

Issue 14 March/April 2015

Harvest

Securing South Africa's Food Resources

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GRAIN SA
GRAAN SA

**Hope on hold
Drought stalls SA-China
trade advantage**

**The goodness of dairy
Sustainable farming at Fair Cape**

MORINGA: A TALE OF INDIGENOUS KNOWLEDGE-BASED



Moringa plantation sprouting after being pruned, Tooseng September 2014



Agro-processing plant in Tooseng, Limpopo



Moringa Research Team at ARC-VOPI, Roodeplaat



Processing facility at Roodeplaat at ARC-VOPI, Roodeplaat

The Department of Science and Technology initiated an Indigenous Knowledge Systems (IKS)-based technology transfer project on Moringa in 2011, as part of the Department's IKS Bio-prospecting and Product Development Platform.

The platform has a number of flagships focusing on nutraceuticals and food security, African traditional medicines, cosmeceuticals (including health and beauty), and health beverages and teas. It is envisaged that these projects will lead into innovation, manufacturing and commercialisation of high-end products. Of all the flagships mentioned above, the Moringa project has advanced to the level of agro-processing and commercialisation.

Moringa: The Plant

Moringa is not indigenous to Africa, but has been naturalised or indigenised in most African countries. It is affectionately known as the "miracle tree" because all its parts, be they leaves, seeds or roots may be used for a variety of innovations. The many applications that Moringa is reputable for include food, medicine and cosmetics, among others. It has been reported that the plant can survive harsh weather conditions like drought, however it is extremely sensitive to frost. Sufficient work has been done on the nutritional content of Moringa, and studies have confirmed that it quantitatively has more micro-nutrients and minerals than most common crops.

Research and Development

Studies have also confirmed the plant contains more than 90 nutrients and 46 types of antioxidants. It has over five times the amount of the Vitamin A found in carrots, up to seven times the vitamin C found in oranges, 17 times more calcium than commercial milk, 25 times more iron than spinach and nine times more protein than yoghurt. Therefore, this makes Moringa one of the few plants that could be developed into high-end products for commercialisation. So far, research and development initiatives have been done in collaboration with the University of Witwatersrand, the Agricultural Research Council ARC), the Council for Scientific and Industrial Research (CSIR) and three communities (cooperatives) in Limpopo (Tooseng), Gauteng (Attridgeville and Hammanskraal) and KwaZulu-Natal (Kwa-Mashu).

Innovation and Technology Transfer

A technology transfer team has been in the forefront of developing good quality products and various innovations using the plant. The three research institutions involved have conducted good agricultural studies that have led to the production of high-quality Moringa plants through various agro-processing initiatives. High-end products that have been developed as a result of these initiatives include Moringa leaves, which can be used as vegetables or food ingredients. In addition, food supplements in the form of capsules and powders have been perfected for commercialisation in the health and wellness market. The powder may be used in smoothies, which are popular among health-conscious consumers.



**science
& technology**

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

TECHNOLOGY INNOVATION



*Capsule making machine at
ARC-VOPI, Roodeplaai*



*Tea bag making machine at
ARC-VOPI, Roodeplaai*



*Food supplements in the form
of capsules and powders*

At the inception of this project, communities were simply planting Moringa, sundrying and manually grinding the leaves into powders. Dried leaves and poorly prepared powders were the only products in addition to already prepared mixtures like soups and minced soya products. The Moringa team has since developed better quality products including bottled capsules, ice-teas, tea bags, and vitamin water. The University of Witwatersrand has a patent on the extraction method for vitamin water. New products include a range of yoghurt products being developed with the ARC and various cosmeceutical ranges of soaps, lotions and creams are being piloted through various market studies. An agro-processing plant is currently being installed in Tooseng in Limpopo, and this will be followed by one in Hammanskraal.

There is also continued training and capacity development in various areas including good agricultural practices, business management and agro-processing.

Commercialisation

This initiative has given rise to two cooperatives, Sedikong (Limpopo) and Phedisang (Gauteng). These two cooperatives are well-established and are in the process of commercialising various Moringa products within their respective communities.

In 2013, the construction of a pre-processing facility was started in Tooseng. The rationale is to add value in Moringa innovations from source, where it is grown.

The construction of the pre-processing facility is led by the ARC who use prototypes tested in laboratories in Pretoria.

This facility is being built according to good manufacturing practices, and is headed by Ms Mavis Mathabatha partly funded by the DST. The Department's main strategic objectives focus on using scientific interventions to generate new innovative knowledge to stimulate the release of high-value Moringa products for commercial purposes. The ARC is the primary implementing agent.

Some of the deliverables to date include training workers on relevant Moringa farming skills, farming infrastructure development and the upgrading of high-value and standardised products. The 5ha Moringa farm was recently supplemented with new shade-nets for Moringa plantlets. The pre-processing plant will enable the achievement of good manufacturing and production control standards for good quality controlled products. It is envisaged that a fully operational plant will be established by March 2015. This pre-processing plant will be equipped with functional resources including a Moringa tablet-making machine, a plant grinding machine, a Moringa plant washing area, and a plant drying and packaging area.

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FOREWORD



JANNIE DE VILLIERS
CEO, GRAIN SA

Droughts work like a chain. First are the crop insurance companies, with some very scientific models predicting the weather for the season ahead.

Next in the chain is the weather service, forecasting the weather for the next 10 days. But it is the farmers who are the first to feel the effects when the plants are suffering.

The heatwaves in January and February this year were just too much for the plants to pollinate properly. Their moisture needs are

Drought affects everybody

at their highest during pollination, in order for the maize plant to fill the cobs with kernels to provide a decent yield.

This year the drought resulted in a maize crop too small for our own needs. A shortage of maize in South Africa equals high food prices. The milling industry and animal feed industry use ± 10 million tons jointly per annum. Mealie pap is our staple food. The maize fed to animals produces poultry meat, eggs, dairy products and red meat for our nation. These food items form the basis of what we eat every year.

Minister Senzeni Zokwana addressed grain farmers at the Grain SA Congress on 04 March 2015, and said: "Our crops are dying and the leaders of our country are concerned about our farmers and consumers living from the food you produced." This is why a drought affects everybody!

The first major impact of the drought on a grain farm is the loss of income and the inability to repay the current season's production loan. All other monthly cash expenses, like school fees for the children, food for the household and wages for the farmworkers are under stress. A grain farmer can only generate an income once a year. The bigger concern that we share with farmers is the problem in getting a loan for the next season. A drought also impacts the next season negatively.

Last year we learnt that the insurance underwriters in Europe do not want to share the climate risk faced by South African grain farmers any longer. They only allow the local crop insurance companies a fixed quota of hectares that they are prepared to cover. Without crop insurance some farmers cannot access a production loan. If our farmers cannot plant, it could cause another short crop next year, resulting in high food prices.

It is well known that the backbone of the rural areas is agriculture. A drought affects that very same backbone in our country.

Most Black farmers find it hard to access finance as they do not own the land they work. Financial institutions do not give loans to farmers without the security of land. Communal land and state owned land do not qualify for any commercial loans.

These farmers are struggling with savings and personal loans at very high interest rates, in order to get crops planted. Most of the time they only have one chance to make it. If this season was their first, it might also be their last.

Minister Zokwana promised to call all experts together to see what plans could be made to jointly overcome this disaster. Such a gathering cannot be a talk shop; we need joint action to address this crisis.

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EDS NOTE



GREG PENFOLD
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Many fascinating stories are coming out of the agricultural scene these days. Sustainability, new international markets and more successful crops are among these exciting developments.

In this era of cut-throat competition and relentless development, is it possible for five brothers to build a world-class company while maintaining a family ethos, while ensuring that nobody is marginalised and that each one has a complete role to play? The Loubser of Fair Cape Dairies in the Western Cape have succeeded in doing exactly that, while maintaining sustainable agricultural practices at the same time. Find out more in our lead article.

Believe it or not, but South Africa has plenty of maize to export, and now the conditions exist for this to take

place, with the signing of the protocol between South Africa and China. The story of how this came to be is a tremendous testament to what can be achieved when the public and private sectors work together to achieve a common goal. Grain SA's Willem Voogt has all the details.

So much is happening all at once that many questions come to the fore. Is mobile technology a silver bullet for agriculture? How can barley farmers be supported as key custodians of South Africa's natural resource base? What innovations in aquaponics and aquaculture are available to boost small-scale agriculture? What additional markets have opened recently to South African produce? Why do hazel-nut exporters have reason to smile? And what exactly are Generation Y farmers thinking about? Find out answers to these questions in this issue of Harvest SA, packed with the nutrition of information.



NEW IVECO PLANT IN GAUTENG

Iveco South Africa and Larimar Group will soon inaugurate their new manufacturing facility:

Iveco South Africa Works

This site will assemble medium, heavy and extra-heavy duty commercial vehicles as well as front engine and low floor city buses.

The new "Born in South Africa" logo marks this important occasion. A 'stamp of authenticity', the logo certifies the quality of these locally assembled Iveco commercial vehicles by a South African workforce. Vehicles with the "Born in South Africa" logo are tailored for Africa's varied terrain and challenging conditions.

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2015 Congress

Emphasizing sustainable grain production during the process of land reform

Grain SA members, government officials, agricultural role players and other interested parties gathered on 4 and 5 March at NAMPO Park for the annual Grain SA Congress. The theme, “Sustainable grain production during the process of land reform”, promised to highlight important discussion points and encourage lively debate.

The congress agenda included amongst others, the Minister of Agriculture, Forestry and Fisheries, Senzeni Zokwana as keynote speaker, as well as Kip Tom, managing member of Tom Farms LLC, Indiana, USA. The agenda also focussed on the conciliation of the National Development Plan and food security, as well as a research

focus for the grain and oil seed industries for sustainable production. The practical implementation of land reform was also discussed in length.

