

Issue Nov/Dec 2016

Harvest SA

Securing South Africa's Food Resources

Worm's eye view

The benefits of healthy soil

A strategic approach

Looking differently at agriculture

Half of South Africans familiar with biotechnology

More than half of South Africa's population believe that genetically modified organisms (GMOs) are good for the economy and many are in favour of purchasing genetically modified food.



The second survey of the Public Perceptions of Biotechnology in South Africa, conducted by the Human Sciences Research Council (HSRC), was released by the Department of Science and Technology in Cape Town on 1 November. The survey showed that 48% of South Africans are aware that they are consuming genetically modified (GM) food; while 49% believed it was safe to do so.

The first survey, conducted in 2004, revealed that public familiarity with the term "biotechnology" stood at only 21%, and there was a 13% public awareness of GM consumption.

The latest survey, commissioned last year by the Department of Science and Technology (DST), showed that the figures have increased significantly, to 53% and 48%, respectively.

The HSRC said each of these changes signified a major shift in public awareness. The HSRC's Dr Michael Gastrow said these changes could be due to increased levels of education, increased access to information, and greater prominence of biotechnology in the public discourse since the first survey in 2004.

Dr Gastrow said there has also been a major increase in attitudes that favour the purchasing of GM food. The proportion of the public that would purchase GM foods on the

basis of health considerations increased from 59% to 77%, on cost considerations from 51% to 73%, and on environmental considerations from 50% to 68%.

GM forms of maize, soybean and cotton have been approved for commercial production in South Africa, and these crops have become established in some parts of the country.

With Vitamin A deficiency being a serious public health concern, orange-fleshed sweet potato is an excellent source of naturally available β -carotene, which the human body converts to vitamin A.

During the past three years, plant breeders rights were awarded to five

new orange-fleshed cultivars bred at the Agricultural Research Council (ARC). The crop is used in several African countries to address vitamin A deficiency.

Results of the practical use of orange-fleshed sweet potato and other pro-vitamin A-rich crops in a crop-based approach showed an increase in the intake of vegetables rich in provitamin A, improved maternal knowledge of vitamin A nutrition, and reduced child illnesses.

Several other efforts of the ARC and various partners like government and NGOs have promoted the approach in community projects in seven of South Africa's provinces.

The new cultivars combine higher levels of β -carotene with higher yield and acceptable taste, leading to higher production and better adoption. Two cultivars are also suitable for export and could possibly earn royalties.

With GMOs having become such a huge part of our daily lives, the outcomes of the 2015 PUB survey are important.

While the survey reveals a significant improvement of the public's understanding and awareness of biotechnology, the levels of understanding remain broadly linked to living standards measures, demographics, and levels of education.

While offering great potential for socio-economic development, biotechnology still remains a source of apparent public controversy. Government has put legislation in place, with the introduction of the GMOs Act in 1997, South Africa established a robust system to ensure any activities with GMOs are scientifically assessed for potential risks to human health and the environment.

Among the key aspects was the approval of the National Biotechnology Strategy in 2001, to ensure coordination of all stakeholders in this sector, and to align research, development and innovation with that of industry and government.

The Public Understanding of Biotechnology Programme established in 2003, sought to advance awareness and understanding, but not specifically to promote biotechnology. For this reason, to benchmark public understanding in this regard, the first survey was commissioned in line with Statistics SA processes.



Releasing the latest survey, the DST's Director-General, Dr Phil Mjwara, said that, while there were significant improvements in the understanding of biotechnology, there was still a lot of work to be done to bring the public on board.

Dr Mjwara said government was committed to ensuring that GMOs were safe and people were not at risk.

He added that the DST was committed to ensuring that adequate information was made available to ensure an informed citizenry.

"We have tasked Biosafety South Africa to promote biosafety communication and awareness in South Africa – specifically to address the apparent gap in evidence behind the GMO controversies, and across the different public groupings in South Africa," said the Director-General. As part of implementing the Bio-economy Strategy (successor to the Biotechnology Strategy), launched in 2014, Dr Mjwara said that the DST was developing a process to move biotechnology communication from awareness to advocacy, both to promote biotechnology

opportunities, and to assist in marketing early stage technologies and start-ups.

"Biotechnology is one of the tools required to allow our industry to become more competitive on a global scale, and will contribute immensely to the Green Economy. The approval of the national Bio-economy Strategy by Cabinet shows the country's commitment to technological innovation and its potential to unlock the innovation chasm," said the Director-General. Dr Mjwara said this was particularly important as South Africa was looking to develop technologies to leapfrog development and contribute to national imperatives such as food security, poverty alleviation, job creation and socio-economic development. This includes developing new technologies to support increased productivity, to advance medical devices, diagnostics and the treatment of diseases that support improved quality of life and the elimination of inequality through awareness and education, among others.

For more information please go to www.dst.gov.za

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EDS NOTE



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Common ground

Welcome to the final issue of Harvest SA for 2016. What a year it has been! Not only is it the hottest year on record world-wide, but rainfall has reached its lowest levels since rainfall first began to be recorded in 1904. Given the terrible impact of the persistent drought, it's no wonder that water is the topic of the moment. As such our lead story, with its insights from the Water Commission, is a must read

Not only has the drought brought many farmers to the verge of financial ruin, it is also likely to have an impact on the very nature of the agriculture business in South Africa.

Rain alone will not solve all our problems. On the contrary, it is necessary to look at how farmers can be supported financially in the face of what amounts to a natural disaster. In this light, this issue's article on agricultural economics, contributed by Prof. Willemse of the University of the Free State, offers invaluable insights and recommendations for saving a vital economic sector that is in a dreadful plight. Speaking of the future, it is evident that all stakeholders in agriculture begin to pull together.

A strategy has to be forged if food security and sustainability are to be achieved. This issue features comment from the Transvaal Agricultural Union's Benny van Zyl. We would like to thank TAU distributing Harvest SA to all its members.



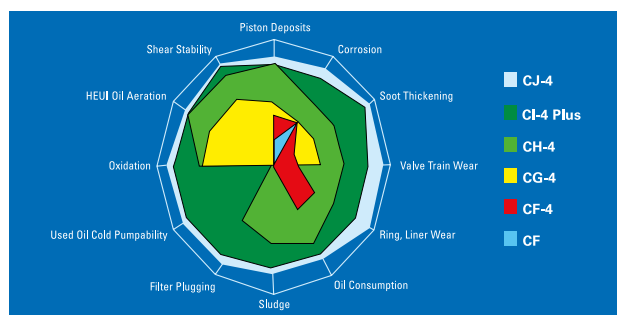
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Dealing with drought

Harvest speaks to Dr Mpandeli of the Water Research Commission about how to overcome the dry elements

Established in terms of the Water Research Act following a period of serious water shortage, the Water Research Commission was deemed to be of national importance to generate new knowledge and to promote the country's water research purposefully.

