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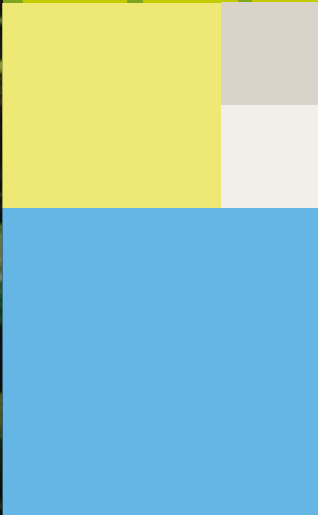
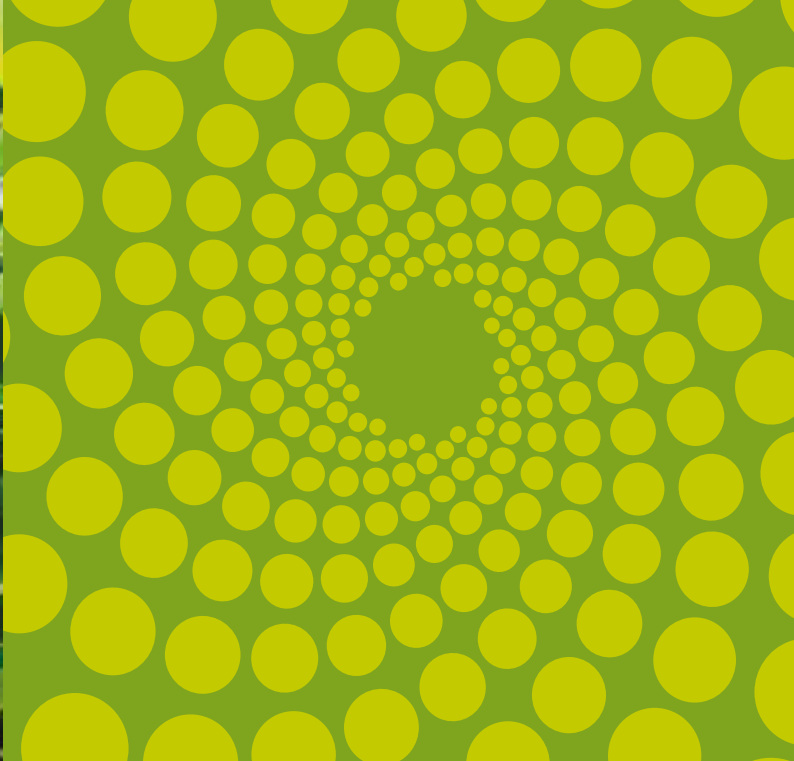
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Land and water are fundamental to agriculture. It's easy to agree that farming without them is almost unimaginable. At the same time, land and water have become extremely problematic. In both cases, it's a question of supply.

Is land really in short supply? Whether or not there's enough land to go around, it's clear that access to land remains a stumbling block to the aspirations of many. For some, the willing-buyer, willing-seller scenario has had its day. But is expropriation without compensation the answer? The case to the contrary has been strongly argued by the likes of TAU and Agri SA, who claim that the Constitution affords every means to redress the situation without running the risk of destabilising the entire agricultural value chain. Read their contributions to this issue and form your own conclusions.

Water, or the lack of it, has had a severe impact on agricultural output in the Western Cape. Expect the price of South African wine to go up sharply! Beyond that, however, the crisis has brought into question the relationship between people and water. Water for agriculture often comes from the same sources as the municipal supply, which means that residents and farmers are effectively competing. It seems unfair to ask farmers to sacrifice their livelihoods for the sake of the water-guzzling city, but without the city, the entire regional economy would collapse.

Fortunately, it is possible to farm successfully with much less water. By acting as stewards of the land, instead of treating land as an input in an industrial process, farmers can beat the drought, as the case of Boschendal illustrates.

Wishing you a good read and good fortune in 2018.

EDS NOTE

Gateway to investment opportunities across the agri-value chain

Highlights of the Africa Agri Investment Indaba, 20-22 November 2017

November 2017 saw the debut of the African Agri Investment Indaba. Exceptionally well attended and featuring the top echelons of agri investment experts, the Indaba is sure to become a fixture on the annual events calendar. Here are some of the insights stemming from the event.

Pre-conference seminar

- 60% of all products in South Africa's retailers are certified halal worth approximately R1bn (\$71.7m) despite its small Muslim community
- The global Islamic economy is expected to reach \$3 trn – which includes halal food, halal travel, halal media, halal pharmaceutical, halal cosmetics, Islamic finance and modest fashion
- There's a need for adherence to minimum certification and quality standards in order to tap into the global market – There's an opportunity for local bodies to develop Halal Export Requirements and follow the New Zealand case study Ministry for Primary Industries
- Tapping the Middle East and South East Export Markets: Halal Hub advisory panel to demystify additional requirements to export into Middle

Eastern Markets through successful case studies of Brazil, Turkey and Pakistan and thereafter engage in Pilot projects with reputable African players.

Main Conference sessions

- Africa has been caught napping by the near recession status of her mono-economy. Major African countries are now struggling due to dwindling oil revenues and there is a need to diversify the economy away from oil to agriculture. Africa has been sitting on "green gold" and the next generation of African billionaires will be farmers
- Huge revenues accruing from oil in the past were hardly used to create a strong infrastructural base and develop agriculture. The funds to massively grow agriculture now may not be sufficient since agriculture must compete with obligatory provisions for education, health and other segments of the social sector
- To accomplish the objective of sustainability and competitiveness in today's farming environment, three things are imperative:
- Policy commitments that will jump start agribusiness investments in the region and increase its GDP
- Accelerating commercial financing for smallholder farmers and postharvest infrastructure
- Linking agriculture investment to renewable energy, infrastructure development and increased regional trade

Speaker insights

His Royal Majesty Orcivirigh Professor James Ortese Iorzu Ayatse, speaking on the role of African Governments within the overall set

of guiding principles: "African Governments shall concentrate on providing an enabling environment for stakeholders to play their distinctive roles. Emphasis shall be on providing a conducive legal and agricultural knowledge framework, micro-economic measures, physical infrastructure and institutional mechanisms for coordinating and enhancing access to adequate inputs, finances, information on innovations, agricultural services, and markets."

Dr Theo de Jager, President, World Farmers Association: "Data is a key ingredient to optimising food production – the new gold of agriculture!"

Jean Craven, Chief Investment Officer, Barak Fund Management: "Impact investing is on the rise across the African continent. Project owners and governments need to show impact as well as good returns when sourcing funding."

MEC Alan Winde, Minister of Economic Opportunities, Western Cape Government: "Agriculture is a serious business and we must tie it to trade and industry in order to maximise growth potential and food security from agriculture across Africa."

Cristina Miranda Gozálvez, Deputy Head of Unit, Unit "Global Issues and relations with ACP", DG Agriculture and Rural Development, said that the EU intends to continue supporting African efforts to develop the agriculture sector by introducing a new way for engaging the private sector and governments. Within EU development assistance, more than €4.2bn has

been earmarked for the period 2014 - 2020 for actions related to food and nutrition security and sustainable agriculture and fisheries in Africa. Money will be spent depending on the priorities set up by beneficiary countries, more than 30 African countries.

Itai Melchior, Head of Trade and Economic Mission, Embassy of Israel in South Africa: "We need to learn how to grow more with less. This can only be achieved with the implementation of high tech."

Premier Helen Zille, Western Cape "The mining industry is on a sunset and agriculture is on a sunrise! We need to take this opportunity to implement a land reform plan that will make agriculture sustainable and address food security."

Dr Chimimba David Phiri, Sub-regional Coordinator for Southern Africa, Food and Agriculture Organization of the United Nations: "Smallholder farmers can be bankable. The different public and private sector stakeholders can fill the gap to alleviate them to that status."

Omri van Zyl, Chief Executive Officer, Agri SA: "Consumer behaviour is changing; consumers are consuming more (FAO) but eating habits are changing as a result of economic growth in different parts of the world and people becoming more health conscious. Technology will soon enable farmers across the world to produce food that is less dependent on the availability of water and land."

Dr Adriana Marais, Head of Innovation for SAP, said that based on available data, 500 million smallholder farmers produce nearly 80% of all food consumed in Asia and sub-Saharan Africa. Agriculture is the foremost employer in sub-Saharan Africa, accounting for nearly two thirds of the total labour force. However, smallholder farmers often lack access to technology and financial services, limiting their ability to grow their business and increase productivity and output.