In the audio visual chairman's report Louw Steytler (chairman: Grain SA) and Jannie de Villiers (CEO: Grain SA) flagged the highlights of the previous year, confirmed the strategic focus of the organisation for the coming year and, due to drought conditions, ensured producers that Grain SA will make an effort to carry producers through this difficult time. The audio visual presentation further gave members a look behind the screens into the organisation's operations in the different departments. The video is available on the Grain SA website.

Minister Zokwana confirms that the impact of drought changes priorities

In his speech, Minister Zokwana confirmed government's commitment to the South African grain industry, as well as government's willingness to ensure sustainable grain production together with organised agriculture. He also ensured producers that new markets will be secured for their products despite the current drought. The minister emphasised the utilisation of time and resources to maintain sustainable production and requested all parties in the value chain to give their input and support to prevent a disaster – not only for farmers but for the whole sector. A standing ovation for the minister was preceded by his call on the Grain Trust to continue their partnership with Grain SA to thereby

ensure sustainability during agriculture's transitional period. He also ensured delegates that the department is very close to a breakthrough to solve the problems of new era commercial farmers who battle to obtain funding.

Sustainable grain production during land reform

During Kip Tom's presentation he addressed data science with which he is busy to emphasise ways to promote productivity in our sector and in South Africa. Tom was impressed by the noticeable passion of South African producers and wanted to share his knowledge on how data science plays a role in the producer's business to ensure sustainability, protect the environment, increase productivity and to ensure that everyone do their part to feed an ever growing population – 9,3 billion by 2050 – and with the same natural resources like soil and water that is available today. In his conclusion Tom not only emphasised the gathering of data, but also the analysis thereof to get insight from the data to make corresponding suggestions that will lead to the stability to experiment to fully utilise limited opportunities.

Food security and sustainable production

The first panel discussion, led by Max du Preez (writer, journalist and analyst) had the purpose to consider solutions to bring about sustainable production and food security for South Africa.

The panel consisted of Roelf Meyer (director: In Transformation Initiative), Brigadier General John Gibbs (KwaZulu-Natal milk farmer, scientist and member of the SANDF reserve forces) and Dr Marinda Visser (manager: industry services, Grain SA). In conjunction with the theme, Meyer emphasised their goal to bring different viewpoints closer to each other to ensure that similarities will be discovered on the road ahead to thereby allow for the NDP to work in practice. Gibbs concluded with the suggestion to create a "war room". This will ensure that all parties involved (including relevant government parties, the private sector and especially the farmers' community) gather to address problems to bridge the gap through dialogue to move forward on a common basis.

Dr Visser presented an overview of the grain production plan to Congress – a blue print for

agriculture's future over the next five years – and stressed that research and development will only work if it happens in collaboration with government. Grain SA had built relationships over the last three years with key strategic government partners and is part of a formal forum that gathers quarterly to discuss issues and common interests. This also offers Grain SA the opportunity to give input into key commodity documents and policies.

Practical implementation of land reform

The second congress discussion, opened with a presentation by Japie Grobler (chairperson: Agri Sector Unity Forum (ASUF)), covered the practical implementation of land reform. During the presentation of a working document Grobler stressed the importance of successful land reform within the context of the maintenance of the productive capacity of the country, the maintenance of inland food security, the ability to support underprivileged neighbouring countries and to earn valuable foreign valuta through exports.

The panel consisted of Schalk Pienaar (chairperson: Agbiz), Andrew Makenete (director: Manama Hole and Musa Capital) and Ralph Swart (owner of Swart Farming and 2014 New Era Commercial Farmer of the Year).

Pienaar confirmed that land reform (and the funding thereof) will only be successful if its true goal is to ensure sustainable, viable and economic food production. This was supported by Ralph Swart's confirmation that land ownership is the biggest problem throughout the country, together with sustainable farming.

Andrew Makenete further discussed practical proposals for land reform and pointed out that land reform in South Africa needs a balanced view point. He further emphasised the importance of the agricultural sector and said that everybody was disillusioned by the process – because of the slow pace on the one hand and insecurity on the other – and even though a lot of money has already been spent on this matter, it has not been spent well. Makenete discussed a few proposals and options and came to the conclusion that a new approach to land reform is needed, seeing that research shows that land ceilings are not a good idea in general. Makenete further stressed

that international best practices show that family farms operate better than corporate farms and this matter should be advocated.

A first for our industry – Momentum Financial Wellness for Grain SA members and farmworkers

In a first for the agricultural industry, Grain SA launched financial wellness products for its members and their farmworkers in an exciting new strategic partnership with Momentum. This initiative enables Grain SA members to provide for the key needs of their workers with access to financial well-being products from as little as R29 per month. This is just one of the benefits that Grain SA provide to its members as part of their membership at Grain SA.

Why Grain SA took the initiative

One of Grain SA's strategic focus areas is labour. Grain SA already started in 2013 with various activities in emphasis of good labour practices. At the same time the realisation dawned that access to a simple, easily accessible and affordable solution is problematic. Grain SA used the opportunity to, on behalf of its members, negotiate the best solution possible in order to ensure savings for members, given the economies of scale of the Grain SA member database.

The many benefits of Momentum's enterprise financial wellness approach will provide Grain SA members the assurance that their employees' key needs are met. Grain SA is proud to take the lead in the industry with innovative solution and we encourage members to participate in this initiative!

The road ahead

The Congress's trust in the Grain SA management was confirmed again with the re-election of the chairperson, Louw Steytler, as well as both vice chairpersons, Andries Theron and Victor Mongoato in their respective offices. Grain SA thanked all role-players, sponsors and partners who contributed to a very successful 2015 Congress. We are looking forward to take hands in the coming year to make a difference in organised agriculture and to make a positive and significant contribution to food security in our beautiful country.

Alzena Gomes, Public Relations Officer, Grain SA

Do the right thing





The five Loubser brothers of Fair Cape Dairies in the Western Cape have succeeded in building a world-class company, while maintaining a family ethos, with each of them playing a key role.

In the early 1990s, when the winds of change were sweeping through South Africa, numerous commercial companies either moved their interests offshore or nervously retreated into their “laagers” to wait and see how things played out.

But one traditional Afrikaans family – the Loubser family of Fair Cape Dairies – took the road less travelled, deciding to embrace the changes and take their company in a different direction in the new South Africa.

Today Fair Cape – with its motto “Do the Right Thing” – is known for its quality products and ethical farming methods and commitment to a long-term legacy.

Its CEO Melt Loubser is recognized internationally as an expert in his field, having headed up the local organizing committee of

the highly successful International Dairy Federation's World Dairy Summit in Cape Town in 2012.

Locally, he's made his mark as director of Milk SA and chairman of the South African Milk Processors Organisation (SAMPRO).

With Fair Cape now into the fifth generation of family ownership, Melt and his brothers are set on building a legacy, not only for future Loubser generations, but also for the families of the farmworkers, many of whom have also been on the farm for four or five generations – as well as for consumers in South Africa.

"What is important to me is to leave the world a better place than I found it, and if that is my legacy, I will die a happy man," says Loubser in an interview.

The five brothers, from eldest to youngest, De Villiers (Viljee), Louis, Melt, Johannes and Eduard (junior), were all born and raised on the farm Welgegund, near Durbanville, about 15 kms outside Cape Town.

Their father, Eduard (senior) – who reportedly shows no signs of retiring and is on the farm

every day – had the initial vision to build the farm up from a small-scale enterprise to a much larger operation.

Today, bolstered with a team of some 800 staff, each brother plays a different role in the enterprise.

The farm, which is situated among the more traditional wheat farms in the area, was established more than 150 years ago.

A farmer all his life, Eduard (senior) inherited the farm Welgegund from his own father, De Villiers Loubser in the late 1950s. The Loubser family had bought Welgegund in 1876. Melt's grandfather, De Villiers Loubser grew up on the farm but it was inherited by his brother, the eldest son, Johannes Albertus.

"Johannes died in 1955 – and my grandfather, who had bought a farm called Altona, not far from Welgegund in 1934, bought Welgegund back from the estate of his brother.

"My father, the eldest son, went to farm Welgegund in the late 1950s," says Melt.

"When he started out, it was a fairly small-scale farming operation with about 30 cows, a bit of wheat and a few sheep. He decided to construct a dairy on the farm and, by the early 1970s, his herd had grown and he had moved from hand-milking to machine-operated milking."

Melt and his brothers had an idyllic childhood on the farm, and, although each took time out to study, they have ended up doing "what we were naturally drawn to" – farming.

"When I started studying, the farm was too small for me. My eldest brother, Viljee, who had studied Agriculture at the University of Stellenbosch, was running the farm with my father," says Melt. So he studied to be a civil engineer at Stellenbosch.

But by the early 90's their father's herd had grown to about 300 cows and was producing about 8 000 to 10 000 litres of milk a day – and Melt had become "tired of moving from pillar to post on engineering projects all over the country". He was hankering for the farm life.



"I was young and bold and open to taking risks. I also had a lot of faith in the new dispensation – and was completely in favour of the free market system. The country's future as a young democracy looked bright. My brothers felt the same.

"In those days, my father was contractually bound by one of the big dairy companies which meant he had to supply them with all his milk. He was not allowed to pack the milk or do anything else with it.

"We decided we had to change this."

Melt started buying the animals from his father and putting them into a new company. "We were then able to milk those cows and sell the milk until we had eventually bought over the whole herd – and were in a position to cancel the contract we had with the big suppliers and then to distribute all of the milk into the market place."