Currently, South Africa is still under threat of a lack of sufficient water, while water quality and availability issues are becoming more acute. However, the country is much better prepared to deal with this problem owing to the WRC's meaningful contribution to the development of the capacity of the water sector, the broadening of the country's water-centred R&D base, and the WRC's continued commitment to direct and fund research on critical issues such as drought management and solutions.

"The drought that we're experiencing is affecting all aspects of agriculture including livestock and crops, but the main issue here is the intensity and the frequency of the drought and its effect on the economy," explains Dr Mpandeli.

"The positive thing is that the agricultural sector is developing different climate change strategies that will counteract the natural elements that we are facing. However, at

the same time we need to be mindful of the fact that we are dealing with different categories of farmers —smallholder, commercial etc. —so there's a need for scientists and policymakers to make sure that practical interventions are developed that will suit the different categories of farmers."

Dr Mpandeli says that there are a number of specific strategies that have been successful. Different knowledge generation organisations like the Water Research Commission, Agricultural Research Council, Council for Science and Industrial Research and others are coming up with climate advisory information and early warning systems, among other solutions. The Commission is focused more on short, medium and long-term interventions as part of its climate change strategies.

Mpandeli explains that the strategies look at increasing production and yields on the crop side, while on the livestock side there are various interventions that are being put on the table during the drought. One of the practical interventions is called de-stocking, wherein the number of livestock is reduced and it is also ensured that livestock is moved from one grazing camp to another.

"The issue is that when you are dealing with the farmers who are within communal land, the fact that there's no proper control becomes a challenge. On the commercial

level, it's possible to apply these strategies and they are quite effective," says Dr Mpandeli.

"Commercial farmers have got the ability to access this information quickly, where very few smallholder farmers have got the means to access that same information within a very short space of time; the majority of them rely on extension services.

"As a result, information takes longer to reach them and within the agricultural sector it is vital that information reaches you as soon as possible. So this is one challenge that we face, and while I do think the situation is improving, it remains a work in progress. Additionally, we do have commercial farmers that help disseminate information to smallholder farmers, which is brilliant. We need to strengthen and encourage partnership between commercial farmers, smallholder farmers and subsequent farmers. So this is another focus area," explains Dr Mpandeli.

The Commission is managing a range of projects on improving quality of irrigation water focusing on water use and water use efficiency. Dr Mpandeli says the key aim and message is that they want farmers to produce more food using less water.

"We focus on developing practical tools that farmers can use as well. An example is our Wetting Front Detector — it's a very small decision-supporting tool that monitors water

fuel in the ground. A planted crop like maize has a of 30cm, once water reaches 30cm there's an indicator that comes out and it shows that the water has reached a certain level and thus you need to switch off irrigation," explains Dr Mpandeli.

"It's being used across the farming communities. It started ten years ago and the product has been recognised by the International Commission on Irrigation and Drainage; we were even given an award for it. It's a practical tool and it's really assisting the farming community. Whether you are educated or not, it's easy to maintain and operate."

He explains that some of the Commission's divisions support an Earth Observation system making sure irrigation activities are monitored. "At least we can be able to monitor drought and water intake, and be able to detect whether we're going to receive below or above normal rainfall during a particular season. We are dealing with farmers who are focusing on seasonal crops. Some of the farmers are focusing on perennial crops like mango, bananas and so on and you cannot move those crops to another area, but with seasonal crops, you can decide to try planting in Johannesburg if things aren't working out in Pretoria. Farmers need to keep on changing their tactics if they would like to increase their production."

Regarding genetically modified crops, he says, "Our focus is on water issues, however our understanding is that GMO is drought tolerant and therefore can assist us to address the issues related to food security. If you look at our research findings, and even the results from Stats SA, it shows that at household level the majority are food insecure. However, we are facing issues related to high climate change, population growth, and the migration of people from rural to urban areas, all of which add to food insecurity. So we need to take cognisance of the fact that there are other stressors that we are facing in this country besides the day-to-day problems that we are addressing."

Dr Mpandeli believes that the effects of drought can be managed if planned properly. "Obviously when there's drought there's a loss and the Government, through various departments, is trying its level best to make sure that some of the farmers are compensated, but we do believe that it's not only



Sylvester Mpandeli

about compensation but also early warning information," he says.

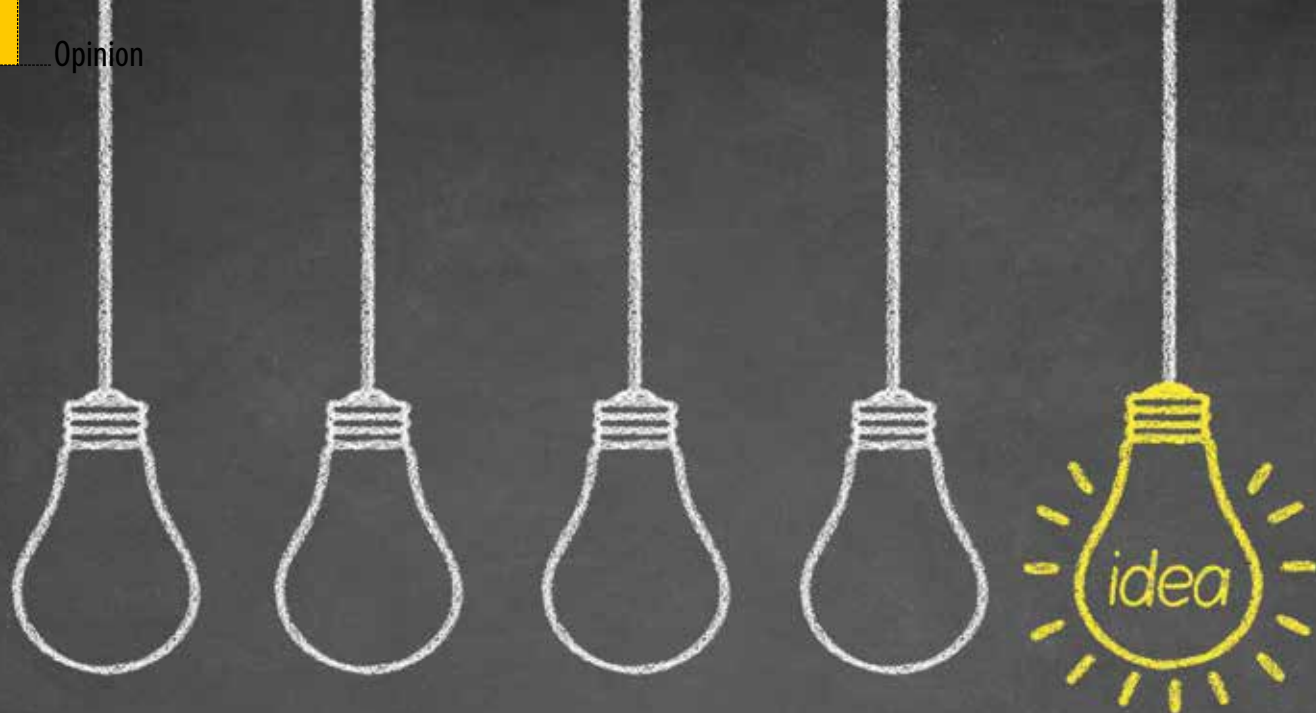
"That's why it's so important that information reaches farmers quickly – so that they will be able to know whether we are going to get below or above normal rainfall, to help them decide if they need to plant crops early and what measures to take to counteract whatever extreme climatic challenges that they might face.