Investment Discovery Sessions

The Investment Discovery Sessions (IDS), held over the three days, matched accredited investors looking for compelling risk/return

profiles with green- and brown-field projects looking to raise capital.

These sessions were held in a private setting with a pre-selected panel of investors. Investors received detailed business plans and company profiles and were paired with projects directed toward their specific interests.

International investors including venture and seed capital, impact investors, private equity funds and debt providers came together to find the next big investment opportunity.

Nine projects out of South Africa were presented with a total investment value of approximately \$13m (R156m), including:

- A 100% women-owned projects including a vineyard and wine tourist attraction; a sugar production project seeking expansion due to having secured a high-level offtaker and finally a poultry and vegetable producer
- A Pomegranate producer seeking funding for a factory to supply organic juice, cosmetics and oils - pomegranate is a high yield, niche fruit and the project has impeccable R&D carried out. The project also empowers the local community by providing employment.
- Interesting timber opportunities both out of KZN - one being an established business that will provide opportunities for small scale growers to become more involved in the downstream process, the other is a trust for timber plantations with big employment impact and secure offtaker

Ten projects out of East and Southern Africa were presented with a total investment value of approximately \$126m (R1500m) including:

- An attractive Tanzanian pineapple juice concentrate project in partnership with a leading South African processor, completed development work for the establishment of a large-scale pineapple growing, processing and export enterprise
- An interesting natural food colourant project out of Zambia where paprika is to be cultivated in greenhouses, very attractive solution for food processors looking for nonchemical colourants.

- Two agri tech projects out of Kenya: one brownfield that involves the development of mobile based supply chain systems as well as on the ground infrastructure; the other is an emerging technology platform for the cargo-transport value chain
- Namibian projects included the launch of the first blended fertilizer plant in Namibia, with the aim of providing cheaper locally produced inputs; the other primary production using hydroponic growing techniques for vegetables.

Eight projects out of West Africa were presented with a total investment value of approximately \$145M including:

- Nigeria is an important economy in the region and several projects from Nigeria were pitched. Nigeria's rice story is one to watch, with a large scale rice project pitched that requires a mill, irrigated paddies and a community programme. Another processing project is an established potato processing factory that was seeking funding for equipment to expand operations.
- Large agro-processing and value chain projects from Ghana were in the majority, ranging from livestock, poultry and animal feed to pineapple for export, broiler meat production and primary production of fruits and vegetables for the local market.

African Agri Council

The African Agri Council (NPC) is a network of global executives, decision makers and key stakeholders in the agricultural industry. We connect executives with their peers, policy makers, investors, financiers and leading global service providers across Africa and around the world.

The Council is an exclusive platform for networking, matchmaking and deal making in Africa. We focus on the business dynamics of agriculture: the pioneers, partnerships, investments, joint ventures and regulatory dynamics that determine the future direction of the industry and shape the sustainable food production and consumption landscape of the future. www.agricouncil.org

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Farming holds its own in South Africa

Productive farms should not be tampered with

Let us start with agriculture's direct contribution to South Africa's GDP—a little over 2% at last count. This figure is sometimes used for political reasons to downgrade the importance of agriculture within the South African economy. This is tragically very simplistic thinking and does not show the full picture: agriculture does not operate in a vacuum. It buys from and provides raw materials for manufacturing and purchases a host of services. But that's not all: related sectors are agribusiness (which includes farming operations), input manufacturers, suppliers and co-ops; food processors, distributors and traders, to name a few. Research shows that agriculture and related sectors actually contribute more than 15% of South Africa's GDP when all related and second-stage industries are taken into account.

In addition around 700 000 workers are employed in the sector, making it one of the biggest employers in the country, accounting for 4,6% of the country's labour force (mining and manufacturing sectors employ 2,3% and 11,8% of the labour force respectively.)

The spin-off from farming activities on SA's rural areas is crucial – the small towns in these parts depend almost wholly on the surrounding farms for their livelihoods.

There are around 35 000 white and 5 000 black commercial farmers in South Africa. They feed a population of around 55 million, at last count. This means that one farming unit provides food for approximately 1375 persons.

Compare this figure with France, a country with 35% of its land arable, with dedicated support from its government, good general rainfall, many rivers and a dedicated educated work force. The country has the highest agricultural production figures in Europe.

There are around 735 000 farms of which 454 000 are managed by full-time farmers. Using the first figure, there is one farmer for 88 people and in the second instance, one farmer feeds 143 people.

In Germany, with a population of 80 million, only 3% of the work force is employed in farming, on mostly smallholdings measuring 56 to 59 ha. There are approximately 285 000 farming operations and full use is made of the land available. The Germans are producers, and those who don't own land or who don't work on farms have jobs. The country is 34,7% arable and one farmer feeds approximately 280 people.

The United States of America has around 17% arable land and there are 2,1 million farms, many of them very big producers. Less than 2% of the population is in farming, and in a population of 325 million, agriculture only represents one percent of GDP. But America feeds itself and exports to the world, proving that its farming potential is maximized by people who know how to farm. The government does not even consider giving productive farms to anyone who can't farm, for whatever reason. They would be out of power at the next election, if not before!

It wasn't always like that. In 1872 the average American farmer fed roughly four other people. Now the average farmer feeds 155 people. This shows how farming methods have been developed over the years by Americans, without official mentoring or without someone else's farms being expropriated and handed to them on a plate. Nobody demanded land which may or may not have belonged to their forefathers because Americans who are not on the land have taken their places in the larger economy. This is what happened with other developed nations. Still, agriculture is the single largest employer in the world, providing livelihoods for 40% of the world's population.



Human wants

Agriculture, says the dictionary, “is the cultivation of the soil, the raising of food crops, the breeding and raising of livestock; tillage and farming. Agriculture is the generic term which includes the science, the art and the process of supplying human wants by raising the products of the soil; farming is the practice of agriculture as a business.”

South Africa’s “human wants” are so demanding that tinkering with the country’s agricultural production by the state appropriating more productive farms would be suicide. Unlike the rest of the world of developed farming, South Africa’s commercial farmers find themselves in the invidious position of trying to balance providing food for 55 million people against constant harassment and unfair legislation from a government which uses land as a political tool at election time to get its officials on to the state payroll. It is ironic that this harassment and hostile legislation designed ostensibly to increase the skills of the country’s subsistence farmers so they can become self-sufficient resulted in the state actually nationalizing many of these farms. By holding onto the title, the state has set the beneficiaries up to fail because these beneficiaries cannot obtain loans and credit because they don’t own the farms!

What has happened to many of these farms under state control is a sorry story. Legislation has so far not improved farming production in South Africa, nor has it advanced to any degree the skills levels of the supposed beneficiaries of this policy. Instead, hundreds of once-productive farms are in a state of rack and ruin, yet the government still demands

“land for the people” and is now talking of expropriation without compensation. Then they wonder why nobody invests in South Africa and why we have been down-graded by the world’s rating agencies to junk status.

Subsistence farming

Given the above situation and the lack of surplus agricultural production in subsistence farming, plus the political capriciousness in Africa, South Africa cannot afford the experiments continually suggested and introduced by concerned world organisations and others to improve agriculture in Africa. Despite more than forty years of independence, most African countries cannot feed themselves. Some 227 million of the world’s chronically hungry people live in Africa. The continent spends an estimated US\$50 billion (R600 million) a year buying food from developed countries.

Sixty-five percent of the world’s uncultivated arable land left in the world is in Africa, yet according to the World Bank, 41% of sub Sahara’s population lives in a state of extreme poverty.

The area’s population could grow by as much as 75% from 2013 to 2036, says the Bank. South Africa is the only country in the region holding the line against mass starvation, yet its government continues to propagate the expropriation of land (productive farms) without compensation. The precariousness of successful farming in this country rests on a relatively few commercial farmers. If the balance is tipped, then the whole of Southern Africa will succumb to serious food insecurity.

How did they do it?

In other parts of the world, extreme poverty has been eradicated. East Asia’s share of people living in that condition dropped from about 60% to 3,5% in a few decades. How did they do it? Why didn’t South Africa’s rural population develop in this way?

Unfortunately the South African effort to uplift subsistence farming has to date failed, even when giving the beneficiaries functioning farms! A few black farmers have succeeded on their own land and as a result of their own hard work and their ability to seek assistance and to profit from it. They are a credit to agriculture. But there are not enough of them, and at the other end of the pendulum, there are millions who really only want a job. They don’t like farming, and they don’t want to farm.