The brothers' entry into the farming enterprise coincided with the demise of the control boards and the entry into a free market.

"Viljee, Eduard and I went to my father and said we felt that it was time to start investigating the opportunities for adding value to our milk. We decided that, moving forward we would have to do more than just produce milk as a raw material.

"My father is cautious and conservative – but also a dynamic farmer and he was open to the idea."

Research showed that the time was ripe for such a venture.

At the time, shortly before the advent of democracy, South Africa's agricultural industry was highly regulated by the agricultural control boards and dominated by big players in the agro-processing industry, making it extremely difficult for small players to enter the market.

"The dominance of the big monopolies meant that there was not much innovation in the dairy industry. There was a big margin between the price of raw milk and the price of the final product for consumers in the marketplace.

"It was a lucrative business and when we compared the SA market to the overseas market we saw there was huge scope for innovation in the SA retail market. So we started Fair Cape as an agro-processing business to add value to milk."



Their first innovation was a simple one: Packing fresh milk into sachets.

Fair Cape was launched as a stand-alone company in 1995.

Over the next few years, Melt was elected by shareholders to become CEO. Louis (a qualified lawyer), became marketing director and Johannes, "a livestock fanatic", took charge of the milk production side of the operation.

Eduard – with his financial background – took charge of the financial and logistical side of the business.

"So, we are all involved in the business as it stands today. It is quite diverse and it provides the opportunity for everybody to perform – and to run their departments like individual businesses, but, holistically under the Fair Cape umbrella," says Melt.

Next the company started producing yoghurt under the Fair Cape brand.

Initially their yoghurts were hand mixed and handpacked. But, before long they had drawn the attention of some of South Africa's major retailers.

Today Fair Cape is a major player in South Africa's dairy industry, supplying a range of

products to stores like Woolworths, Checkers and Pick'n Pay.

In the mid-2000s, the company built a world-class milk production facility which, today sees about 2000 cows milked three times daily and producing about 65 percent of the needs of the Fair Cape company.

The business has since acquired two additional farms, each of about 550 hectares – Kuiperskraal where the Fair Cape factory is situated and Mosselbank where much of the feed is produced for the cows.

Fair Cape has earned a reputation for being at the forefront of ethical free-range dairy farming – and for being committed to socially responsible and environmentally friendly farming practices.

This means reducing the carbon footprint of their production, to remain transparent with customers and to ensure a happy workforce on the farm.

The well-being of the livestock on the farms is also a priority – and one would be hard-pressed to find happier cows anywhere. The animals are free range and housed in state-of-the-art open-sided barns with fans to keep

them cool. They eat natural feed, with no artificial hormones – and are even treated to the occasional massage to keep them content.

In terms of work philosophy, a priority for the family is for Fair Cape to have “a point of differentiation”.

“I believe strongly that if you make no difference you don’t really matter. As big commercial farmers, it is crucial that we

respect the environment. Hence our motto, “Doing the Right Thing,” says Melt.

“We are also passionate about conveying this message to our consumers. We want them to know what we stand for – and that is to produce value-for-money, healthy products.

“We are as passionate about looking after the employees of the organization. The company places a big emphasis on the

Human Resources side of the organization. Numerous staff members have gained excellent qualifications and training opportunities as a result of their connection with Fair Cape. That will stay part of our philosophy for as long as we remain in operation.

Asked to expand on Fair Cape’s plans for the future, Melt says:

“We will certainly continue to build the business. One of the big projects I am currently looking at is to generate our own electricity from the farm milk production unit.

“The waste product from dairy production facilities, cow manure, is a fantastic source of methane gas, if processed under the right conditions – and that methane gas can be used to generate electricity.

“If we can achieve this, it would be a huge add-on to the point of differentiation of the organisation.”

The company – which already publishes the carbon footprint used for milk production on its milk bottles – is on a concerted drive to lower the carbon footprint.

“That is something we will pursue heavily in the next year or two,” says Melt.

Asked what lessons he’s learnt along the way, Melt says: “For me it has been all about knowing how much I didn’t know! It was a formidable eye-opener to understand how much knowledge is required from an entrepreneur to move from a small-sized business into a bigger operation.

“When I started this business I only knew about civil engineering. I thought I was quite clever. It was only when I started this organisation that I started learning about all the other disciplines involved in business.”

On the future of agriculture in SA: “South Africa’s farming community is hugely skilled and rates among the best in the world. The commercial farming community is well organized and I believe South Africa should be able to supply into their own needs and to export product into the rest of Africa. They will however, need to find innovative ways involving the total community of South Africa in the farming environment. There are big projects on the go to try and accommodate that. I am not sure that they are moving fast enough, but if they can achieve that hurdle there is a great future for SA agriculture.”

Sue Segar



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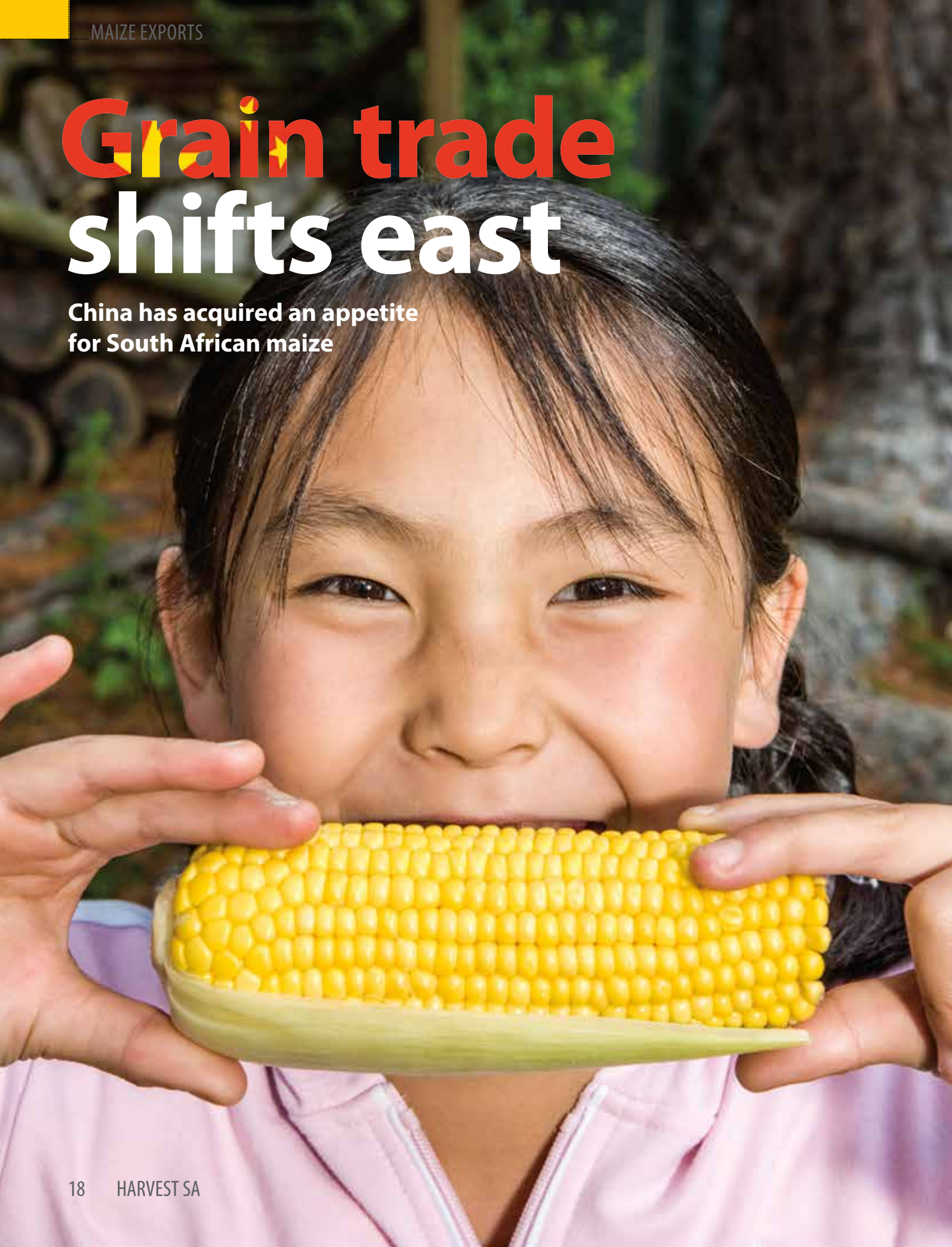


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Grain trade shifts east

China has acquired an appetite
for South African maize



In December 2014 an agreement was concluded between South Africa and China, which is considered to be a critical milestone for grain farmers, the people of South Africa and our economy. So we read about this in the news and we hear about it as people talk amongst each other, but what does it really mean? How will this change the life of grain farmers and the normal citizen of SA? I have even heard people asking if SA even has any surplus maize to export to China.

This article will hopefully assist in understanding the importance of this agreement and the impact it could have on stakeholders.

What agreement was signed with China? Minister Senzeni Zokwana, Minister of Agriculture, Forestry and Fisheries and Minister Zhi Shuping (AQSIQ, Beijing) signed the protocol for phytosanitary requirements for exports for maize to China. This is basically an agreement where the two countries agree on the requirements that have to be met to allow maize to be exported.

Do we even have any surplus maize to export to China? Yes, certainly we do. South Africa is in the privileged position to be a food-secure country, meaning we produce more basic food than we consume. On average SA produces 12 million tons of maize per annum, of which we consume approximately 9 million tons per annum



locally. We export close to 1 million tons to neighbouring countries such as Zimbabwe, Botswana, Lesotho, Swaziland and Mozambique, which leaves us with about 2 million tons per annum to export overseas.