Farmers need to be proactive not reactive. You don't wait until disaster happens and then change position.

"Global warming is a problem and we need to up our game especially on climate change adaptation and interventions.

Drought is a risk irrespective whether we are talking about agricultural drought or socio-economic drought. Drought is drought and it has an impact on the livelihood of our people. We just need to make sure that we become proactive, making sure that the knowledge that we are generating should be translated into workable and achievable plans and strategies. We need to address the science policy interface and by doing that I think we will minimise the effects of drought. The fact of the matter is that you cannot eliminate drought' however we need to make sure that it has got less impact," concludes Dr Mpandeli.

Simon Lewis and Shannon Manuel



Thinking strategically

Sustainability is everyone's business

Agriculture in South Africa is of national importance because it provides food and fibre to the population and is of strategic importance to ensure that we are not overly dependent on imports. This is the one industry where the product is a daily necessity for every person. Without food we will die. Besides, agricultural products earn vital foreign exchange for the country.

We are constantly hearing nice-sounding words, for example, statements are issued by government spokespersons on the sustainability of agricultural production, food security, correct usage of the land, etc., but when we look at what happens in practice, the implementation of government policy does not always yield results that are compatible with these freely used positive-sounding expressions. Anyone who is serious about, for

example, food security, the stabilising role of agriculture in rural areas, job creation and sustainable utilisation of land, is obliged to raise his concerns in a responsible manner. In dealing with these matters, it is also critically important not to deviate from the principles that ensure sustainability.

The government has unfortunately already established itself as a role player whose ideology-driven political decisions carry far more weight than the implementation of correct and pure economic principles.

This is indeed a serious allegation, which in Africa has already caused various countries to find themselves in deep trouble. If all role players in South Africa, including the government, do not somehow become involved in pure, rational decision-making processes very soon, this could also be South Africa's fate.

We do not in any way claim to have all the answers. The idea is to arrive at those pure

principles that will direct the entire agricultural chain so that everyone (nationally and internationally) who is prepared to invest in it (whether capital, labour, entrepreneurship, etc.) will do so.

A country's agricultural policy (agricultural strategy for sustainability) should, in terms of content, for the most part be compiled in such a way that it will be able to continue directing agriculture in a sustainable manner, irrespective of the government in power and bearing in mind the distinct nature and character of the country's own agricultural environment. This should be the approach followed by everyone who is serious about agriculture. Given certain directives that have been issued, there is a risk that role players could in time believe that they should throw overboard these pure economic principles in order to be politically correct. To follow any government blindly can at best offer short-term benefits. Economic forces (market



Bennie van Zyl, General Manager of TAU SA



force principle) operate relentlessly and, if the game is not played correctly and purely, everyone (also the country) will soon reap the adverse effects.

A priority in the strategy should therefore be to help government achieve its targets, but on an economically viable basis. We must ensure that, where transformation takes place, it is firstly in the best interests of the beneficiary, but also in the interests of the agricultural environment and South Africa as a whole. The commercial farmer must as far as possible be strategically involved in the total food chain process according to preference, from the start until delivery of the final product to the consumer, to ensure sustainable production of essential and specific crops - this implies the entire agricultural sector. International processing trends and the implications thereof must be borne in mind, while the sensitivity of products for different markets should also be taken into account. International pressure requires that standards in respect of product handling and processing be adjusted.

This is a reality that must be managed. Standards are created by market forces and serve as a determining factor for market

prices. Water is one of the most critical commodities in South Africa and is not adequately protected. The quality of water and the influence thereof on food safety and security are very important.

The availability of sufficient and safe water is a problem for South Africa. The correct use thereof by all role players is critically important. The influence that water quality has on food safety must be properly offset.

The state has taken control over available water and in the process has in fact saddled itself with a greater responsibility to make quality water available. Overall planning must be done timeously so that available water resources are used correctly.

This could include entering into agreements with neighbouring countries for the possible provision of water. Water pollution resulting from mining activities (gold, silver, uranium and coal) should be strongly emphasised. Interference with soil strata releases minerals into water, which could hold a serious health risk for the population, including a high incidence of heart disease, Alzheimer's and hyperactivity.

Poor municipal management and governance are responsible for further problems

relating to water pollution. Urgent attention will have to be given to restoring environments and resources.

Scientific tests to determine the implications of water pollution as well as other pollution are essential and must urgently be conducted. Incorporation of all new entrants must take place on an equitable basis.

The accumulated agricultural debt is of concern and serious discussions will have to take place with financial institutions in order to create practical and affordable financial packages with a view to effective agricultural financing. The banks' approach, namely to see the farmer's ability to repay the loan as an important criterion for providing finance, is acceptable - it must just be applied consistently to all role players. A limitation is placed on access to finance, which makes things very difficult for farmers.

A financing policy must be such that the sector can survive economically and play its role unimpeded.

In this regard agricultural financing is an important mechanism, but a viable approach requires thorough research.

While these dire circumstances persist, financial institutions (including the Land Bank) will have to reconsider their approach.

*Bennie van Zyl,
General Manager of TAU SA*



Earthworms in a healthy soil

The benefits of healthy soil

Promoting cost savings and protection from disease

Soil health" is the current buzzword in agriculture and biodiversity circles. While many people understand this as encompassing a new concept, others feel that it is muddying the waters with another term for an existing concept, namely 'soil quality'. Soil quality is a perfectly good term that is already well defined and understood. So what is soil health and how is it different from soil quality? Let us consider the two most commonly accepted definitions:

Soil quality: The capacity of a specific kind of soil to function, within natural or managed ecosystem boundaries, to sustain plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation (Karlen et al., 1997).