If it’s not broken, don’t fix it! If SA’s commercial farmers are successful in what they do, so why not leave them alone? The cornucopia of farm produce displayed in South Africa’s supermarkets is the envy of the world. So many South Africans take it for granted that they can get anything they want by tripping down to the supermarket. The food is always there! But this state of affairs will not last if the government continues to harass farmers, if the state refuses to do anything to halt farm murders, and if they introduce legislation to expropriate land without compensation. Everything must be done to prevent South Africa from slipping down the Zimbabwe slope and sending South Africa to the gallows. It’s that serious!

Bennie van Zyl, General Manager, TAU SA



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RikRhino's ground-breaking security technology is proving to be a beacon of hope for many South Africans during these dark times of uncontrollable crime. With the current climate regarding farm attacks, prevention and assurance is now more important than ever before.

There is a surveillance technology company that is attempting to bring this message across to the country and, with a recent incident involving their product and how its instant alert technology prevented the unthinkable, RikRhino has dedicated itself to assisting farmers with their needs as much as possible.

With the current climate regarding farm attacks, prevention and assurance is now more important than ever before.

This type of technology attempts to ensure that farmers in South Africa who may be targeted do not become another statistic.

In the early hours of 26 October, 2017, a farmer in Mokopane, Limpopo, was suddenly woken up when a photo sent from Qubi Systems Modimolle using RikRhino technology, was received on his smartphone.

The photo showed two thieves on his property, spurring him into action to confront them. The first photo (00:39) shows the perpetrators entering his grounds, while the second (02:45) shows the farmer and his staff searching for the alleged criminals. Thanks to the effectiveness of RikRhino security systems and Qubi Systems Modimolle, the farmer



was able to prevent what could have been a life-threatening situation.

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Omri van Zyl

A legal solution to land

The Constitutional Property Clause is sufficient to achieve land reform

In a statement released earlier this year, Agri SA took issue with the ruling part's announcement at its National Conference in December 2017 that it was going to adopt expropriation without compensation in order to accelerate land reform, and proposed a constitutional approach instead.

According to Agri SA, "The land question in South Africa is generally known to be a highly sensitive matter. Characterised by a history of disposessions, discrimination and oppression, discussions and debates around the land issue have to be approached with much caution, striking a balance between the need for land reform and equitable access to land, and the recognition and protection of existing land rights. Public perception that not enough has been done to achieve land reform under the current legal and constitutional prescripts fuels tensions even further. With the current high unemployment and poverty rates, access to land

is seen as a solution to these and many other socio-economic challenges.”

Of course, newly elected ANC President Cyril Ramaphosa also emphasised that “expropriation without compensation will be implemented in a manner that does not threaten food security or damage the economy” but did not spell out how this would be achieved. Agri SA objected: “Implementation of this resolution will require amending section 25 of the Constitution. The procedure for such an amendment is set out in section 74 of the Constitution. At present, we know that the ANC resolution enjoys the support of at least two other political parties. Although this may be the case, what may seem to make sense politically, does not necessarily always make sense economically, legally or constitutionally. Whilst there can be general agreement that the wheels of transformation in as far as land reform is concerned have been turning slow, the proposed resolution cannot be a reasonable solution.”

Agri SA further asserted that “the property clause in its current provisions is sufficient to achieve sustainable land reform.”

We asked Agri SA’s Omri van Zyl to elaborate on these findings.

Is the property clause really sufficient to achieve sustainable land reform?

Agri SA is of the view that the property clause is a finely balanced clause that protects existing property rights, but also gives a strong mandate for the three programmes of land reform, namely restitution, redistribution and tenure reform. In terms of the clause, Government has the power to expropriate land for land reform purposes. Land may, however, only be expropriated with just and equitable compensation. This is in line with international best practice. The authoritative report by the High-Level Panel on Assessment of Key Legislation and Acceleration of Fundamental Change, headed by former President Kgalema Motlante, released in November last year, found amongst other things: “The Panel is reporting at a time that some are proposing that the Constitution be amended to allow for expropriation without compensation to address the slow and ineffective pace of land reform. This is at a time when the budget

for land reform is at an all-time low of less than 0.4% of the national budget, with less than 0.1% set aside for land redistribution. Moreover, those who do receive redistribution land are made tenants of the state, rather than owners of the land. Experts advise that the need to pay compensation has not been the most serious constraint on land reform in South Africa to date – other constraints, including increasing evidence of corruption by officials, the diversion of the land reform budget to elites, lack of political will, and lack of training and capacity have proved more serious stumbling blocks to land reform.”

The report also quoted Albie Sachs as follows: “Far from being a barrier to radical land redistribution, the Constitution in fact requires and facilitates extensive and progressive programmes of land reform. It provides for constitutional and judicial control to ensure equitable access and prevent abuse. It contains no willing seller, willing buyer principle, the application of which could make expropriation unaffordable”.

Agri SA supports this finding, as our experience is very much that the major stumbling blocks to land reform are poor

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implementation, inadequate budgeting and corruption.

Could expropriation without compensation backfire and actually slow down the process of land reform?

It needs to be recognised that there are different land needs – land is required for housing, for subsistence farming, for small farming, for commercial farming, for industry, nature conservation and many other needs. Not all land reform is for farming purposes. Land reform should be demand-driven rather than supply driven. Housing and small-holder needs can best be catered for close to existing farms and cities. Commercial farming land should be retained as far as possible for farming purposes as we have little good agricultural land in South Africa – particular land for cultivation. The correct kind of financing instruments and subsidised interest rates can create opportunities for many more people to get access to land.

Expropriation without compensation will backfire. Not only will it lead to a lot of litigation and resistance from current landowners, but it will impact our economy and food security in a negative way, having the biggest impact on poor people as food prices will rise and peoples' per capita income will likely decline. The market can be very effective is speeding up

redistribution if the right financing instruments are available.

There have been very few cases before our courts that required them to interpret and give content to the requirement of just and equitable compensation in our Constitution. The more cases that come before the court, the more clarity we will get on how section 25 should be understood. This will bring greater legal certainty and assist in future policy development.

Finally, there needs to be a shift from settlement models which predominantly focus on land acquisition towards focusing on post settlement support as well. Cases of farms which were productive pre-settlement to being unproductive and inactive currently is reflective of the fact that acquisition and access to land are not the major challenge, but support is. Therefore, expropriation without compensation may be seen as a viable option to expedite land reform and equitable access to land; without effective post settlement support, it will plunge the country into food insecurity.

What are the minimum forms of post-settlement support required for redistributed land to be productive?

What is required is access to affordable production finance, training – not only in practical farming, but in financial management, access

to markets and the value chain. Extension services which is commodity specific.

Government has limited capacity to do this. There is a lot of capacity within the private sector, but the funding is inadequate. Much more can be done if more funding was available.

Functional public-private partnerships is the answer.

Affordable insurance for emerging farmers against natural disasters is also needed.

Key recommendations by Agri SA

It is Agri SA's assertion that the property clause in its current provisions is sufficient to achieve sustainable land reform. The section provides a reasonable and legally sound basis from which to develop policy and legislation to give effect to its provisions. The property clause adequately sets out the three components of land reform and mandates the state to take reasonable legislative steps to realise secure tenure, redistribution and restitution.

Secondly, where no legislation is developed, as is the case under redistribution, focus should be on developing such policy and legislation, because, whilst legislation seeking to regulate secure tenure and restitution has been drafted and updated over the years; the same cannot be said for redistribution. As a result, what constitutes equitable access to land has not been defined. Therefore, there legal danger in opting for expropriation without compensation when we have not even begun to understand and define what constitutes equitable access to land. Further, courts should be granted an opportunity to develop jurisprudence on land reform, particularly around what constitutes just and equitable compensation.

Finally, there needs to be a shift from settlement models which predominantly focus on land acquisition towards focusing on post settlement support as well. Cases of farms which were productive pre-settlement to being unproductive and inactive currently is reflective of the fact that acquisition and access to land are not the major challenge, but support is. Therefore, expropriation without compensation may be seen as a viable option to expedite land reform and equitable access to land; without effective post settlement support, it will plunge the country into food insecurity.

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Science is the best defence

The woman in the war against fall armyworm

Far from making her squirm, insects ignite a passionate curiosity in Desireé van Heerden. This quality has earned the insecticide technical lead for Syngenta Africa Middle East respect in local entomological and chemical circles. Evidence of this is the service to the industry award she recently received from the Association of Veterinary and Crop Associations of South Africa (AVCASA).

Desireé was recognised for the sterling work she does as chairperson of the Insecticide Resistance Action Committee (IRAC), and her efforts in gathering and sharing information on the fall armyworm.