What are the Chinese going to do with the maize? Rice is actually the staple food of the Chinese, but like most countries they use yellow maize as a vitally important ingredient

in their animal feed. China has one of the fastest growing economies in the world. A sign of a healthy growing economy is growth in the middle class, which is exactly the case in China. The middle class is more interested in meat as their main source of protein, mostly derived from poultry and beef. Yellow maize is a great source of protein in animal feed and also adds a sweet taste!



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Tina Joemat-Pettersson (former Minister of Agriculture) was a prime mover behind the deal

Why is China interested in our maize and how much do they need? You might not believe it, but South African farmers produce some of the best quality maize in the world. Not only do we produce good quality maize, but we are also ideally geographically located for deep-sea exports. China imported on average 2.9 million tons of maize of the last 5 years. China usually imports maize from the USA, but have also since 2013 been importing maize from Argentina and the Ukraine.

Although SA is not the cheapest we are certainly positioned favourably to compete against other exporting countries. We produce such good quality maize that some countries are willing to pay a premium for it!

When can we expect China to take their first shipment? Maize is a summer crop and is harvested from April to July. South Africa's window for export opportunities is usually between July and October, which is when surplus crop is available for export and our prices are usually attractive for importing countries. If the Chinese buyers are ready to buy maize from SA, there is no reason why exports can't start soon in 2015.

How will it affect consumers in South Africa? The main goal of Grain SA is ensure that the people have access to affordable food and

that farmers can produce grain profitably and sustainably. If we produced less food than we consumed, we would have to start importing food. Importing food is more expensive than producing it locally, which would result in a massive increase in the price of basic food. On the other hand, if farmers produce a big surplus crop, you will see the prices of food falling. If there is no market to export the excess maize to, the prices will drop below the cost of producing the crop, which ultimately makes farming unprofitable and could result massive job losses.

If SA consistently produces a surplus crop and we have permanent markets to export to, we will achieve the following:

- Our economy will earn foreign currency from exports
- We will create and sustain jobs in the agriculture sector
- The consumer will enjoy affordable food
- South Africa will remain a food secure country
- Farming will be sustainable

Who should we thank? The development of the export market for maize to China follows the hard work started by Neels Ferreira, former Chairperson of Grain SA, and Minister

Tina Joemat-Pettersson (former Minister of Agriculture) who initiated the process in 2011.

Grain SA would like to extend its gratitude towards Minister Zokwana and the personnel at the Department of Agriculture, Forestry and Fisheries for the hard work that they have done to conclude the agreement.

Willem Voogt, Grain SA





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MOBILE SURGE

Is mobile innovation Africa's agricultural silver bullet?

The best catalyst for game changing technological innovation is facing the hardest problems. Africa, and in particular, the agricultural landscape, has some seriously hard problems to solve. Therefore it is the perfect laboratory to facilitate the development of these technologies. In recent years, we have seen many pockets of technologies being developed across the continent, especially in the field of mobile communication, each claiming to be the initiator of the agricultural revolution in Africa.

Many African leaders have been very vocal about the major impact these technologies will have on the agricultural landscape.

Personally, I have my doubts, and believe the answer to the problem is more complex than going with the "there's-an-app-for-that" solution.

"Africa is the future breadbasket of the world"—is a phrase grossly overused in boardrooms around the world. With a world-beating annual economic growth rate of almost 6% it's hard to argue the point. However, there remains a major disconnect between economic growth and Africa's ability to feed its ever-growing population, with an estimated 25% of the people in Sub-Saharan Africa chronically undernourished.

How is this possible, with whopping 65% of the working population

involved in agriculture contributing 35% to the continents' GDP?

Despite this it remains a net importer of agricultural goods.

In 2003 the African Union's development agency, the New Partnership for Africa's Development, called the Comprehensive Africa Agriculture Development Programme (CAADP) challenged all African nations to increase their budget allocation for agriculture to 10% (with the average being 4%) and aim for an annual agricultural growth rate of 6%. Over 40 countries signed up for the challenge, but only a handful actually implemented it.

Malawi, Senegal and Sierra Leone were of the few who fully adopted the CAADP's programme and have seen some major improvements in their agricultural production due to their governments' commitment to increase agricultural spending. Most notably, Rwanda, who adopted the CAAD agenda in 2007 has in six years seen a major improvement in maize production – up 213% from 0,8 t/h to 2,5 t/h.

Being involved in the high end of technology within agriculture, I come across many technologies developed for an African environment.

Many innovation hubs are popping up across the continent, with Kenya leading the charge.

Most notably, IBM launched its famous innovation hub in Nairobi just over 12 months ago with the aim of solving problems through the use of cognitive computing.

Most of the agricultural-tech being developed is aimed at providing the smallholder farmer with more relevant in-time information about best practice, disease control and market information.

Over 75% African farmers own a mobile phone, so these developments seem perfectly logical, but are they having an actual impact in addressing the ever-mounting macro economic issues the continent face.

I believe too much emphasis is placed on these technologies being the “savior” of the smallholder farmer largely because it seems like the easiest solution.

It’s almost a case of trying to run before learning to crawl.

There are some very basic physical issues that need urgent attention, which will make a huge difference before any technological interventions have been implemented.

Mentioned below are just a few of the physical challenges that could easily double agricultural output in Africa when properly addressed:

Access to capital. Everything in the farming cycle needs capital. Without capital, the farmer can’t buy quality seed or fertilizer, meaning he is already on the back foot. Access to capital can be greatly improved if governments sort out land tenure, giving many more smallholders official ownership of their piece of land. This will in turn allow smallholders to qualify for a loan using their land as collateral.

Logistical support. Increasing a farmer’s production is pointless if he can’t actually sell the produce. Vastly improved transportation infrastructure is required, to connect the farmers with markets. Only once the transportation network exists can mobile technology facilitate optimum routes as well as timing.

Location specific ecosystem based adaptations. Climate change is set to hit Africa the hardest. With more than 50% of the fertile land being unutilized, governments can take an active role in allocating suitable land and matching the crops to be cultivated in the unique ecosystem. (soil type, rainfall etc)

Smart water management. Water is by far the most important requirement in food production. Africa has an abundance of it, but only manages to use 2% toward agricultural production. (Global average: 5%)

95% of farmers rely solely on rainfall for irrigation. Building more dams and waterways will give more farmers a stable water supply, which will increase production dramatically.

A great interactive infographic by FarmingFirst highlights many other factors: Africa’s Agricultural Potential

How can technological innovation play a vital role?

Firstly one needs to look at the commercial sustainability of the technology. Too many of the innovations aimed at the smallholder are being funded by multinationals or donor funds for a limited time without a clear roadmap of commercialization. If it can’t sustain itself without external sponsorship, it will fail.

And the big loser here is the farmer.

Many of the mobile technologies are simply dumbed down versions of their commercial farming counterparts used in vastly different environments. A bespoke smallholder approach needs to be taken where we address the seemingly simple challenges they face for example – how much fertilizer should I apply to my piece of land?

Better Internet connectivity could also facilitate richer visual content such as video which will bridge the literacy gap (more than 1 in 3 adults cannot read.) Google is developing some very promising technology in this space – see Google Loon.

Lastly, a ubiquitous platform to house all these mobile technologies will greatly improve adoption rates and usability. Currently the implementation of the various technologies is erratic and very confusing for the farmer. There is a very big drive in the development of multiple technologies, but little actual consideration for how exactly it will be implemented.

In conclusion

Although my post mostly points out the shortcomings of the mobile technological innovation currently being implemented in Africa, I believe that by taking a more holistic approach to the challenges faced by the farmer on the ground, technology can facilitate and speed up the much needed agricultural revolution in Africa.

Communication needs to be at the heart of this development, whether by connecting

people remotely, supplying real-time information informing better decisions or raising the education levels.

This is only possible when all the African innovators stand together and collaborate with the single goal of solving the hardest problems the world has to offer, in Africa.

Examples of mobile agricultural innovation in Africa

iCow (Kenya)

iCow helps cow farmers maximise breeding potential by tracking the fertility cycle of their animals. Think of it as a virtual midwife for cows, giving farmers valuable tips on breeding, animal nutrition and milk production efficiency to help increase milk yields and ultimately their income

– (credit: Ken Banks) <http://icow.co.ke>

Esoko (Uganda)

Esoko is an information and communication service for agricultural markets in Africa. It is a response to the explosive growth of cellular services across the continent. The company provides advice to farmers (market prices, weather forecasts, and growing tips) to help them increase yields and profits as well as solutions to businesses (marketing products, monitoring activities, and sourcing goods) to help them connect with farmers. (Wikipedia) <https://esoko.com>

CocoaLink (Ghana)

CocoaLink is a mobile technology service that delivers timely farming, social and marketing information to cocoa farmers in 15 communities in western Ghana to improve incomes and livelihoods.

Cocoa farmers who subscribe to CocoaLink receive and share practical information via SMS text and voice messages with industry experts and other farmers. CocoaLink is available to any Ghanaian with a cell phone, with messages delivered in English or the local language.

<http://worldcocoaoundation.org/cocoalink/>

Ruan Boezaart
TwentyTwo Media

Sources:
UN: AfricaRenewal 2014 edition
World Bank
ICT for Agriculture in Africa

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In pursuit of a better barley

The South African Breweries (SAB) has launched Better Barley Better Beer, a programme to encourage and support sustainable farming practices among South Africa's barley farmers... with the vision of them supplying over 90% of the brewing giant's barley

Better Barley Better Beer, in partnership with the World Wildlife Fund for Nature of South Africa (WWF-SA), is in its pilot phase in the dryland area of the Southern Cape as well as in the irrigated barley areas in the Northern Cape. The pilot stage is focused on water reduction, improved carbon footprints, soil health and clearing of alien vegetation (as well as the protection and restoration of ecosystems) and is set to run for approximately two years.