Soil health: The capacity of soil to function as a living system, with ecosystem and land use boundaries, to sustain plant and animal productivity, maintain or enhance water and air quality, and promote plant and animal health. Healthy soils maintain a diverse

community of soil organisms that help to control plant diseases, insect and weed pests; form beneficial symbiotic associations with plant roots; recycle essential plant nutrients; improve soil structure with positive repercussions for soil water and nutrient holding capacity; and ultimately improve crop production (FAO, 2008).

Clearly there seems to be very little distinction between soil quality and soil health. Indeed, many people use the terms interchangeably.

But there does seem to be an emphasis on the living component in the soil under the soil health definition.

This is important if it makes people more aware of the biological ecosystem services that the soil can provide, and if it results in more sustainable management systems. Traditionally, soil quality was evaluated by means of chemical status of the soil, and chemical fertilizer was used to correct any shortfalls of macro-nutrients.

However, the focus is shifting from a chemical based management system as farmers become more aware of the benefits of

conserving soil organic matter and use the soil biota to their advantage.

The following are some of the services that the living component of the soil can provide:

- **Soil organic matter (SOM):** This is the basis of healthy soils and improves soil chemical, physical and biological properties. It cushions the soil against compaction, improves water holding capacity, and provide nutrients for plants and micro-organisms. Most importantly it is the start of the food chain in the soil ecosystem, supporting all life in the soil.
- **Soil meso- and macro-fauna:** This group includes nematodes, mites, springtails, earthworms, termites and other animals that are part of the soil ecosystem. They assist in breaking down SOM and contribute to nutrient cycling and aerating the soil.
- **Micro-organisms:** This is the most abundant and diverse group in the soil and includes algae, bacteria, fungi, yeast, myxomycetes and actinomycetes. They facilitate SOM decomposition and regulate nutrient availability in the soil.

Soil biota form an integral part of soil health which contributes to crop production and the sustainable use of agricultural soils. By making use of the services of the soil ecosystem, one can optimize productively and reduce costs.

That is the theory and indeed many farmers are successfully applying these concepts.

For example, earthworms have been credited with incorporating surface applied lime into the soil profile – something that is commonly thought to be only achieved by ploughing. Costs are thus saved in terms of fuel and unnecessary traffic that can cause compaction is avoided.

Mycorrhizal fungi can provide services such as improved phosphorus utilization, while crop specific bacteria can increase nodule formation, and thus nitrogen fixation, in legume crops.

Certain bacteria, such as bacillus, can excrete antibiotics that can protect plants from diseases, while others can stimulate root growth.

Healthy soils support a healthy ecosystem, with plenty of food (SOM), decomposers, predators and carnivores.

In order to maintain a healthy soil one must therefore take care of the soil biota.

This can be done by adopting farming methods that conserve SOM, meso- and macro-fauna and micro-organisms.

These include management practices such as reduced or zero-tillage, permanent soil cover, multi-cropping (such as crop rotation or intercropping), permaculture, companion cropping, and the use of green manure and organic fertilizers. The Agricultural Research Council (ARC) has several projects focusing on soil health. These include studying the dynamics of SOM in agricultural soils; research on conservation agriculture and the effect of farming practices on SOM; as well as demonstration and training initiatives across South Africa.

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Reduced tillage helps conserve organic matter as a mulch



Grazing vetch intercrop provides a thick, effective soil cover that protects the soil, conserves water, fixes nitrogen and contributes to the soil ecosystem. Intercropping with grazing vetch significantly improves soil health and subsequently maize yield

Multi-cropping, especially with a legume cover-crop such as cowpeas, can provide soil organic matter, improve the nutrient status and protect the soil

Hishtil SA

Trends and advances in grafted vegetable seedlings in South Africa

Grafting is an agricultural technique where the tissue of two different, but related plants, are joined together to continue their growth as one single improved plant. Grafting is an ancient method that was in use in China before 200BC. From there it spread to the rest of Asia, Europe and the practice was well established in Ancient Greece.

Being at the forefront of technological advances in International as well as local agriculture, Hishtil SA has conducted extensive trials with grafted vegetable seedlings throughout the country. Growers are reporting improved disease resistance, increases in production and better product quality, all through the use of grafted seedlings.

Crops such as watermelon, cucumber and tomato are commonly grafted around the world with countries like Greece and Spain, grafting 100% of their watermelon crops and Korea grafting 95% of all planted cucumber crops. Statistics for South Africa are not available in detail yet, as the practice is relative young in terms of vegetable, with commercial grafting being available for the last 10 years.

The following information is available due to consistent commercial use of grafted plants.

1. Watermelon

The use of grafted watermelon seedlings has become common place amongst world producers, this includes South Africa.

a. *Fusarium*

Due to increased cropping on soils, instances of *Fusarium* are on the rise in watermelon production. Clearing new fields is becoming increasingly costly and alternative options

need to be explored. Extensive commercial plantings of Grafted Watermelons seedlings have shown a high level of tolerance to the *Fusarium* on old watermelon fields. This reduces the amount of time needed to rotate back onto old fields and is a much more economic option for farmers. Where traditional rotation of watermelon is between 7 and 10 years, rotation when grafting can be reduced to between 3 and 4 years.

b. *Reduced plant population*

When planting grafted watermelon, a greatly reduced plant population can be used without affecting the final yield. Traditional non-grafted plant populations vary from between 5500 to 6000 plants per hectare. Grafted watermelon can be planted at a population of 3300 plants per hectare. Growers are reporting increased yields, better longevity of fields and therefore extended harvest times.

Reports of increased fruit quality and shelf life of fruit is also common amongst commercial growers of grafted watermelon. This has opened new market opportunities for growers not previously available including the export of whole fruit to Europe.



2. Tomato

Increased fruit size was observed and higher quality fruit is being harvested from grafted tomato plants. Un-grafted plants show reduced vigour and vitality when compared to grafted plants in the same structures. These results are proving to be consistent in plantings across the country. It is however important to note that not all rootstocks are suitable for all conditions and disease pressures. It is advised that trials be undertaken to establish the best rootstock for individual conditions and needs. The choice of rootstock will affect how much plant populations can be adjusted.



3. Cucumber

As with grafted watermelon, grafted cucumber has shown great tolerance in surviving soil borne diseases. Due to the immobile nature of growing structures, the build-up of diseases such as *Fusarium* in the soil is inevitable. Continued pollution of water used for agriculture has also increased this pressure.

Growers have found an economical, sustainable and reliable solution to these

problems through the use of grafted seedlings on an appropriate rootstock.

With increases in coal and transport costs, the heating of growing structures is becoming more and more expensive. Trials conducted over multiple seasons have consistently shown that cucumbers grafted on a suitable rootstock have more tolerance to colder weather. Where grafted and un-grafted plants were planted in the same structures, un-grafted plants simply collapsed from the cold. Grafted plants however continued showing active growth and consistent fruit production. This allows growers to benefit from higher market prices during winter.