During this year, Desireé visited numerous farms with Syngenta and Laeveld Agrochem agents in response to product complaints "Growers were concerned that our products were not controlling bollworm. However, our inspections revealed the problem to be fall armyworm," says Desireé.

Realising the significance of this development, Desireé took action.

She kept a photographic record of the farm visits, and incorporated this material into the fall armyworm data sheet she compiled and shared with her Syngenta colleagues, IRAC, the Department of Agriculture and the wider agricultural industry, both within and outside South Africa. International bodies that benefited from her work included the Food and Agriculture Organisation (FAO) of the United Nations, the Centre for Agriculture and Bioscience International (CABI) and USAid.

"The advance warning we got was fortunate," says Desireé. "A colleague of mine, Johan Dreyer, spends much of this time in Zambia and kept me up to date with what was happening there. As a result we had time to gather information and understand the pest before it moved across our borders."

Over the past season, fall armyworm has been very active in Malawi, Zambia, Swaziland and the far northern regions of South Africa. The pest migrates southwards, placing South African growers in the path of disaster. Its prevalence is influenced by weather patterns, but its arrival was inevitable due to a lack of knowledge, equipment and control options in our neighbouring countries.

Desireé confirms that fall armyworm is a destructive pest. "It is particularly challenging to deal with due to the extremely short control window. One has to get to the larvae before they reach their third life stage, which is one week after hatching. Thereafter they hide away from sunlight and feed in secret where they can't be seen and can't be reached with chemical products. They can furthermore survive on a variety of hosts and in a variety of weather conditions."

Although it sounds as if the odds are stacked against growers, fall armyworm can be controlled by applying the right practices at the right time.

"Home remedies simply don't work," says Desireé. "Science is our best defence." Growers have to inspect their fields every two to three days, either by walking the rows to spot egg parcels and early feeding signs, or by using pheromone traps that attract the male insects. Spraying must be done at the first sign of feeding damage.

"Make sure your spray mixture and application equipment and methods are 100% correct, that you reach the target and that you alternate products," says Desireé. "Follow the label instruction and ask for expert advice. More than 80% of the control issues we have, are because of poor and incorrect application."

The combination of commercial-scale planting of non-GMO maize and African farming conditions, means that chemical control is key to combating fall armyworm. In South Africa, around 90% of commercial maize farming is done with GMO maize that has some level of protection against the pest depending on whether a single or double gene stack is planted. "But," reiterates Desireé, "timing is everything. The best chemical will have no impact if applied too late or incorrectly."

Another cornerstone of effective control is cooperation.

The fall armyworm threat has increased the level of collaboration between local experts. Desireé singles out the likes of Dr Gerhard Verdoorn and Les Hillowitz from CropLife, as well as the seed companies, government officials, research institutes, universities and chemical companies. "We all brainstorm together and share information because we know just how high the stakes are."

Desireé appreciates the scientific opportunity embedded in the fall armyworm outbreak. "Entomologists don't often get a chance to study something new from a different part of the world; this outbreak is an incredible learning opportunity for me."

Desireé represents Syngenta on the fall armyworm steering committee that advises the Minister and serves as a conduit for South Africa's response action between government and local and international stakeholders.

TECHNOLOGY TO THE RESCUE

Securing safe, potable water



The solution to Day Zero is at hand.

Zero7Health represents an international company, Strazan, that specialises in specialised machinery and vehicles. One of their passions is water purification. Most of their products are sold and used in Europe, Africa, and the Middle East, to name a few. Disaster stricken areas are included. Zero7 has exclusivity for Strazan reseller/distributorship in SA and Africa.

All of the products are membrane-oriented and mainly self-maintained and easy to operate. Strazan/Zero7Health will supply

training and aftersales support with a service centre opening soon in SA.

Our aim and passion is to supply the country with these units to give the people of South Africa safe potable water in areas where there has been no accessibility to clean water previously such as parts of Gauteng, Limpopo, Mpumalanga where we have constant cholera outbreaks and an overwhelming amount of contaminated water sources. It is only now that the drought has gotten this bad in Cape Town that companies started phoning us to ask for assistance with desalination.

There are three different standard units and Strazan can custom build units as per client's specific needs. Our desalination

container is also mobile. Should the need for the unit to be elsewhere, the unit can be moved there. No need for a huge property or timely construction.

It is as quick as offloading the container from the truck, placing it next to the water source, starting up the machinery and within one hour you will have potable (drinking) water! We do not believe there is another company in SA that can deliver such a service. Not without adding chemicals and polluting the ocean.

Our desalination plants purify sea water from the smallest unit purifying 48 000lt per day to a few million litres per day – the size of the plant depends on the requirement from the client and the price of the

plant is also subject to the volume of water that needs to be purified daily.

The Water Miracle Unit is designed to purify biologically dirty water (dams, rivers, boreholes, etc.) into potable water. The standard unit purifies approx. 70 000lt (2.1 million litres per month) water per day. The units also come with a generator that will ensure that there is no down time in case of power outages (diesel or fuel generator). The lifetime of the membranes is 2 – 5 years subject to the quality of the water that needs to be purified. As per our presentation, the unit can be a single unit or more units can be installed in a container if the client requires a higher volume of water to be purified daily.

Businesses are suffering from a loss of income due to the water restrictions and some have already started looking at possible solutions for themselves and even had a few of these purification companies to their sites. But not all of them have the infrastructure or space for desalination units. Especially the outlet pipelines that must pump the salt/brine waste back into the ocean. This is custom to all the other desalination products in the market. This is where we come in!

We only have ONE container, that can be hidden from the view of your clients (or you can have it branded should you want to advertise that your company is green and has taken steps to procure alternative water) and the outlet pipe is connected/submerged into a collection tank where the brine will be collected. No waste or harmful chemicals. Salt refineries in the Western Cape will gladly take the brine. There are also other possibilities to dispose of the brine such as high-pressure evaporator, water cannon, etc. Another option is job creation by implementing a salt pan plant with the brine. More information is available on request.

The amount of brine/waste is 20% of the total water purified daily. As far as we, the people we have dealt with in the water industry and the City of Cape Town Council know, this is the least waste of any purification solution. The containers have a computer installed that will monitor the quality of the purified water. We guarantee that the water purified will be potable. Strazan has EU, UN and NATO accreditations for the purification systems, highest in the world. Zero7 is accredited with the Department of Water and Sanitation and National Treasury.

The desalination container is an immediate solution for a drought-stricken area or where the water source is polluted such as rivers, dams or even mine water. Our units can be placed next to any water source and supply immediate potable water to hospitals, clinics, schools, hotels, shopping malls, sport fields, farms, factories, music concerts, military. The uses of this technology are endless.

The CSIR water test result is of the water sample before and after purification through our Jerry Can filter on the water of Hartbeespoortdam. The water was smelling bad and was green from all the waste being leaked into the dam and the constant pest of water hyacinth. With traces of faeces in the water (not a shock), farmers downstream were already not using the water due to the various types of contamination. Tourism in the area also declined. The CSIR results showing that without any chemicals, just the membranes, 99,99% of the bacteria and virus were removed from the water.



Water Purification Vehicle

Mercedes Benz 6x6 Superstructure Vehicle. Capacity of cleaning up to 6 000 l/h of safe potable water. Certificated rejection 99,9999% of bacteria & Viruses from Biological Contaminated Water. Tasteless, odourless, colourless water. Plug and play/one button operation. No chemical use during operation. Powered by line voltage 230V, generator or solar panels. Membrane lifetime of 5 years.



Desalination Container

The product consists of a 20ft or 40ft container. This container is equipped with an Ultra Filtration Unit (UF) and a Reverse Osmosis Unit (RO) etc. These units are connected to each other by piping, pumps and an electrical circuit. Backup Generator supplied, so no down time. The polluted water flows from the outside source (ie. seawater, well water, surface water, etc). The final water will not have any bacteria and viruses left. The water is absolutely clean and safe to drink. The output of the container will be approx. 48 m3 per day. Only 20% waste/brine. This Brine is pumped into a storage tank and can be used by Salt Factories for various Salt Products. Can also clean Acid Mine water. Bigger plants to be structured as per water supply need. Portable, brandable and eco-friendly as no waste is pumped back into the ocean.



Water Miracle

Maximum capacity 2 000 or 3 000 l/h Virus/Bacteria removal 99.99% (log 4)/99.9999% (log 6) from Biological Contaminated water. Energy consumption (avg) 1.1 kW/h. Dimensions (m) 1.2 x 0.8 x 2.3. Power supply Generator/electrical supply. Weight (kg) Approx. 350kg Easy to operate, one hour downtime for cleaning. Perfect for small schools, clinics, farms, settlements.