The Better Barley Better Beer programme involves a total of 26 barley producers who have either voluntarily opted to participate or who have been engaged because they hold important conservation assets on their properties. These assets include endangered veld, important water catchment areas and critical species.

Through structured engagement and advisory support, Better Barley Better Beer is aimed at empowering barley farmers to

understand and implement sustainable farming practices, with 15 located in the dryland area and 11 in irrigation. The programme is an important element of SAB's global sustainable development framework called Prosper, which highlights tangible targets to be achieved by the company over the next five years in the areas of responsible alcohol consumption, securing water resources, reducing waste and carbon emissions, supporting small enterprises, including emerging farmers, and the support of responsible and sustainable land use for brewing crops.

Farmers with critical conservation assets will be supported in engaging on biodiversity stewardship with the aim of protecting and restoring ecosystems. The stewardship concept is a new way of achieving conservation protection by creating positive, proactive partnerships with private landowners and conservation bodies, such as WWF-SA.

"The WWF-SA's interest in Better Barley Better Beer is to support farmers as key custodians of our South African natural resource base, with advisory extension support to adopt best practice that ensures farming maintains, protects and restores key natural systems, while minimising the environmental impact of production activities for the benefit of producers, as well as downstream users," says Inge Kotze, WWF Senior Manager: Sustainable Agriculture.

The Better Barley Better Beer Guidelines was developed in collaboration with the WWF-SA, SAB Agriculturists as well as local barley farmers, and it drives the implementation of the programme by each producer.

The guidelines provide farmers with criteria, indicators and verifiers to measure how sustainably they are farming. Key indicators contained in the guidelines allow farmers to self-assess their performance using a checklist provided. They are also able to easily identify strengths and weaknesses and develop action plans in order to correct deficiencies.

"The guidelines are designed to empower the barley farmer to make the right decisions today to ensure the sustainable production of local barley into the future," says Thinus van Schoor, General Manager SAB Maltings.

The pilot is aimed at reducing the cost and risk of doing business and improving crop

production, a 'zero sum game' for the farmer. Using key metrics, farmers will be able to track improvement and progress over time to support the development of a business case for sustainable production and they will be able to demonstrate the impact and value of changing practices at farm level and elsewhere in the chain.

SAB intends for the Better Barley Better Beer key metrics to be systematised into accepted industry standards, much like the

Farmers will be supported in engaging on biodiversity stewardship

Barley Passport it introduced in the 2005. The Barley Passport contains detailed information on chemicals applied on the produce and only that which is registered will be purchased by SAB.

Better Barley Better Beer allows SAB to build on its strategic business objective to help grow the local barley industry and secure its future growth and sustainability. This is in line with South Africa's strategic plan for sustainable agriculture and the Department of Agriculture's policy for sustainable development.

Through Better Barley Better Beer and other sustainable agriculture initiatives, including the construction of a multi-million rand SAB Maltings plant in Johannesburg and its Go Farming programme (which is geared at establishing and supporting emerging farmers), SAB intends to source more than 90% of its barley requirements from local producers.

"Having a fully-fledged and sustainable local barley sector means SAB can rely on contracts with local producers for approximately 93% of its brewing requirements, enabling us to hedge against volatile global commodity markets and, just as importantly, to keep tighter control of quality and ensure

a sustainable barley growing sector," says van Schoor.

Historically, SAB has played a pioneering role in the South African barley industry. It began growing barley locally more than three decades ago, a strategic attempt by the company to become self-sufficient. Since those early days, SAB's support for the local barley industry has strengthened considerably and the company is today regarded as a critical role player. The strategic industry partnerships it has developed, as well as its close working relationship with producers, is what has helped to yield successes and drive further sustainable growth.

"Our collaborative approach within the agricultural sector has proven to be the most effective method in creating sustainable growth, which is a key objective of any SAB investment. The existing knowledge and skills within the industry is invaluable to success," says van Schoor.

This focused commitment by SAB to investing in the local barley industry extends to developing and supporting a more inclusive environment with equal opportunities. These efforts stretch as far back as the early 1990s when SAB initiated the Taung Barley Farmers Project in the Northern Cape. The programme has helped to encourage local barley production and create a sustainable source of income for smallholder farmers and it now supports more than 120 smallholder farmers, each generating a sustainable income with guaranteed access to market as supported by SAB.

About 160 000 tons of barley are currently grown in the Southern Cape and a further 55 000t (64 000t in 2013 and expanding to 94 000t tons in 2014) are produced in the irrigation areas of the Northern Cape. SAB helped establish South Africa's barley growing sector in the 1970s, a strategic move to become self-sufficient in producing the key brewing ingredient.

The next phase of the Better Barley Better Beer pilot will be the roll out of specific guidelines to small scale and emerging farmers in the Taung area. These guidelines will be tailored to focus on training the farmers rather than auditing them.

*Azure Janneker
SAB Media Communications*

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The perfect model of sustainable farming

An ingenious patent from a lecturer at the Cape Peninsula University of Technology offers hope for a brighter future for small-scale sustainable farming

The Cape Peninsula University of Technology (CPUT) places great emphasis on research and innovation and has built an international reputation for the innovative and sometimes pioneering spirit of its academic and research staff. CPUT is particularly proud of the sustainability implications of the latest patent registered by a member of their academic staff, as it could have far-reaching implications for the environment. It could also play a major role in enabling small and under-resourced communities to cultivate food for sustainable living and for income generation.

"This invention will allow sub-social as well as affluent, environmentally friendly communities to promote entrepreneurship, create awareness of green energy, and supply sustainable livelihoods throughout," said Fareed.

The system consists of an aquaculture unit to breed and grow fish as well as a hydroponics water filtration unit that facilitates the growth of vegetables and fruits. The invention also relies on renewable energy such as solar thermal, wind and photovoltaic energy as a power source, together with a programmable control system.

Aquaculture as well as fresh produce farming is normally only available on a large scale and requires huge capital and

aquaponics system together," he said, adding that this invention will also ease the strain on depletion of natural resources in oceans, dams and rivers, as well as potentially lowering the carbon footprint by providing a sustainable, energy efficient means to provide food.

Recently Ismail harvested the first greens from the prototype, together with Dr Nawaz Mahomed (Dean of Engineering) and Prof Modi Kuanda (Head of the Mechanical Engineering Department). Dr Mahomed is positive that this pilot will provide a sustainable livelihood opportunity for many communities.

Fareed Ismail was also project supervisor in 2011 for a group of 11 CPUT Btech Mechanical and Electrical Engineering students who found an unconventional way of ensuring that humans don't cause the extinction of animals that are cultivated or caught, while similarly conserving the environment and maintaining a constant food supply. Group leader Llewellyn Cupido said their mandate was to develop a concept which would be both feasible and as environmentally friendly as possible, the result of which was their self-titled SPOFF (Self-Powered and Operational Fish Farm), a small-scale shipping container that can be used to farm fish and which is powered using wind and solar energy.

Motivated by the rapidly declining numbers of wild fish in our oceans, their prototype consisted of five separate systems, including a housing system (shipping container, insulation), a water treatment system (tanks, pump, and filters), the power supply (wind turbine, PV panels) and a data acquisition system (this measures the water parameters). The most unique feature about the SPOFF fish farm is that it all occurs on land. Cupido says

This invention will allow sub-social as well as affluent, environmentally friendly communities to promote entrepreneurship, create awareness of green energy, and supply sustainable livelihoods throughout

Towards the end of 2014 Mechanical Engineering lecturer Fareed Ismail had a patent registered for his Small Scale Modular Solar Powered Aquaponics System, an invention that will allow communities to do small-scale farming, especially in areas where there is little or no infrastructure and low levels of expertise.

infrastructure layouts. However, Fareed's invention opens the door for smaller scale and more intense farming by combining renewable energy, aquaculture, hydroponics and tunnel farming systems.

"The possibility of expansion where required in rural or urban settlements globally will be feasible by linking more than one modular

the group was motivated by the fact that traditional methods of fishing have led to a decline in fish numbers globally, and the SPOFF system offers a possible means for reversing this phenomenon.

“One must take in mind that this is a complete paradigm shift, a mind change from the traditional fisherman going out to sea and catching fish. Now, there is an opportunity to no longer solely rely on nature, but rather to take charge and breed fish,” said Cupido. “We also want to incorporate a crop husbandry alongside the container, which will be fed by the farm’s waste water,” said Cupido.

The low-cost fish farm is also beneficial in that it provides a sustainable source of income, and a test is currently running with a system they installed in the Belhar community centre. They will run this test unit so that they can collect the empirical data needed to guide them in adding improvements to the design where needed.

“If the improvements are successful, the next step will be to market the project to communities as a business opportunity,” said Cupido.

The project formed part of the group’s Design subject, and lecturer Ismail said there were specific rules and regulations to which they had to conform. Factors such as social

standards, willingness to participate and location were also taken into consideration when they identified a community to be the project’s first guinea pig.

“They worked very hard and the handover to the community bears testimony to this,” said Ismail of the successful completion of a project which, along with Ismail’s own new patent, could one day be seen as two giant steps for sustainable farming.

Tina Brancusi

*With thanks to Candes Keating
and Janis Kinnear*



International Year of Soils

Why does it matter?