Irrespective of the season however, growers report consistent increases in production and decrease in disease incidence when comparing grafted seedlings to un-grafted seedlings.

When making the decision to graft, the choice of nursery is of equal importance. Grafting is a very sensitive process, involving extremely expensive seeds. As a farmer this may be the most important consideration. Hishtil SA has over 20 years of international experience with grafting alone. Both South African facilities (situated in Mooketsi, Limpopo and Riebeeck West, Western Cape) offer high tech production structures that are

fully protected from the elements as well as insect vectors. Anti-virus netting covers all the greenhouse structures and are therefore protected from aphids, whitefly and numerous other insects that spread viral infections.

Hishtil SA is also the only nursery facility in South Africa that has achieved and maintained Global Gap certification. Using a facility with this certification will ensure the traceability of all raw materials to their point of origin. This assures farmers of the safest and most professional start to their business by providing them with an unsurpassed bench mark of quality in meeting their contractual obligations. When with Hishtil SA, a copy of the Global Gap certificate is available

upon request and can streamline the farmers audit process greatly.

When interpreting not only local but also international global trends, Hishtil South Africa has clearly identified the move towards grafted seedlings. It offers cost savings in terms of land clearing and immovable structures. Grafting offers solutions against rising disease pressure as well as improved quality and yield, translating to a better competitive advantage in a very contentious market.

For more information please contact Hishtil South Africa:

sales@hishtilsa.com

015 395 4034/43

Or visit www.hishtilsa.com



Hishtil South Africa's primary production is both grafted and un-grafted vegetable seedlings that are delivered country wide.

Hishtil South Africa was established in 2007 in Mooketsi in Limpopo, as part of the International Hishtil Group.

WHY Hishtil

- ✓ Best possible start
- ✓ Greater uniformity
- ✓ Consistent quality
- ✓ Updated technology
- ✓ Technical back up
- ✓ Professional service
- ✓ Country wide delivery



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Key to growth

Fertilizers, soil fertility and plant nutrition: Part One



The South African fertilizer industry has undergone structural changes since the beginning of the century. It has been transformed from an industry with a few large fertilizer producers to an import-dependent industry with a longer supply chain, including about 80 smaller blenders. The resultant competition amongst suppliers at farm level gives crop producers a multitude of options.

Services provided by the fertilizer industry

Services form a key element of the local fertilizer industry. A supplier is often selected not because of the price of their fertilizer but rather because of the services they offer to crop producers. These services may include soil, leaf and plant material sampling;

laboratory analysis; fertilizer recommendations and prescriptions; medium- and long-term soil fertility planning; problem solving (diagnosis); fertilizer applicator calibration; and many more. Commercial farmers depend heavily on experts in the fertilizer industry to manage their soil fertility and regard these experts as part of their farm's management team. It is interesting to follow the fertilizer industry as it plays an increasingly bigger role in the development of emerging farmers, both in South Africa and in other countries.

Fertasa

The Fertilizer Association of Southern Africa (Fertasa, previously known as FSSA) has also undergone changes to adapt to the evolving needs of the industry. As a result, we have seen an increase in membership numbers

from 19 in 2012 to 48 in 2016. All of our members are represented on the board of directors and may participate in the association's committee meetings.

Our vision is to be recognised as the representative voice of the fertilizer industry and as the stamp of approval for responsible and sustainable soil fertility and plant nutrition in Southern Africa. As part of this vision, we publish the Fertilizer Handbook, a collection of scientific principles and guidelines supported by Fertasa and our members. This handbook has recently been revised by an expert panel of Fertasa members, some non-members and third-party specialists. The Afrikaans version (Bemestingshandleiding) went on sale in October 2016, while the English edition is expected to be available from January 2017. The handbook is not only used by fertilizer



advisors and farmers; it is also prescribed by universities and agricultural colleges.

Fertasa is very active in the agricultural and fertilizer communities. It facilitates much of this interaction through its annual congress and symposium. The Fertasa Congress focuses on the business side of the industry, while the Soil Fertility and Plant Nutrition Symposium is scientific by nature and addresses fertilizer practices. Local and international experts are invited to present papers at these events.

Fertasa's members are importers, producers, distributors and blenders of inorganic and organic fertilizers, agricultural lime and bio-fertilizer products. Thus our members encompass the full value chain and all three fertilizer groups defined in the Regulations of Act 36 of 1947.

Fertasa collaborates closely with the Registrar of Act 36 and the Agri-Laboratory

Association of Southern Africa (AgriLASA). The latter operates a comprehensive proficiency scheme to ensure that all fertilizer, water, soil, plant and animal feed analyses are consistently monitored and evaluated. Fertasa's members are advised to use AgriLASA-certified laboratories as their analyses have been calibrated for various crops, which serve as the basis for the fertilizer guidelines.

Credibility of the fertilizer industry

The world population increased by 37.7% from 5.3 billion in 1990 to 7.3 billion in July 2015 and is estimated to reach 9.7 billion in 2050. The South African population alone increased by more than 50% over the same period, up to 2015. Without fertilizer, food shortages, famine and starvation would threaten one-third of the world's population. Nutrient deficiencies in soil, for example zinc, lead to deficiencies in humans, especially in areas where community members depend on the food produced in their region.

With one in three people already dependent on fertilizer, sustainable soil fertility is crucial in a world where the demand for food is increasing at an alarming rate with the ever-growing human population. Fertasa's main purpose is to promote responsible and sustainable soil fertility and plant nutrition through credibility of the industry.

Also, the integrity of the fertilizer industry is non-negotiable in developing and maintaining food producers' trust. Fertilizers constitute a major portion of the input cost of crop production, so producers need to have confidence in the entities they deal with and be sure that the products are worth the investment.

Fertasa has taken action to ensure that its members have the facilities, systems and knowledge to produce fertilizer products according to set specifications and that will not harm the environment. This is done by means of a third-party audit based on the Fertasa Code of Conduct, which covers all the relevant legislation such as Act 36 of 1947, environmental laws, and safety and health guidelines. Once a member has been audited and Fertasa is given the go-ahead by the auditors, we issue a Code of Conduct Compliance certificate. This certificate gives the member the right to use the seal of

compliance on their documentation and their fertilizer products' packaging.

Fertilizer users are encouraged to look out for the Fertasa seal of approval.

Fertilizer product registrations

One of the main frustrations in the fertilizer industry is the delay associated with product registrations executed by the Registrar's office in the Department of Agriculture, Forestry and Fisheries (DAFF). Incorrect and incomplete applications often contribute to the delay in approval.

