maramba, the 'green gold' of Africa which, above the ground, produces seeds similar to a peanut or soybean, but has a much higher nutritional value in terms of protein. Below ground it produces a high protein tuber that is larger and healthier than potatoes, yams or sugar beets. The plant also produces high quality vegetable oil
- Marula, a fruit that is high in Vitamin C and contains a protein-rich nut at its core
- Monkey Orange – similar in shape and size to apple, pear and orange trees, however it is yellow, orange or brown and has a delicious sweet-and-sour flavour and is rich in Vitamins B and C
- Moringa – potentially one of the Earth's most valuable plants, the Moringa comprises four edible parts: pods, leaves, seeds, and roots. The pods are the most nutritious (vitamins, amino acids and minerals). The tree provides lamp oil, wood, paper, liquid fuel, skin treatments, and is used to purify water
- African Potatoes – not related to the common potato, it is part of the Mint family, which includes herbs such as Lavender, Rosemary, Sage and Basil. The African Potato provides twice the amount of protein in common potatoes and is a superb source of calcium, Vitamin A, and iron
- Safou, known as Butter Fruit for its rich and oily pulp
- Sorghum, Africa's second most important cereal. Can be cooked like rice, made into porridge, malted for beer, baked into flatbreads, and popped like popcorn
- Teff, a grain that is rich in nutrients, provides all eight essential amino acids, is a superb source of fibre and carbohydrates, and contains high sources of nutritionally important minerals: calcium, phosphorus, magnesium, aluminium, iron, copper, zinc, boron, barium, and thiamin.



FCM has officially been a phytosanitary pest in the EU as from January 2018. However, it has always been an endemic pest in most of South Africa.

These EU regulations regarding false codling moth are not only applicable to citrus, but will affect peach, nectarine, pomegranate and capsicum exports from South Africa as well.

Mrs. Martli Slabber in the ORV, has been using Xsit's sterile FCM program now for the past 8 years. Together with her husband, they have the following to say about the Xsit FCM program.

Before joining the Xsit program, FCM was out of control on their farms. At the time they had losses of about 20% of their total harvest. They could not keep up with orchard sanitation which was their main farming activity between January and May every year, done twice a week by 40 farm workers. Orchard sanitation took a lot of man power, time and money away from other farm activities.

Martli found that mating disruption was not enough to control FCM on its own. Before Xsit they had to spray twice a season. Since joining Xsit, orchard sanitation can now be done by a

team of 10 people. Pesticide spraying has been reduced, to enable them to farm organically. Production has improved by 20%. This together with a reduction in export rejections, has had positive financial implications. Quality control has shifted focus from picking out infected fruit to cosmetic control, which enables them to save on packing costs. Therefore, the Slabbers can export quality fruit, negotiate better prices and unlock new export markets.

Martli said that they would recommend Xsit's sterile FCM program because she found that it is easier to manage a low wild population of FCM. This program also relieves the pressure of FCM in the whole valley.

The SIT program has led to a saving in chemical use, man power and production time. Harvest yield has increased, export rejections has decreased and by concentrating more on quality it has enabled them to improve their profit margin.

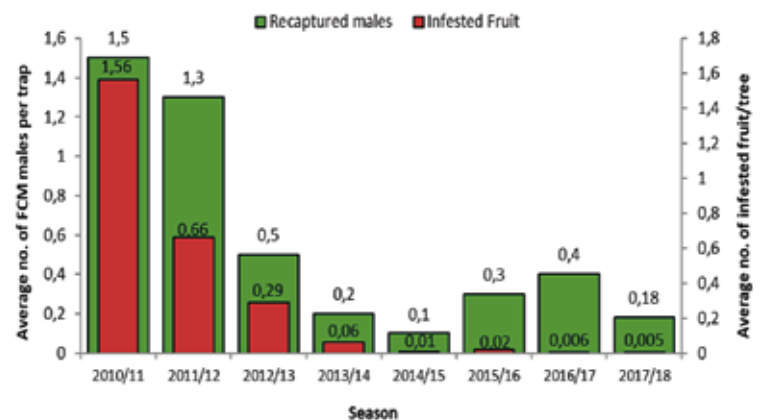
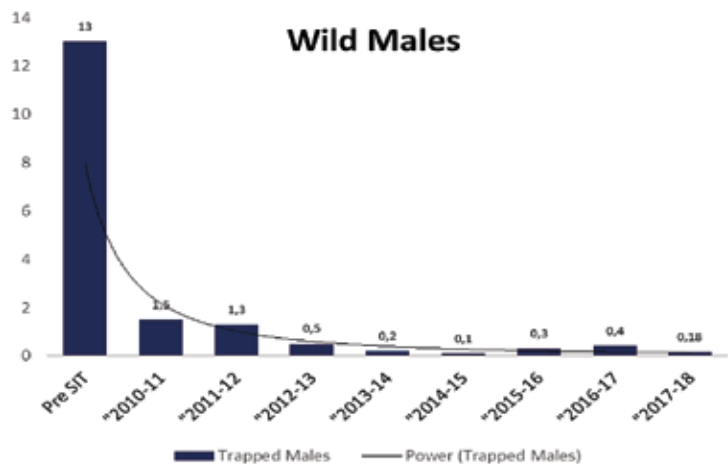
If you are affected by FCM regulations, even if you are not in the Citrus industry, contact XSIT today, in order to hear what we can do, in order to assist you on your FCM issue.

Sterile Insect Technique

What it has achieved in the Olifants River Valley (ORV)

XSIT FCM SIT (L10346)
is registered under Act No. 36
of 1947 as an agricultural remedy.

*Mrs. Martli Slabber
and her husband
Reinhardt Slabber*



Contact Johan Vorster or Theunis Lombard

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