Far from being dirt, soil is a precious resource

The United Nations has declared 2015 to be the International Year of Soils. The intention is that more attention is paid to soils, more focus is given to soil-related aspects and awareness raised about how important soils are, not only for agriculture but for virtually all human activities. This initiative has been fully embraced by the Agricultural Research Council--Institute for Soil, Climate and Water (ARC-ISCW), which was established in 1902 and is widely regarded as a leading centre of expertise in the field of Soil Science as well as Analytical Services. The ARC-ISCW is committed to improving rural livelihoods, agricultural productivity, food security and the sustainable utilization of the agricultural natural resources, soil, climate and water.

One of the most important aspects of soils is that they can change dramatically over a very short distance. Whilst the soil beneath your feet may be a deep, red, structured soil with a high agricultural potential, a few steps further on the soil may become grey, shallow and gravelly, with no real prospect of cultivation. Most of the variability in soil features only

occurs below the surface, making it necessary to carry out a soil survey and to make deductions from this exercise, and eventually to produce a useable soil map.

Soil is not the only important natural resource – climate, mostly in the form of useable rainfall, also plays a vital role. Many parts of South Africa have potentially productive soils but limited rainfall, both annually and seasonally, meaning that no crop production is possible except for the naturally adapted vegetation. All crops and plants have a specific soil and climate requirement and it is vital to establish these parameters before any decisions are taken.

Soil fertility, defined as the amount and proportion of useable nutrients occurring, can also change rapidly, both spatially as well as over time. This is especially prevalent where cultivation is concerned, as the crop will extract nutrients from the soil which need to be replaced before another crop is planted.

Soils are fragile and can easily and rapidly degrade. This may take the form of physical degradation, such as erosion by wind or water when the vegetation cover is disturbed or removed, as can be seen by the network of dongas visible in many parts of South Africa. Another form of degradation is

chemical degradation, where some form of loss of nutrients or organic matter can leave the soil very depleted, but potentially more serious is pollution, whether by salinity or by man-made activities such as mine-related or industrial pollution (e.g. spillages). Once the soil profile is affected by these processes it can be very difficult, if not impossible, to restore it to a healthy state.

There is a vast amount of information on South African soils, their characteristics and distribution. Much of this is freely available





from the ARC-ISCW, but some information is held by private companies or is not at a sufficiently detailed scale to allow effective use, such as for farm planning. In addition, although much information is digitized and electronically available, many sources are simply historical maps, some of which need careful interpretation to be of practical use.

Research has been carried out on South African soils for a century or more, both by government institutions as well as universities and agricultural companies. Some of this research

has been ground-breaking and has allowed the knowledge base to grow rapidly, while new techniques, both on the ground as well as from satellite imagery, are developing all the time.

All of the above topics will be addressed in more detail in subsequent articles, in order to give readers an insight into the complexity, variety and fragility of our soils, as well as to hopefully establish an appreciation of their contribution to mankind's existence. For example, the bricks that we use to build houses are made from baked clay, and clay

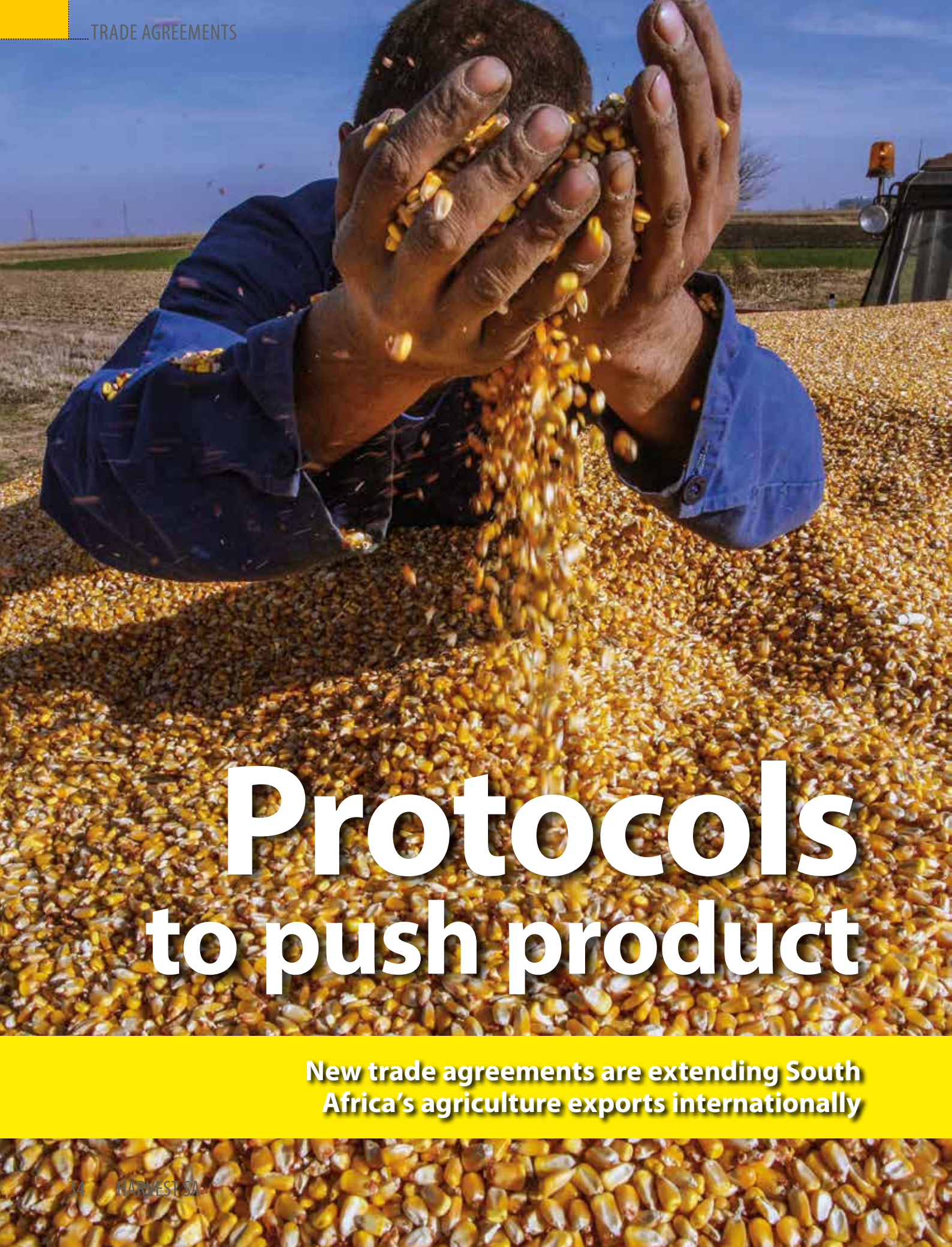
is the most fine-grained type of soil. In contrast, the beaches that so many people enjoy while on holiday comprise sand, which is a very coarse-grained type of soil. In short, we could not exist without soil and hopefully the International Year of Soils will help us realise that we must not treat soil like dirt!

For more information contact:

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E-mail: garry@arc.agric.za

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A close-up photograph of a person's hands, wearing a blue long-sleeved shirt, pouring a large quantity of bright yellow corn kernels. The kernels are falling from the hands into a vast, deep pile of the same corn that fills the foreground and middle ground. In the background, a clear blue sky is visible above a flat landscape, with a portion of a yellow tractor or combine harvester visible on the right side.

Protocols to push product

**New trade agreements are extending South
Africa's agriculture exports internationally**

South Africa has concluded a number of trade agreements recently that bode well for the future of agriculture in this country. China, Cuba and Mexico feature especially prominently in the new agricultural export landscape.

Last December Minister Senzeni Zokwana (South African Minister of Agriculture, Forestry and Fisheries) signed the protocol for phytosanitary requirements for maize exports to China with Minister Zhi Shuping, (General Administration for Quality, Supervision, Inspection and Quarantine of China (AQSIQ), Beijing). Jannie de Villiers, Grain SA's CEO, heralded this as good news as it offered market access for South African maize into the Chinese market, adding that the agreement will play a vital role in laying a solid foundation for the sustainable growth of South Africa's agricultural sector.

Over the last five years China has imported an average of 2.9-million tons of maize each year, with these imports varying annually from 980,000 tons up to 5.2-million tons. The expectation for the September 2015 marketing year is that China will have to import 2.5-million tons of maize. China usually imports maize from the USA but since 2013 they have also started importing from Argentina and the Ukraine.

Redirecting trade to new and possibly more sustainable markets remains a key

focus area of Grain SA and, to this end, innovative interventions are continuously sought and required in order to capitalise on these markets. The focus is particularly on finding alternative markets for maize over and above the current established African markets, and can be anywhere from Asia to the Middle East and beyond. However, compliance to biosecurity remains a key focus area for our grains in order to enjoy international and regional market access. South Africa has an advantage above other competitors in the market due to its favourable location for exports along with our ability to produce some of the best quality crops. South African grain producers constantly produce surplus crops and this not only benefits the consumer by way of providing more affordable staple food, it also contributes to the country's export earnings. Permanent export markets such as China will encourage local producers to continue producing surpluses, and this fact also ensures the food security of South Africa.

The development of the export market for maize to China follows the hard work started by Neels Ferreira (former Chairperson of Grain SA) and Minister Tina Joemat-Pettersson (former Minister of Agriculture, Forestry and Fisheries), who initiated the process in 2011.

"This really means a lot to the people of South Africa and the producers who feed the nation," said De Villiers.

This was one of a number of new strategic agreements signed between South Africa

and China in December, which are aimed at strengthening bilateral relations and trade co-operation, as well as creating sustainable investment opportunities between the two countries.

"We need to improve co-operation in the financial sector, allowing easier access to each other's financial markets," said President Jacob Zuma after the meetings with his Chinese counterpart, Xi Jinping, in Beijing.