In 2014 Fertasa introduced a service whereby applications for registration are scrutinised by in-house experts before being submitted to DAFF. In 2014 and 2016 Fertasa also arranged fertilizer product registration workshops for members and non-members.

This service and the workshops have already helped to shorten the approval period, but constraints in the Registrar's office make it extremely difficult to deal with new applications coming in and the backlog that has developed over time. After discussions with the Registrar, Fertasa decided to second Prof Robin Barnard and Vusi Mashele on a part-time basis to DAFF, to assist with the evaluation of applications. When the assistance started in May 2016 the backlog ran at least eight months behind. By October the backlog was down to four months. We will continue to assist DAFF until the backlog has been eliminated.

Fertilizer regulations

The Minister of Agriculture has the right and obligation to publish fertilizer Regulations in terms of Act 36 of 1947, with the most recent being published in September 2012. Fertasa identified about 20 errors therein and proposed corrections. The revised Regulations are awaiting approval by the minister before being published in the Government Gazette.

Fertasa is also planning a workshop to discuss the changes and interpretation of the Regulations in general. This workshop will cover the guidelines for the registration of Group 3 fertilizers and will be held on 30 March 2017 at the CSIR in Pretoria. Please send an email to Monique (monique@fertasa.co.za) for more information.

Adam Mostert, Chief Executive Officer, Fertasa

Real innovation in crop nutrition

A new concept in fertilizers

Haifa Group, a world leader in the field of specialty plant nutrients, started developing a line of polymer-coated controlled-release fertilizers (CRF's) in the early 90's.

The vision in developing Multicote CRFs was to build on Haifa's efficient plant nutrition strategies by further optimizing fertilizer use and minimizing environmental impacts.

In the beginning Multicote was used mainly for professional production of ornamental plants.

In recent years further improvement in the production process and reductions in production cost have led to an increased use of Multicote fertilizers for agricultural applications paving the way towards developing the Multicote Agri Concept.

Vegetable production is a target area, but Multicote Agri products have proven beneficial for other crops such as citrus, vine and apple orchards. Even field-crops like corn and wheat respond very well.

Multicote benefits

Multicote controlled release fertilizers offer the benefits of labour saving, environmental protection and thrifty use of fertilizer materials. Decreased fertilization application rates and fewer application operations, combined with improved yields resulting from optimal nutrition, have made the application of Multicote an economically justifiable option.

Multicote products

Haifa has developed some unique controlled-release products:

- Coated granules with various NPK ratios are available
- Coated potassium nitrate – a favorable source of potassium for plants
-

Multicote products are available with release periods of 2-16 months at soil temperature of 21°C. Multicote products perform just as well in cold and hot climates.

The polymer coating of Multicote

In recent years the coating or spraying or any other addition to improve the properties of fertilizer granules has been very popular among many other producers.

These usually come with certain claims of product improvements which in most cases are valid.

It is however very important to understand the difference between technologies available in the market. It is important to understand the technical differences between Slow-release technologies and Controlled release technologies.

Multicote is a specific, CRF (Controlled Release Fertilizer). In the production process of Multicote, thin layers of polymer are formed on fertilizer granules, encapsulating them. This polymeric coating is a semi-permeable barrier that allows measured diffusion of nutrients when the fertilizer granules are applied to the soil. The layered structure of the coating gives it excellent physical properties, ensuring that the granules remain intact during shipping and handling and over time. It also prevents rupture of the coating and destruction of the release features when the granules are exposed to humid conditions (the "Popcorn" phenomenon)

After the release of nutrients is complete all that remain are empty shells, which decompose over time.

Multicote Agri Concept:

The technical teams of Haifa South Africa were instrumental in further developing the Multicote Agri Concept.

The concept entails the mixing of coated Multicote CRF products with different longevities with uncoated granular fertilizers called "starter". This gave rise to the first penetration of CRF technology into open field crop production and can be viewed as a real groundbreaking development in commercial crop nutrition.

All over South Africa forward-thinking farmers are moving to this technology with excellent results.

The future

Haifa has made a decision to position Multicote as a leading controlled-release fertilizer brand. Activities to reach this goal include:

- Development of new products to meet the needs of existing and new markets
- Implementation of new technologies, to extend potential applications of CRF's
- Introduction of Multicote products into new market niches
- Cooperation with local partners to support professional applications

For more information please visit the Haifa website:

(http://www.haifa-group.com/products/plant_nutrition/controlled_release_fertilizers/) or contact Dawie Fourie mobile +2782 335 7760



Multicote® Agri the solution for carefree crop production

.....

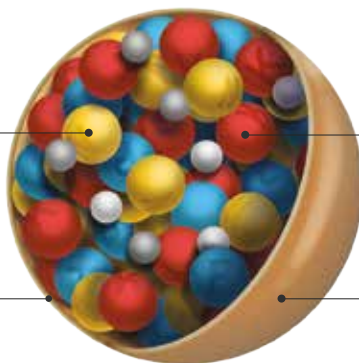
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Enduring drought

Western Cape agriculture remains water stressed



Minister Alan Winde has outlined the impact of extreme weather events on the Western Cape's agriculture sector, including a snapshot of how the drought has affected different regions and crops in the province.

"We are still experiencing drought conditions in some parts of the Western Cape. These trends underscore the need for a new approach to resource management.

That is why we launched a co-ordinated climate response action plan, Smart Agri, in partnership with the private sector and academia.

One of Smart Agri's recommendations is conservation agriculture, where we use innovative methods including minimum tillage and crop rotation.

"Our research farm, Langgewens, is showing the positive effect of conservation agriculture and we'll be releasing a report on the situation there in the next few weeks."

Please see below for further details on the different regions:

Climate and rainfall

The Cape Town metropole and Cape Winelands recorded below normal rainfall. The majority of the Central Karoo and North West (Bitterfontein area) obtained extremely weak rainfall levels.

This includes the northern escarpment areas such as the Murraysburg region. Rainfall

recorded in September in the Central Karoo ranged between 0 mm and 2 mm.

The Central Karoo, the West Coast region and parts of the Cape Winelands are still experiencing drought conditions. Although isolated rains were experienced in these areas, they remain dry due to below average outcomes being achieved overall. It is expected that there will be challenges with grazing for animals during the summer months.

During October sporadic incidents of frost damage to the fruit industry occurred in the Touwsriver area (severe damage to plums), Robertson (lighter damage to grapes), and Vleiland area (damage to stone fruit). Severe damages to vineyards in the Rawsonville area occurred in mid-October due to black frost.

Below normal winter rains and snow resulted in the current low dam levels in the Central and Klein Karoo, resulting in restricted, and in some cases, no water availability for irrigation.