Waterpump 500

Impressive performance for Virus, bacteria and cyst removal from Biological Contaminated water. Restores odour and taste through optional active carbon filter. One WATERPUMP 500 has capacity of at least 500l/hour. Long service life thanks to automatic backwash and built-in chlorine dispenser. Regular service required only once every year. No external fossil fuel or electric power sources needed No vulnerable and theft-prone (electronic) components. No parts that depend on the weather, such as solar panels. Once in use, the unit needs to be protected against freezing Ambient temperature: 1 – 60 C / Feed water temperature: 1 – 50 C. Height: 1700 mm / Width: 600 mm / Depth: 600 mm / Weight: Approx. 80kg.

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Tested, tried and true

The new Valley® X-Tec™ Centre Drive delivers consistently

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

Still, there are situations where growers work in less-than-perfect conditions. For

example, the land isn’t always flat. Maybe the temperature is above ideal for crops to grow and flourish. It’s hard to spread chemicals equally across the field so young plants aren’t damaged.

What can you do to overcome these obstacles?

Some solutions: tested and tried

On one hand, you can test everything. Modern farmers pay for research that helps determine soil types throughout fields,

examines centre pivot water usage and uniformity through remote monitoring and telemetry reports, performs strip testing and tissue sampling of crops in different fields, uses thermal sensors to measure the temperature difference in the crop canopy, and more.

On the other hand, you can try various solutions through constant supervision and by physically moving irrigation machines. Farmers who rotate crops spend large amounts of money each year



to move pipe from one field to another, as well as on maintenance and operational resources.

The new solution: true

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

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

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

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

Why Valley X-Tec?

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

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

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

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



Mr. Louis Clark, General Manager for Valley Irrigation SA

Less downtime, lasting durability: The robust design behind the Valley X-Tec centre drive provides lasting durability and less downtime. Because it's a Valley, you know this centre drive is second-to-none.

Powerful features

- Full torque at all speeds
- Patented, consistent precision alignment
- Low inertia rotor
- Electric braking technology
- Robust design provides lasting durability
- Soft starts allow for smooth acceleration of the motor

FastPass application features

- Frequent, light application maintains surface moisture during germination.
- Applying a light mist creates a cooling canopy for high-value crops during the heat of the day.
- Proper moisture prevents blowing sand from damaging early stage crop growth and minimizes erosion.
- Provides the opportunity for foliar application of crop protection products, reducing ground and aerial trips, and potential cross-contamination.
- Increased speeds in low spots prevents over-watering in areas that need little to no water.
- Allows for more effective split crop management.



Mountain Vineyards Dam on the slopes of Simonsberg mountain

BUCKING THE TREND IN THE DROUGHT

**Western Cape farmers take water
security in their own hands**



Mountain Vineyards Dam on the slopes of Simonsberg mountain



The Western Cape has faced its worst drought in a century, and this is the third consecutive year of that drought. Cape Town's mayor has been at pains to point out that—with climate change — “This is the new normal.”

With dwindling water supply to farmers, crop productions have been slashed and, across the Province, between 35 000 and 50 000 jobs are at risk, excluding an even larger number of seasonal workers. I asked for the provincial department of agriculture's stats for produce under threat but received no response! I am underwhelmed!

Minister Alan Winde's speeches, however, paint a dire picture which are just a tip of the iceberg. A month ago, Alan visited the West Coast. “There's thousands and thousands

of hectares of agricultural land below the Clanwilliam Dam which produces a lot of produce and revenue for our country that's now under severe water restrictions. They're going to produce 50% less,” he said. “Farmers are being throttled and are forced to use 60% less water, with the Clanwilliam Dam level at around 36%. There's an 80% decrease in potato crops and a drop in wine and export quality citrus.” With commercial farmers struggling, one focus for Province is supporting backyard food gardens for workers' food security.

“In places like Ceres, 80% less potatoes and 50% less onions will be planted resulting in about R40 million less paid out in salaries and wages. In Lutzville the tomato paste plant will not even open this year. Some 30 000 animals have been sold as farmers battled to feed their core herds.”

Against this backdrop, Boschendal started out at the beginning of the drought with a massive planting of 600 000 new fruit trees over a period of three years—which has just been completed. Permanent jobs in farming operations alone has grown from 70 to 287. Their dams are full and Jacques du Toit, Boschendal's general manager, said the dams started overflowing on 20 August and he counted 15 streams on the farm running into the Dwars River, on to the Berg River, and out to sea...

Boschendal dams (and just some of them are shown above) hold 3½ million cubic metres of water—3 500 megalitres. Boschendal relies entirely on its own dams for all agricultural water.

It doesn't draw any water from the Theewaterskloof, Berg River or any State dams for farming operations.

Filling the dams and making the water last is achieved by careful and effective custodianship and management of the land—alien clearing does make a very big difference to water flows from the mountains and nurturing soil quality in the vineyards and orchards sees water use reduced by 30%. Jacques du Toit keeps repeating: “Soil health is everything.”

Jacques and former CEO, Rob Lundie, spent hours discussing and debating innovations to improve the management of the land. Rob encouraged all managers to research and innovate—and YouTube is full of inspiration for farmers. They trialled new orchard blocks where cover crops were planted before and after the new trees were planted. Planting cover crops after the new trees were established won. The cover crops are a mix of rye grass, turnips, ciradella, radishes, vetch and red & white clover Boschendal's Black Angus beef herd grazes on the cover crops... leaving their own goodness behind.

Apart from reducing water usage, the good soil quality also reduces the need for fertilizers by 30%.

Using biological fertilizers, although more expensive, is also better for the soil.

Jacques started soil tests at Rob's insistence and the orchards gave a reading of only 2. He went up to the Viewpoint to fetch some topsoil for comparison. "One needs a non-disturbed reference as yardstick. It was rich and full of earthworms," he recalls. "The reading from that soil was 21! Better than good." In the following six months, he managed to improve soil quality in the orchards by 400-600%.

"Healthy soil holds rain water—the statistics show that 300 000-500 000 litres of water per hectare per 1% increase in humus is saved. You need less irrigation and the land seeps for longer, amongst many other benefits," says Rob.

Boschendal is micro-managed. There are 300 precision probes in the soil measuring moisture every 10cm to a depth of 80cm—one per hectare in the orchards and one every three hectares in the vineyards—with repeaters to the office.

There is an irony to the "bad" alien vegetation ... it is being recycled to improve the quality of the soil in the orchards. It all goes into a chipper—at a rate of 50m³ a day—and 200m³ of wood chips/hectare goes into the topsoil on the orchards. It's going to take another two years of chipping before there will be enough for the whole farm.

Distributing the wood chips was a time-consuming process so Jacques designed a machine to do it more efficiently.

Some of the alien vegetation is used to create biochar, which is added to the farm's composting operation, using waste from the restaurants and winery.

The worm farm on the Estate has become a dedicated operation.

The beef herd, which peaked at nearly 800 cows, has been reduced to 600—the number best suited to the farm.

Farmer Rico's pasture-raised chickens also fall under Jacques' ambit now and will soon have 4 000 lay hens and 2 000 broilers.

But it's the pigs that must be the envy of pigs everywhere! There are three forested



At the end of last summer, the dams were cleaned and silt removed. Underwater mountains of rubble were found.

camps each of about 2½ hectares in forests where they roam free.

With Eskom's future looking increasingly bleak and electricity price hikes almost assured, Boschendal's massive second solar farm producing almost 1 megawatt of electricity has just been commissioned, reducing the farm's reliance on the national grid.

What are the lessons from Boschendal? The most important is that preparation for the drought should have started over three years ago.

This has less to do with Stellenbosch municipality and everything to do with the farmers of the Greater Simonsberg Conservancy—who cleared alien vegetation in the catchment area and watercourses above the dam.

Take a bow Tokara and Thelema Estates, for over five years they have continuously cleaned up all alien vegetation. Cape Town's mayor is correct when she says "this is the new normal". But the City has been preaching Climate Change for nearly 20 years... so why wasn't it prepared? Why is the City building temporary desalination plants if this is the new normal?

The mayor recently added alien clearing around Wemmershoek dam to her list of

interventions—that's going to have no impact in the short term because the rains are long past.

Had they started five years ago, clearing alien vegetation in the catchment areas of all Cape Town dams, an expert speaking on CapeTalk radio said the impact would have been the equivalent of building a new full Wemmershoek dam.

The City has failed its citizens, and national government... well... they have neither the competence, the political will nor the funding to make a difference.