The signing of the agriculture-related agreements was "affirmation that both countries stand ready to strengthen personnel and technology exchanges as well as promote agricultural capacity building through exchanging delegations", said a statement from the Presidency.

The agreements are aimed at helping to improve the agricultural capacity of both countries, in addition to strengthening the relationships between the countries' research institutes, universities and colleges. Plans are in place for hosting technology and management workshops, as well as the exchange of experts between the countries.

Zuma said that he hoped South Africa would be able to learn from China's experience and he welcomed Chinese investments in South Africa across a range of industries.

SA rises to third place on Cuba's list of trade partners

South Africa's minister of trade and industry, Rob Davies, recently signed



amendments to the Agreement on Economic Assistance (which aims to stimulate bilateral trade) in Pretoria with Cuba's ambassador to South Africa, Carlos Fernandez de Cossio, towards the end of 2014. These followed from President Zuma's 2010 announcement of the R350-million economic assistance package to Cuba following his state visit to the country. South Africa's assistance is greatly in demand by Cuba in terms of agricultural development as well as infrastructure reconstruction as the country looks to rebuild itself after the devastation it suffered in the 2008 hurricanes.

"R5-million is for purchase of seeds in South Africa, and the remaining R35-million for purchase of seeds either in South Africa or elsewhere in the world," said Davies. The agreement was originally signed, ratified and finalised in 2012, but implementation had been delayed due to a number of reasons, among which was the withdrawal of the Industrial Development Corporation as a facility agent.

"This meant that a new facility agent had to be found, and the DTI is pleased that Dirco [Department of International Relations and Cooperation] - through the African Renaissance Fund - agreed to act as the new facility agent. The DTI and other government departments such as the Department of Agriculture, Forestry and Fisheries and the National Treasury as part of a steering committee will continue to provide support to Dirco," said Davies. "We hope this will be a catalyst for strengthening commercial relations generally."

Trade between the two countries has more than doubled in the four years up to 2013, reaching a high of R63-million in 2013. These improved relations following the signing of the amendment will see South Africa rise to third place in Cuba's African trade partners in Africa, behind Algeria and Angola.

Mexico in SA's top three traders in the region

Mexico is proving a good ally for South African trade and investors. Not only are we Mexico's

largest African trade partner, we are also their largest African investor. In October, South Africa's international relations and cooperation minister, Maite Nkoana-Mashabane, signed six co-operation agreements with her Mexican counterpart, Dr José Antonio Meade Kuribreña. These agreements were aimed at strengthening relations between the two countries, including the 'Action Plan: South Africa and Mexico towards a priority relationship'.

"We should also acknowledge the fact that other forms of co-operation are equally important, covering the building blocks of society, such as food security, science and technology, social development, health, water resources, conservation, youth and education, as well as arts and culture," said Nkoana-Mashabane, adding that the co-operation agreements were in line with the NDP's New Growth Path priorities.

Trade with Mexico has grown to the extent that it is now one of South Africa's top three trade partners across Latin America and the Caribbean.

Sources: Grain SA, Media Club South Africa, SAnews.gov, Bloomberg,

According to the Bloomberg news agency, unconfirmed reports are suggesting that the Chinese Ministry of Agriculture has approved removing the ban on imports of the strand of GMO corn.

"Syngenta says it expects China will approve imports of the controversial strain of corn at the center of a series of legal disputes 'in the near future'. Acceptance from China would be good news for corn growers, even those that don't use Vipitera. Virtually all corn exports to China were halted after that nation detected the Vipitera strain in import cargos in November 2013," reports Bloomberg.

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Hazelnut growers enjoying sweet export opportunities

The success of South Africa's first hazelnut factory could, over the coming years, give the industry a delicious boost in terms of job creation as well as helping to swell export income

It wasn't long after more a group of more than 100 South African and Italian commerce and policy leaders met in Cape Town at the South Africa-Italy Summit last year, that Italian luxury confectionary company Ferrero Group (which produces well-known brands Nutella, Kinder and Tic Tacs), started quietly consolidating its operations in South Africa.

Zola Skweyiya, the Ferrero Group's special advisor, said that Africa's first ever hazelnut factory has the potential to create large-scale jobs and boost local exports. Currently, the family-owned company employs about 500 people at its Gauteng operations, and their turnover exceeded €7.2-billion in the 2010-11 financial year. In June 2009 they opened their 9000m² production facility in Walkerville, Gauteng.

"In KwaZulu-Natal the plant will be bigger but the [hazelnut] trees are still growing," said Skweyiya. "If it is found that they are thriving in that area, they will plant more hazelnuts and we will be able to use those hazelnuts to export to other parts of Africa."

Skweyiya was speaking at the South Africa-Italy economic summit organised by The European House-Ambrosetti, an international policy and commerce think tank. Skweyiya said construction on the plant in KwaZulu-Natal commenced about five years ago.

"There are no hazelnuts in Africa. It is the first time they are being planted on the African continent. So it creates a new adventure for production in Southern Africa and it creates more local jobs."



In 2013, Tommaso Degregorio (who manages Ferrero trials in SA) told local agriculture magazine *Farmer's Weekly* that the group believes that there are good reasons to invest in hazelnuts.

"It's an attractive long-term investment, it's something different, and it requires a reduced amount of work compared to crops like cherries. Nuts can also be stored for a long period and can be transported without any problem," said Degregorio.

South Africa competes against southern hemisphere hazelnut-produce countries such as Chile, Argentina, New Zealand and Australia, with climatic conditions in Chile in particular being very similar to those in South Africa. The company's Chile operations have been operating for 20 years.

"Chile is now a strong and modern hazelnut market. That is what we would like to replicate in SA," said Degregorio.

Writing in the *International TradeProbe*, economist Asanda Languza believes South Africa has huge potential for hazelnut production.

"The production of hazelnuts has an added advantage because it has counter seasonality from the northern hemisphere, which produces in September. South Africa could sell hazels between March and April," said Languza.

Bilateral trade between South Africa and Italy was worth around €3.5-billion (R51.5-billion) in 2013. The South Africa-Italy Summit, organised with the help of the Italian and South African embassies, EXPO 2015 and the Black Business Council (under the theme Building Communities of Leaders for Growing their Enterprises) aimed to further bolster bilateral business and economic ties between the two countries.

SAnews.gov and SAinfo reporter

NEXT-GENERATION FARMING

Generation Y is doing things differently



Satellites, drones, multispectral imaging and cloud computing... To some, these terms elicit images of a military operation, but surprisingly these are the words now used by a new breed of farmer, the Generation Y farmer.

I fondly remember going to my cousin's family farm over summer vacations as an eight-year-old boy. I used to be amazed (and very envious) that he was allowed to drive the pickup truck at his tender age. The reason for

this was more practical than I assumed back then, because as soon as his feet reached the pedals he was deemed mature enough to be integrated into the farming operation – according to his dad at least. From this moment on the farmer starts passing down the generational farming knowledge which makes up a blueprint of how everything is done on the farm – this is the way of the Traditional Farmer.

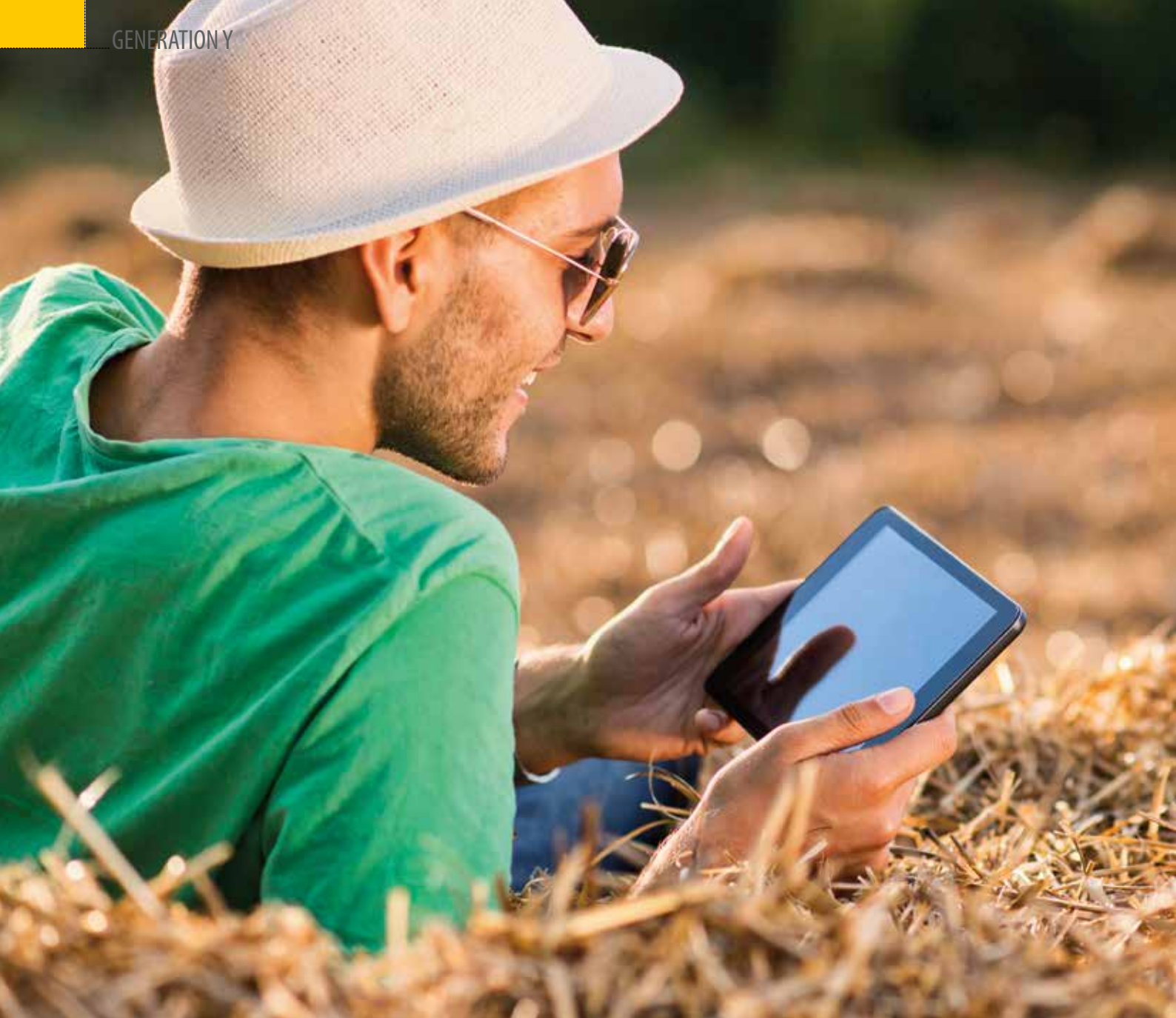
He is connected to his land on a deep emotional level, and pity the fool suggesting a different way to till the land.