Dam levels

Currently the average dam level of all the major dams in the province is at 61% vs 90% at this time last year.

Theewaterskloof Dam, which is the biggest dam in the province providing water to Cape Town and irrigation, is on 52% vs 76% last year.

Water restrictions

Current water restrictions applicable to irrigation water vary from 30% (Berg River

system) to 43% in the Olifants River system (Clanwilliam/Vredendal).

On average, on-farm storage dams are at 50% or less.

This implies that farmers already have a 50%+ restriction from their own water resources added to the 30% to 43% restriction from the large government-managed dams.

In many areas, vital after-harvest irrigation could not be applied in March to May 2016, due to a shortage of irrigation water. This will impact on the production outcomes of vineyards and orchards in the current season.

Winter grain

Although average to below average rainfall occurred in the Swartland region, this rain occurred timeously in terms of the crop water demand and an average grain yield is expected in most areas.

The Southern Cape and Overberg experienced normal rain and weather conditions resulting in average grain yields.

Minister Winde concluded: "The Western Cape remains water stressed, and we all need to play our part by not wasting this vital resource. The Agriculture Department is also on hand to advise the sector on how to adopt conservation agriculture.

"We mustn't bury our heads in the sand like ostriches over the looming water crisis. If we do, future generations will bear the brunt of our foolishness."

Issued by the Western Cape Government

Reaping success

Western Cape's top agricultural employee announced

Anton Alexander has been named the winner of the 2016 Prestige Agri Worker Awards. Alexander hails from the Elgin, Grabouw, Vyeboom and Villiersdorp (EGV&V) region where he works as an HR (human resources) officer at the Ouwerf Farm (Crookes Brothers).

"Agriculture is more than a job, it is a lifestyle," commented Alexander, who was named the Western Cape's top agricultural employee at a gala ceremony that took place at the Nederburg Wine Estate in Paarl on Saturday (5 November 2016) night.

Alexander has been working at the Ouwerf Farm for the past twenty years. Initially employed as a general worker, he has held different positions, including that of a tractor driver and supervisor, before being promoted to HR officer. Alexander hopes his achievement will inspire others: "If we are proud of who we are, it will spill over to the next generation."

Alan Winde, Minister of Economic Opportunities, congratulated Alexander and praised the example he sets for others.

"Anton is an ambassador for our agriculture sector. He's making a major contribution to the farm where he works, but he is also dedicated to encouraging young people to enter the sector. By being dedicated to his work, and by learning new skills, he has achieved major progression in his career. I am confident that his success will serve as an inspiration to young agriculturalists."

In addition to winning the title of the Western Cape's Agri Worker of the Year 2016, Alexander also won an iPad Air sponsored by Daleen Turner Consultancy, a R20 000 Shoprite gift voucher, a R60 000 overseas study tour and R20 000 cash sponsored by the Western Cape Department of Agriculture. Alexander also joins the competition's previous winners as a member of the Minister for Economic Opportunities' Prestige Agri Worker Forum. "Through the Prestige Agri Worker Forum, I am looking forward to working with Anton on growing our sector,



Anton Alexander

especially in encouraging our agri workers to take their careers to new heights," said Winde.

The Western Cape Prestige Agri Awards is co-sponsored by the Western Cape Department of Agriculture and Shoprite, Africa's largest food retailer. "Communities are at the core of Shoprite's business - they are our customers, our employees and of course our suppliers. Agri workers make such an important contribution to South Africa's economy - these individuals are the reason we're able to sell quality produce in our supermarkets on a daily basis," said Dr Johan van Deventer, General Manager at Freshmark (Shoprite's fruit and vegetable procurement and distribution arm).

Western Cape Agriculture and Economic Development

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Lab data gives direction

Fields of barley

Promoting sustainable farming practices and increasing local input



Emerging farmers from Overberg Boerdery Trust.

South African Breweries (SAB) draws much of its success from the expansive barley fields of the Southern and Northern Cape that are flourishing under the care of both commercial and emerging farmers.

Agriculture remains the primary economic activity in South Africa's rural communities,

and given SAB's size and scope of operations, the company has a significant impact on the country's agricultural economy. This influence is met with corporate responsibility and, as part of SABMiller's global sustainable development framework, SAB is setting an example in ensuring a prosperous future for rural communities in which it operates.

Given that barley remains SAB's largest requirement in terms of raw agricultural

material, SAB has focussed its considerable energy on a number of agricultural projects that are geared towards promoting sustainable farming practises and increasing the local agricultural input from both commercial and emerging farmers.

Better Barley Better Beer was introduced by SA in partnership with the World Wildlife Fund South Africa (WWF-SA) as a holistic framework that focusses on environmental



sustainable farming practises that ultimately deliver a superior grain to SAB's Malting Houses, and consequently deliver a great tasting beer.

The noble barley grain may grow less than a centimetre high, but it really is the foundation on which many of SAB's great beers are made.

For this reason, SAB works closely with the South African Barley Breeding Institute (SABBI) in Caledon who are responsible for developing new barley cultivars with superior yield potential, stability, and disease resistance while providing improved malting

SAB works closely with the South African Barley Breeding Institute (SABBI) in Caledon who are responsible for developing new barley cultivars with superior yield potential, stability, and disease resistance while providing improved malting and brewing quality

and social awareness by encouraging sustainable farming practises that improve the socio-economic value of a farm while protecting the environmental integrity of the land (and monitor the economic performance of producers). The project supports both commercial and emerging barley farmers in the dryland Southern Cape and the irrigated barley fields in the Northern Cape in gaining a deeper understanding of

and brewing quality. It's a laborious and delicate process where thousands of potential cultivars are put through a rigorous testing process that last up to 17 years for promising cultivars. A successful new malting barley variety will deliver incremental improvements in yield and extract potential, which translates into significant gains for both the farmer and the brewer.

Go Farming is another of SAB's agricultural projects that focuses on the complete barley supply chain. This project caters specifically for emerging farmers and supports the development of a sustainable, reliable and competitive barley supply chain for the breweries. Emerging farmers are assisted from the point of inception with a detailed soil analysis and any upgrades if necessary, fertilizer recommendations, and water requirement monitoring. Optimal planting times specific to the land are calculated and SAB assists with a comprehensive assessment of crop performance throughout the growth cycle. SAB's intention is to ensure that there is a meaningful increase in profitability for the farmer and an improvement in the community's social development.

As a part of its Vision 2030, government's National Development Plan sees agriculture as the vehicle to create nearly one million jobs by 2030.

In order to achieve this goal, government in partnership with key stakeholders such as SAB must develop strategies that allow emerging farmers access to product-value chains within the economy. SAB's investments in their agricultural projects is closely aligned with this strategy. According to a recent study conducted by Econex, more than 110 000 direct and indirect employment opportunities were created in rural areas through SAB's investment in the local agricultural sectors.