The national Department of Water & Sanitation is bankrupt. Politicians are playing Russian Roulette with the Province's future. They focus on politically-expedient decisions rather than long term plans. I asked one politician what will happen if the drought... the new normal... doesn't break next winter. "We'll all resign," was the answer. Now that's cold comfort! Maybe a few really good farmers would do a better job of running the City and Province.

Carl Momberg

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16:00 - 18:00: Client Hour (Cash Bar available)

8 March 2018

09:00 - 14:15: Conference

(Registered Delegates/Exhibitors only)

14:15 - 16:30: Client Hour (Cash Bar available)



HOW'S IT GROWING?

Farm smarter with drones and satellites

Drones and satellites provide a great new opportunity for farmers to understand their crops. A new technology platform from local startup DroneClouds, shows how things are growing in the field using health and moisture maps.

With international trade soaring and a variety of climate and soil conditions around the world, agriculture is becoming increasingly globalised and commercialised, driven by technological advances that optimise and economise

input in an endeavour to yield the highest possible output by region.

Worldwide, farming has very much become part of the Fourth Industrial Revolution, also known as Economy 4.0. Following on the Third – electronics, digitizing and the advent of information technology that has occurred since the middle of the previous century – the Fourth is the trend of tech-driven automation, data exchange and cognitive computing – the “internet of things” – that is dramatically altering the way we work, play, produce and consume.

It is in this sphere that Cape Town-based DroneClouds is making its mark by assisting agri producers to monitor their crop growth throughout the season by using multispectral satellite and drone imagery. Health and moisture maps are delivered to farmers instantly on a web app and a mobile device such as a tablet and smartphone. Farmers can pin problem areas on their land and navigate straight to that specific point using their smart device.

The DroneClouds map app allows for early identification of areas where stress occurs. It literally allows one to see how things are growing and how crops are developing and maturing over time and seasons.

Embracing this new technology is a vastly more efficient way of farming than relying on only the traditional visible scouting of crops and a significant step closer into moving to precision and scientific farming practices.

DroneClouds was founded in 2015 when it won a business model competition with Airbus Defence and Space and SANSA and is today run by electrical and computing engineer David Campey as CEO and product designer Steyn Viljoen, together with a team of developers, designers and farming experts.

In the last two years, DroneClouds has garnered wide industry recognition for its innovations, winning the South African National Space Agency’s (SANSA) and the European Airbus Defence and Space’s (ADS) business model competition, taking second place in 500 Startup’s Geek on a Plane competition and being chosen as top 500 deep-tech startups to exhibit at Hello Tomorrow in Paris.

Today it works with a number of prestigious institutions such as SANSA and Airbus, as well as IrriCheck, Kaap Agri and other

players in the South African context. With partners like IrriCheck, their expert water recommendations can be displayed on top of the moisture map to see how it corresponds with the rest of the field moisture. Kaap Agri allows farmers to buy DroneClouds satellite and drone services through their account, effectively putting this investment in technology on the same plane as other general farming overhead costs such as fertiliser and equipment.

Last year, DroneClouds was chosen for acceleration by the European Agro Innovation Lab with BayWa and RWA, leading to collaborations within the group of companies. This included market entry with BHBW, BayWa’s local joint venture together with BarloWorld Holdings.

“DroneClouds offers an instantaneous step on the journey to NEXT Farming Smart Integrated Solutions with BHBW.”

Steyn Viljoen, head of product, has spoken to over 400 South African farmers in the past year, and has seen the maps used in interesting ways:

Says Viljoen, “DroneClouds is a web map app for farmers interested in new solutions to old problems that allows them to monitor crop growth from above.”

One such early adopter embracing this new technology is Tulbagh farmer Adriaan Booyens, who has various cultivars of apple, pear, peach and prune under cultivation. Before taking up farming, he was an engineer and needed no convincing when it came to the benefits the moisture maps offered in planning his irrigation schedule.

“The moisture map benefits extend way beyond simply what we have under cultivation,” says Booyens. “Right after accessing the DroneClouds service for the first time, we detected the exact source of a dam leak, found the location of several defective seals in pipes running underneath formal structures on the farm, and I can even monitor the condition and strength of flow of several fountains in a ravine upslope from my land.”

Because the pipes run two metres underground, the leaks were not visible above-ground. “We knew water was lost somehow, but not where and how,” says Booyens. “Tulbagh is one the hottest and driest areas of the Cape Boland, and now

more than ever we need to utilise our water resources with the greatest of responsibility.”

Continues Booyens, “For all producers, water is their biggest asset, and the infrared maps is a fantastic tool. Plants may look healthy, but we can now identify problem areas early, act timeously and with a proper irrigation schedule keep plants in their sweet spot, with no wastage of resources. The imaging service was like manna from heaven and has become an essential, indispensable tool. It has changed my way of farming.”

“Multispectral technology allows farmers to see what is invisible to the human eye,” explains Campey. “Plants send out invisible distress signals long before visible signs, and it is these rays that spectral satellite and drone photography capture for plant analysis.”

Any land under cultivation, anywhere in the world, can be analysed by satellite mapping to determine moisture and drainage, areas of compaction, uniformity of fertiliser distribution and effectiveness, and plant health through detection of various levels of plant stress.

“To monitor their crop health on a continuous basis, producers have access to fresh satellite images every 5 days, to intervene the moment new crop issues become visible,” says Viljoen.

The map app is easy to use and the basic package with 10-metre resolution satellite maps (100m² per hectare) start at R9 500 per farm/year. Anyone, anywhere in the world can instantly see their first health and moisture maps free.

From this starting point, there are offerings for higher-resolution maps using satellites and drones. Satellites can go down to 0.5m proximity. Drones are used for ultra-high resolution – from 2 to 10 centimetres per pixel. Using these for high-value crops such as citrus and nuts, every tree can be individually measured and tracked, allowing specific care to be given.

If you’re interested to learn more, there is a free trial on the website (droneclouds.com) for farmers. This offers health and moisture maps from the last year up until today, which will show you exactly what it looks like.

DroneClouds can be contacted at www.droneclouds.com and twitter.com/droneclouds, as well as facebook.com/droneclouds.

Ready or not

Technology rings the changes for African agricultural sector

Emerging technologies, like the Internet of Things (IoT), are changing the way entire industries work, enabling better resources conservation, more efficient operations, and higher productivity levels and, in the case of agriculture, increased yield.

Smart farming isn't a new emerging tech conversation and, on a global level, we have reached a point where the actual benefits of technology deployments in farming are being seen.

From farmers in Myanmar (formerly Burma) who are tripling rice harvests from using data that uncovered how carefully sowing rice seeds reaps a greater harvest than casually scattering them, to Kenyan small holdings owners who have learnt how to best use and store grey water for use during the drought seasons – the digital disruptor in farming is already here.

In fact, Forrester tells us that today's young generation of farmers will be the last to use traditional farming techniques.

The next generation will probably never even travel on a gravel road, choosing instead to farm virtually, an option that is actually available to them today.

Consider that around 10 years ago, the mobile phone had become an agricultural tool empowering farmers with early access to information about weather that helped them plan planting and harvesting more effectively. Introduce a concept like IoT and its very real benefits to the agricultural conversation, and we can clearly see the immense opportunities that will benefit even small-scale farmers.



According to the Internet of Food and Farm 2020 (IoF2020), a project established to explore the potential of IoT technologies for the European food and farming industry, "with the help of IoT technologies higher yields and better quality produce are within reach. Pesticide and fertiliser use will drop and overall efficiency optimised. IoT technologies also enable better traceability of food, leading to increased food safety."

And how this translates for South Africa, and indeed farmers on the greater African continent, is technology companies making good use of the data available right now (through existing technology implementations) and applying it to enhance farming operations productivity while maximising yield.

Connectivity is key to this transformational journey, with smart, connected devices at the heart of this process. Connectivity will not just enable the delivery of IoT, it will also allow for greater collaboration between all players within the agricultural supply chain – from the producer right through to government and the public.

The data collection, real-time insight and process automation capabilities of IoT have

already been proven across a number of industries. The agricultural sector itself is seeing increased production with more accurate planting, watering and harvesting. In water challenged areas, technology empowers conservation by alerting through weather prediction and soil moisture sensors that enable watering only when and where necessary.

Today, from his desk, a farmer can check and fix solar powered pumps remotely, optimise irrigation based on soil and plant needs, use artificial intelligence to calculate the best fertiliser, and even use location tracking to improve livestock monitoring and management.