After the technology boom in the late 90's, spurred on by the advent of the Internet, a new trend has been emerging with the latest generation of farmer.

This new farmer started to question the status quo prescribed for generations, and asked the critical question: – "Is there a better way?"

Enter the Generation Y farmer

The new breed of farmer has a clear understanding that farming is not a means to an end, but a business, which is subjected to all the competitive forces and risks irrespective



of the lineage of the land. The Generation Y farmer, similar to a great CEO, understands that it is impossible to be a jack-of-all-trades. He needs an A-team of specialist consultants across all areas of the agricultural growth cycle in combination with leading new technology to ensure maximum optimization of the entire farming operation.

Agricultural Science

In order to grow a plant optimally the farmer requires multiple specialists in various areas. For example, a Soil Scientist only focuses on the variation and health of the farmer's soil. Other areas of scientific specialty include

Irrigation, Climate, Plant Nutrition, Orchard Design and Risk Management.

Remote Sensing

On the technology side, there are a multitude of cutting edge tools available with the potential to exponentially optimize the operation.

Remote sensing technology from satellites and drones provide real-time layered aerial images of the farm pinpointing where any potential problem areas, likely due to disease, environmental or nutritional deficiencies lie. This helps the farmer to act faster and more accurately to address the problem before it

negatively affects output. These images are gathered on a weekly, sometimes daily basis, building a rich collection of data, invaluable for future decision making analysis.

Water Management

The correct amount of water at precisely the right time makes a huge difference to the health and output of a plant. Smart irrigation systems have been developed which physically measure the water needs of the plant via sensors (sometimes inserted into the plant). Cloud based software then remotely regulates the supply of water dynamically to each and every plant on the farm.



Big Data

Every facet of the production cycle generates an enormous amount of data, which is firstly used for on-farm reactive decision-making as per the examples above, and secondly an opportunity exists to process this data into intelligent information providing a unique farm-DNA of sorts, which will enable more accurate decision making as the dataset grows.

What's next?

I believe we have only scratched the service when comes to the optimization of

agriculture through technology. This is largely due to the nature of agricultural innovation, which is usually funded by an input supplier seeking a competitive advantage in order to sell more of its product. This has led to the industry being flooded by multiple software platforms, each only compatible with data derived from its associated product. Our farmer thus has different software platforms processing his irrigation, combine, fertilizer and crop protection data, nullifying the massive potential of this data once combined.

Although there are some cloud based platforms offering basic data cross-compatibility, it is far from being ubiquitous, and still funded by selective input businesses.

The real game-changer in this space has yet to be developed – a single intuitive operating ecosystem that collates and delivers the information in an intuitive way, compatible with all data sources from the tractor to the irrigation probe. Once all this data is in one location, existing algorithms and cognitive computing technology can process it into the most powerful and accurate decision-making tool known to man, potentially nullifying the unpredictability of farming in the not-so-distant future.

Is there room for a Generation Y – smallholder?

All of technological advancements above beg the question: How is all of this knowledge, best practices and technology being

applied to the continent with the most agricultural potential acre-for-acre? The short answer is, it's not filtering through to the smallholder in Kenya with ¼ acre plot of maize.

The reason is fourfold—accessibility, finance, scale & education. Why target 100 farmers who collectively have 30 acres, when you can target one commercial operation with 50 acres plus?

In my opinion, to develop a Generation Y smallholder mentality, we need to start with the basics where education will form the cornerstone to spread the paradigm-shift that has swept through the commercial farming sector globally. Once this is achieved, the adoption of smart mobile technology connecting the smallholder farmer to scientific advice, best practices and better access to markets becomes infinitely more achievable.

A ubiquitous, intuitive platform will greatly reduce the divide between technology and smallholder across the world. The collective data gathered by this ecosystem could provide the small-scale farmer with information only currently available to a select few, opening up the collective sharing of data – a smallholder (crowd) sourcing model, empowering the largest grouping of farmers with the most potential for increased production.

*Ruan Boezaart
TwentyTwo Media*

Syngenta

Committed to sustainable agriculture

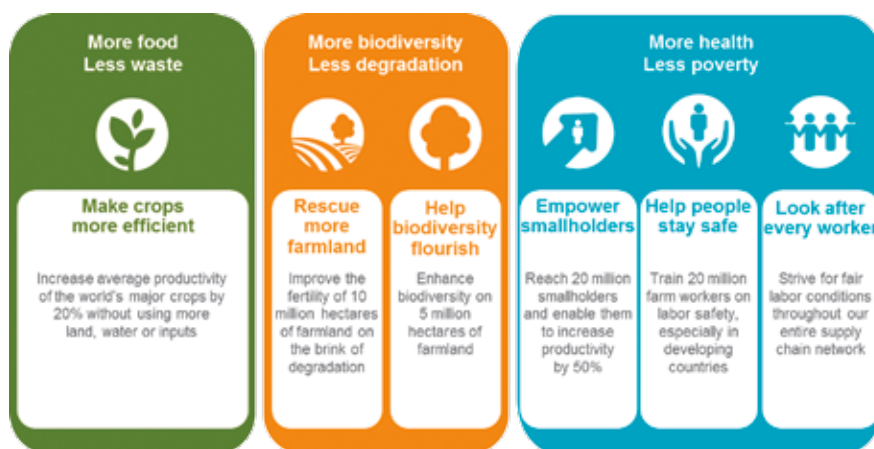
Syngenta – a world leading agribusiness committed to sustainable agriculture through innovative research and technology recently announced six commitments to address the global food security challenge.

The commitments known as the Good Growth Plan has specific, ambitious and measurable targets which focus on boosting resource efficiency, rejuvenating ecosystems and strengthening rural communities:

These commitments are as follows:

- **Make crops more efficient:** Increase average productivity of the world's major crops by 20% without using more land, water or inputs
- **Rescue more farmland:** Improve the fertility of 10 million hectares of farmland on the brink of degradation
- **Help biodiversity flourish:** Enhance biodiversity on five million hectares of farmland
- **Empower smallholders:** Reach 20 million smallholders and enable them to increase productivity by 50%
- **Help people stay safe:** Train 20 million farm workers on labour safety, especially in developing countries
- **Look after every worker:** Strive for fair labour conditions throughout the entire supply chain network

Mike Mack, Chief Executive Officer of Syngenta, said at the launch: "We have always been acutely aware that our business can only grow if we ensure that farming is carried out in a sustainable way. We continuously seek to bring this awareness to life through our focus on land, technology and people. We now need to take our contribution to a



new level and this is the driving force behind the commitments announced today."

The Good Growth Plan reflects Syngenta's belief that agricultural productivity must increase in order to feed a global population which is currently increasing by 200 000 every day. At the same time, farmland is being depleted through urbanisation and soil erosion while water resources are under increasing pressure. Rural communities – those responsible for growing food – are often trapped in poverty.

At a series of launch events around the world, Syngenta met with opinion leaders to discuss these challenges and set out the company's contribution to help tackle them.

Extensive research has revealed a widespread societal view that farming needs to become more responsible. While governments are seen as primarily accountable for ensuring reliable food availability, Syngenta believes it is incumbent on business to play a larger role in fostering a long term approach to food security.

This means using their substantial investment in Research and Development to advance

technologies that not only protect but also enhance the environment and benefit rural communities.

Mike Mack continued: "Delivering on these commitments won't be easy given the conflicting views of society on agriculture and food production. The Good Growth Plan represents our collective commitment as a company to do things differently and better.

We know we can't solve the challenges alone which is why we are bringing together stakeholders from across the world to share our intent and to benefit from their input."

For more information on The Good Growth Plan go to www.goodgrowthplan.com

Syngenta is one of the world's leading companies with more than 28,000 employees in over 90 countries dedicated to our purpose: Bringing plant potential to life. Through world-class science, global reach and commitment to our customers we help to increase crop productivity, protect the environment and improve health and quality of life. For more information about us please go to www.syngenta.co.za

She can feed a
hungry planet.
We're going to
help her do it.



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Beth Wangari is one of 450 million smallholders worldwide, who produce over 25% of the world's food. As one of the world's leading agricultural companies, we're committed to empowering smallholders like Beth, so they can increase their yields sustainably and become more profitable. But it doesn't stop there. In The Good Growth Plan, we have set out six measurable ways in which we'll help farmers to overcome major farming challenges by 2020. To learn more about The Good Growth Plan, our six commitments and the progress we are making, visit www.goodgrowthplan.com



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