The impact of technology on industry is real; we believe that South African agriculture is ready to embark on this journey, capitalising on these means to deliver competitive advantage and business value. This step is what will ensure that our farmers truly thrive in an increasingly challenging environment.

Josua Taljaard, commercial business unit manager at Datacentrix

Standard Bank breaks new ground in agribusiness funding

A R1.8-billion restructure in which Standard Bank has partnered with agribusiness, TWK, and Land Bank, created a new debt funding model for the agricultural sector. The model paves a way for the corporatisation of agribusinesses to accelerate their growth.



*Nico Groenewald, Standard Bank
Head of Agribusiness*

The transaction is a first in agricultural finance in terms of the collaboration in a syndicated loan to TWK between Standard Bank as a commercial financial services provider and Land Bank as a parastatal financier.

It is also a first in terms of Standard Bank and TWK working together to restructure TWK's balance sheet in a way that enables the bank to apply its financial insight from the corporate business world to agriculture's unique operating environment.

The 77-year-old business: TWK, which recently listed on ZAR X, South Africa's second stock exchange in 58 years, provides

a broad range of products and services to its stakeholders. Its divisions include timber, grain, trade and mechanisation, financial services, and vehicles and tyres. The potential rewards of investing in TWK Investments Ltd seem to be high. With a turnover in excess of R7 billion and a net asset value of more than R1 billion, the shares of TWK Investments trades at a substantial discount to net asset value. It is forecast to grow its bottom line for the 2017 financial year considerably from the high base of the previous year and the shares trade on a low price-to-earnings ratio.

The company's physical assets include fertiliser blending plants, trade outlets, maize and animal feed mills, two grain silo complexes, plantation farms, a wood chipping plant, a treated timber plant, lumber and mining timber sawmills, charcoal production facilities, a forestry seedling nursery, fuel service stations and vehicle dealerships.

"All credit must go to the visionary approach TWK's board has taken in initially realising that they needed to structure the business differently in order to capitalise on the growth the company has already experienced and then in approaching us for our input as to how best to achieve that," says Standard Bank's Head of Agribusiness, Nico Groenewald.

"TWK was prepared to change its financial model, which made it possible for a commercial bank like Standard Bank to work together with the Land Bank and in combination create an optimal debt funding structure.

The funding model is ideally structured and can be scaled as the TWK business grows," he adds.

Mr Groenewald believes the new debt structure is aligned with TWK's growth strategies, enhanced the balance sheet of the company and is a perfect balance between the optimal financing mechanism and financing products. This reduces risk and creates an ideal opportunity to invest in TWK's equity as listed on ZAR X.

The TWK transaction is expected to be a watershed in investment in agriculture.

Until now, because of its unique operating environment and the way it has been managed, agriculture has not provided many opportunities for individual, institutional, or broad-based investors.

"If other agribusinesses take a similar approach to TWK in gearing themselves for growth, agriculture could become an extremely attractive passive investment option," Mr Groenewald says.

"We have also been delighted to work with Land Bank in pro-actively looking for different, more effective ways of funding agriculture. In this particular transaction, as a non-commercial entity, Land Bank's willingness to innovate is a clear indication that the industry as a whole is moving in an extremely positive direction," he concludes.



New initiatives bear fruit

Tackling food insecurity in Africa



The number of people experiencing food insecurity in Africa rose from 220 million people to 224 million people this year. The Food and Agriculture Organisation's regional overview for the year attributes this to changing weather patterns that led to poor harvests, a loss of livestock, conflict and recurrent droughts.

Food security occurs when all people, at all times, have access to enough food to meet their dietary needs. To declare countries "food secure" analysts look at a combination of availability, access and utilisation.

Mauritius, South Africa, Ghana, Namibia and Senegal are among the top 10 most food-secure countries on the continent. This is attributed to the use of new crops and agricultural production technologies.

But ultimately the ability to achieve food security depends on political will and the effectiveness of government and national strategies in the agricultural and food sector.

Though the 2017 rise in food insecurity is disheartening, some African countries have made progress over the last decade. And there were some initiatives from this year that deserve a special mention for the precedents they set.

Innovation and technology

Several countries recorded improved food production because of modern technologies provided by governments, aid agencies or entrepreneurs. These included:

- the adoption of improved seed varieties,
- modern equipment, and
- fertilisers or better practices such as conservation agriculture.

In Ethiopia, for instance, farmers increased wheat yields by 14% as a result of newer agricultural technologies.

In Rwanda, farmers reported increased productivity due to solar-powered irrigation technology.

In Nigeria, increased agricultural productivity was linked to the use of smart and affordable tractors by smallholder farmers.

And in Kenya, the practice of conservation agriculture has taken root, resulting in bigger yields.

Equally important are the growing number of innovations in financing. To improve productivity, and achieve food security, farmers must be able to invest in technology.

But, many African farmers live below the poverty line. They can rarely borrow from formal financial institutions as they don't have collateral. Today, only 6% of total bank credit on the continent goes to agriculture.

Tanzania addressed this challenge by rolling out a toolkit that allows farmers to pre-pay for discounted agricultural inputs using mobile money. Farmers are also provided with customised plans that guide them on how to maximise crop yields.

New policies

This year several African countries strengthened and launched new agricultural policies. These play a key role in improving food security. For example, policies can lower the cost of agricultural input prices by introducing subsidies. Or they can allocate resources in a way that benefit farmers – like road construction for market access.

The Nigerian government deserves mention for some key initiatives it introduced this year.

For starters it launched the National Policy on Food and Nutrition which allocated 92

billion Naira (US \$290 million) to the agricultural sector.

Policies were also enacted that gave farmers access to agricultural inputs and provided them with modern equipment at subsidised prices.

To improve productivity, and achieve food security, farmers must be able to invest in technology.

One example is a fertiliser initiative that delivered over 4 million bags of fertiliser to farmers at affordable prices. This meant more farmers could buy fertiliser, giving them bigger yields.

In terms of areas of policy areas, 2017 turned out to be a good year for irrigation.

Only 7% of Africa is irrigated. In Nigeria's case the potential irrigable area is 21 million hectares (about the size of Italy)—with only 200 000 hectares currently irrigated.

This year the Nigerian government completed irrigation projects covering over 33 000 hectares of land. And things are set to improve even further following a World Bank announcement that it's investing US \$495 million in irrigation.

Meanwhile in Rwanda the government has made a commitment to intensify irrigation initiatives to help citizens cope with climate change. Over 44 000 ha of land would be developed with formal irrigation infrastructure—that's about 82 000 football fields. In Malawi, the government launched a similar initiative which would put over 100 000 hectares of land across the country under irrigation—about 187 000 football fields.

Because irrigation improves food security, these initiatives will continue to play a vital role in moving towards food security. So, even though the number of food insecure in Africa has risen this year, discovering effective new technologies and policies that work is important for the future. This year, these gains were in targeted government interventions and the adoption of modern agricultural technologies. This allowed farmers to improve productivity, allowing African countries to make progress in the quest to attain food security.

Esther Ndumi Ngumbi Research Fellow, Department of Entomology and Plant Pathology, Auburn University

This article first appeared on theconversation.com



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COPING WITH CROP DEMANDS

Innovative breeding platform to improve wheat yields

A partnership between government and the wheat production sector has led to the launch of a platform that will improve wheat yields, despite the challenging climate.

The multimillion-rand Wheat Breeding Platform at Welgevallen Experimental Farm in Stellenbosch in the Western Cape, established in 2014 as a consortium comprising public and private sector partners, is also set to help South Africa meet the current local wheat demand and also become a wheat exporter.

Speaking shortly after the launch of the platform, Science and Technology Minister Naledi Pandor said the platform was launched after a partnership was forged

between the private sector, particularly the wheat industry, and government to seek solutions to address challenges faced by the industry in relation to low production and competitiveness, as well as the country's rising demand for the commodity.

"It is very important that we work with researchers to support and enhance our agricultural productivity by producing products that will respond to the particular conditions in which we do agriculture in South Africa and on the African continent.

"We also want to particularly focus on seed products that are relevant to our conditions so those areas in which we wish to increase exports and reduce imports. We look at improved maize yields, improved wheat yields.

"We import over 46% of our wheat into South Africa. If we can improve the quality and have a larger product coming out of seeds that we produce innovatively in South Africa, that would be excellent," she said.

The Minister said the department's involvement was basically to provide funding support through relevant programmes to fund research and development in an identified focus area.

The department has invested R15 million into a multi-consortium wheat breeding programme with the aim of improving abiotic stresses such as drought and extreme temperatures.

The platform is a partnership between the department, Grain SA, the Department of Agriculture, Forestry and Fisheries, the Agricultural Research Council, Sensako,



Pannar and Stellenbosch University, among others.

Wheat is the second most important grain crop produced in South Africa and plays an important role in national food security.

With the Western Cape recently being hit by drought conditions that are threatening food safety, Minister Pandor said the initiative is expected to assist farmers cope with crop demands.

“What we are attempting to do is to respond to specific conditions that we are confronted with in South Africa... Where there is uncertainty about water resources, it doesn’t make sense to rely on the normal seeds that everybody uses, assuming particular levels of moisture availability.

“What we are doing is using science, especially biotechnology, to develop seeds that

are responsive to drought conditions. That will give us a higher yield, notwithstanding the challenges that we have with respect to water.”

Marinda Visser, a manager of Grain Research and Policy at Grain SA, said the initiative came to light in 2014. It was driven by a sharp decline of wheat production in the country.

“We went from over 1.4 million hectares planted to a situation where currently, less than 500 000 hectares are planted. To be exact, 420 000 hectares are planted currently.

“In the late 1990s, we used to plant 1.4 million hectares to wheat. What does that tell you? We have a problem. The wheat industry is in distress and there are many different reasons—profitability, the climate, investments in research and development and research...

That is why industry went to government,

asked for assistance and formed this partnership where we got together and figured out how to go about it.

“Some of the challenges were economic and we went to the Department of Trade and Industry for tariffs and talked about what needs to be done in that space.

Some were policy regulatory issues and we went to the Department of Agriculture, Forestry and Fisheries and discussed those issues.

“We went to the Department of Science and Technology and asked if they can make investments and partner with the industry, which until that stage, had been paying for all the research and development in the wheat industry,” Visser said.

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Ups and downs

2018 holds out mixed prospects

“Over the past couple of years, Agbiz has indicated that South Africa had reached a decisive T-junction on its road into the future and that critical decisions were necessary to place the country on a sustainable growth and development path. Clearly, the wrong decisions have been made by certain government leaders, especially by the president with regard to nonsensical Cabinet reshuffles, putting the country on the wrong path and into a downward spiral of near-zero growth, increased unemployment and rating downgrades,” said Dr John Purchase, CEO of Agbiz, at the organisation’s Agribusiness Outlook 2018 media conference.

Alleged corruption on a massive scale, combined with gross mismanagement at a number of major SOEs, has effectively eroded business confidence in the country and dried up investment. Clearly, South Africa needs to make a 180° U-turn and get onto the right policies, legislation and governance road to meet its development and economic goals.

“In a way, the government itself realises it has gone up a dead-end track and appointed a high-level panel to assess the country’s key legislation. And so, over the past 21 months, the high-level panel on the Assessment of Key Legislation and the Acceleration of Fundamental Change, which has been chaired by former President Kgalema Motlanthe, received numerous submissions from individuals, non-governmental organisations, academics, industry associations and many other organisations, including Agbiz,

on their experiences of key government programmes and legislation.

“The report makes a number of telling findings and recommendations which could go a long way to reversing the dire situation that now confronts us. There is no doubt that the outcome of the upcoming ANC Elective Conference in mid-December 2017 will largely determine whether the political will exists to turn the country around,” Purchase added.

Agriculture and agribusiness prospects

It is against this backdrop that the agribusiness and agriculture sectors have had mixed fortunes across the country this past year. Generally, good rainfall in the summer rainfall region from early January 2017 resulted in the breaking of the disastrous 2015/2016 drought and a record maize crop of 17.4 million tonnes being realized. While considerably lower maize prices hit grain farmers hard, the lower prices benefitted various value chains enormously, including the poultry, dairy and red meat industries. This also led to food inflation decelerating from double-digit figures in 2016 to 5.3% year-on-year in October 2017.

Prospects for 2018 in the summer rainfall region are mixed, with fairly good rainfall in the northern and eastern regions, but the severe drought in the central and western producing areas is cause for concern. Given the current La Niña occurrence and favourable medium to long-term rainfall forecasts for the region, Agbiz remains optimistic that production conditions will generally be fairly favourable through 2018,” Wandile Sihlobo said today.

However, the continuing drought in especially the Western Cape, but also parts of the Northern and Eastern Cape, has impacted negatively on growth and employment in those regions. Prospects for the first half of 2018 in the Western Cape remain mixed and generally dim, with 2018 winter rainfall hopefully bringing relief to distressed farmers. The agribusiness sector is already experiencing a downturn in trading and business conditions.

“After hovering above the 50-point mark over the past five quarters, the Agbiz/IDC Agribusiness Confidence Index declined by five points to 49 in the fourth quarter of 2017. This essentially means agribusinesses are now more downbeat than upbeat about agribusiness conditions in the country. The Index was last seen in this contractionary territory during the drought seasons of 2015 and earlier part of 2016,” said Wandile Sihlobo, Agbiz head of agribusiness research.

Agricultural trade

“On the agricultural trade side, the primary and secondary agriculture sector generated R124bn from foreign markets, subsequently recording a R38.6 billion positive trade balance. This was driven by a solid export performance from fruit, grains, dairy products and sugar commodities.

Maintaining a healthy international demand for South African agricultural commodities is imperative because it sustains jobs, enhances growth and thus reduces poverty. The demand side needs to be better managed by establishing effective, transparent and beneficial trade agreements. Such agreements are essential for attracting much-needed investment into the sector,”

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said Sifiso Ntombela, Agbiz head of international trade and investment.

"Going forward into the new year, agricultural trade is expected to perform relatively well with exports outpacing imports by not less than R40bn. The main drivers of exports will be fruits, grains and dairy products whereas imports will be largely dominated by processed food and beverages".

Legislation environment

"On the legislation side, 2017 was characterised by a great deal of policy uncertainty related to land and water reform as a duality emerged between official government policy and the party-political considerations. On the one hand, government continued on its trajectory set by the 2011 Green Paper on Land Reform by publishing a series of draft legislation for public comment, including the Regulation of Agricultural Land Holdings Bill that seeks to prohibit foreign agricultural land ownership and impose a limit on the extent of land which any single entity can own," Theo Boshoff, Agbiz head of legal intelligence said.

Draft regulations to the Property Valuation Act were also published to test a controversial formula for valuing land at 'just and equitable' value. This is seen as an attempt by the newly created office of the valuer-general to influence the calculation of 'just and equitable compensation' which the constitution

prescribes for instances of expropriation. On a positive note, the long-anticipated Communal Land Tenure Bill was also published to regulate tenure relationships in communal areas of the country.

Early indications are positive as the Bill makes provision for ownership to be transferred to communities and individuals, thereby unlocking the economic potential of the land to bring about development opportunities.

"2018 will likely see an even greater focus on land reform pending the decision on Expropriation without Compensation taken by the ANC at their elective conference. Should a momentary lapse in judgement occur and the decision is taken to amend s25 of the constitution, all other legislative processes in this sphere are likely to be overshadowed. If not, a draft of the alternative legislation is likely to proceed to Nedlac. Other notable legislative movements expected in 2018 include publication of the new water legislation, the Carbon Tax Bill and the implementation of the National Minimum Wage. These steps may bring some certainty to the policy space; however, their implications on the agro-food system may lead to a bumpy ride in 2018," Boshoff added.

Grain industry

"Despite all the summer grains doing extremely well this past year and resulting

in bumper crops, South Africa's long-term wheat production is still under pressure. Although yield per hectare has increased slightly, the area under wheat has dropped from almost 1.6 million hectares to 496 350 hectares from 1990 to 2017. Consumption is now at 3.2 million tonnes, up from 2.3 million tonnes in 1990.

Since more than half of the amount of wheat consumed is imported, South African and imported wheat is monitored and compared annually.

Over the last 10 seasons (2006/2007 to 2015/2016), the milling and baking South African wheat has been proven to be superior to all the imported wheat, regardless of country of origin," Ms Mariana Purnell said.

In 2018 Agbiz Grain will continue to assist with the implementation of the SA Cultivar and Technology Agency (SACTA) levy that was launched in 2017, as well as deal with the highly problematic APSA assignee testing issue for grain and oilseeds.

Amongst other matters, a further focus will be on the development of the Southern Africa Grain Network (SAGNET), which is a new private sector driven regional body to provide greater coordination in the grain value chains of southern Africa.

Its aim is to facilitate regional trade and will, therefore, focus on important issues like standardising and harmonising facets of the grain industry.

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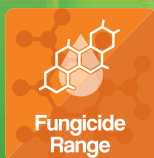
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