The underlying objective of SAB's agricultural projects is for the agricultural sector to become financially secure, independent and sustainable, with the capacity to provide SAB with quality raw material.

This mutually beneficial relationship allows SAB to create a robust supply chain for barley, maize, and hops; while diversifying their sourcing footprint geographically and demographically.

Emerging farmers are supported in developing sustainable farming practises and benefit through improved infrastructure, access to market, land acquisition, modern farming techniques and the positive impact their success has on economic growth within their communities.

Sarah Anderson

Ekhamanzi

Greytown farm workers get share in business

Khulu Ngobese has been working on Westcliffe farm in Umshwathi, Ekhamanzi near Greytown for more than 20 years. In August he became a beneficiary in a workers' trust that will eventually own 50% of the farming business.

"It is unbelievable. It is like a dream. ... When our boss mentioned it we did not believe him," said Ngobese. "This is a story with a good ending. It will be a good story to tell my grandchildren: that I was a farm worker who ended up owning a farm."

Twenty-four farm workers are now beneficiaries of a farming scheme supported by farm owner Andrew Braithwaite and a state programme known as the 50/50 Policy Framework. The programme was introduced with the aim of workers and owners becoming co-owners of farms.

Under the scheme the Westcliffe employees now have a 45% share in the farm operating company through a trust. The land belongs to the state, which bought it from Braithwaite. A 5% share in the company and in the profits will go to the National Empowerment Fund, an institute set up to support Broad-Based Black Economic Empowerment. Its role will be to monitor the deal. The new owners will receive training so that they learn what's involved in running the business side of the farm.

The new operation, which produces sugarcane, timber and cabbage, is called Ekhamanzi.

At the launch of the project on 9 August, Braithwaite explained the structure: The state buys and holds the land, and leases it back to Ekhamanzi Farming, which is owned

jointly by the farmer and a trust, of which the workers are beneficiaries. The farmer owns 50%, the trust 45% and the NEF 5%. The farmer and the trust put in equal capital to fund the project and the trust's portion is funded as a grant. In addition, money is provided by the NEF in the form of a loan to help the business develop.

"The idea is a sound and growing business, where all involved share the benefit."

"These projects are a breakthrough, and offer a constructive way forward to those who see themselves being involved," Braithwaite said. "This model provides a win-win-win for land reform, farmer and farm worker, in fact for the country as a whole."

In his budget speech in 2015, Minister of Rural Development and Land Reform Gugile Nkwinti said 50 farms would be piloted under the 50/50 Policy Framework by 2019. The first was Khalamanzi in 2014. Nkwinti sees this policy as a way to reduce farm evictions.

One of the workers, Robert Ntuli, said he only understood the story when he was told for the third time. "I did not believe it. It sounded like a fairytale to me. I thought my boss was going crazy. We took ourselves as workers, not as owners. We are now farmers. Our children will have a better future. No one will go to bed hungry and poverty is something far away from us."

"This doesn't mean that we will change. We won't be coming to work late just because we are owners. We will work hard to show the world that the idea was not wrong. We are happy to be part of this historical venture," said Ntuli.

*Ntombi Mbomvu
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Stay fresh

New solutions reduce cost and prevent over ripening



In the fresh produce marketing business, claims made by customers who say that product received is below specification erodes the value that gets paid back to the grower. For Tru-Cape Fruit Marketing, a wholly grower-owned business and the largest marketer of South African apples and pears, reducing claims is as important as only delivering the correct fruit. Because of Tru-Cape's size, the volume of claims can amount to millions of Rands which is why Managing Director Roelf Pienaar tasked his team to find a way to manage and if possible reduce them. While analysing the business and its processes they discovered holes that needed to be plugged.

"In the end we understand that claims are part of the business, but it is in our as well as the customer's interest to minimise claims and waste," says Pienaar but adds that the business also needed better intelligence

to improve planning and to provide accurate feedback to growers and packhouses. "We decided that we needed a technology solution in the form of an application that customers can use as well as a desk-top dashboard that will track claims in real time and provide us with meaningful reporting to better make planning and packing decisions," he says.

Tru-Cape's Quality Assurance Manager, Henk Griessel, explains that with a natural and perishable product some degradation is expected but the Pomona's Eyes app, named after the Greek goddess of orchard fruit, helps Tru-Cape prevent excessive claims and take human guesswork out of determining if and how a claim should be met.

"We approached Nick van der Vreken who had created a successful fuel station management application for our shareholder Two-a-Day.

"Although I have a full-time position as National IT Manager for WastePlan, I take

on development projects in my own time so was pleased to receive an enquiry from Tru-Cape", says Van der Vreken. "As I specialise in analysing structures and automating business, developing the Pomona's Eyes app was a good fit for my skills set. The mobile application has been built on top of the Cordova framework, and the desktop application is based on the node.js framework. These frameworks allow for fast development and a real-time cloud integration with Tru-Cape's SysPro system." Aside from wanting to reduce the quantum of claims, the company also wanted the technology to enable greater productivity which I think we well achieved," Van der Vreken explains. According to Griessel, a string of manual processes are now all automated which, he says, "frees me up to focus on making sure we pack to the agreed standard and troubleshoot quality issues before they become problems. As a preservative free, wholly natural product, apples and pears, like all organic matter,



begin to die as soon as they are picked from their orchards. The reporting functionality Pomona's Eyes provides allows for automated flagging when defects are discovered. This often allows us to repack the fruit before all of the fruit from a particular bin is delivered and rejected on arrival. The system also automatically generates credit notes, converts from the foreign currency exchange rate at the date of purchase and, all the while, providing an audit trail that includes all the correspondence relating to the claim available, again in real time, to anyone with the login details irrespective where we may be.

Most importantly it makes claiming more than once for the same fruit impossible. It also takes the human factor out of the equation when it comes to determining the severity of a claim allowing the technology to determine the result."

Van der Vreken added that the system he developed also makes it easier to share and collaborate on claim calculations through a number of various options; including quickly

sharing the claim information with pre-figured contact groups, exporting the claim data to Excel and forwarding a claim and all or specific supporting documents.

Claims can also easily be allocated to several staff members. Currently the app is designed for use on Android platforms but it will be converted for iOS as soon as the testing mode is complete.

"Many businesses can benefit from such an application," Van der Vreken says, "which has moved a process previously just in the hands of a few people into a system that can be used by anyone with the permission to do so. This is especially valuable when it comes to succession planning," he explains.

"In Tru-Cape's case, being able to draw reports about claims by customer, delivery market and even by apple or pear cultivar gives powerful information about areas that may need greater focus. The maxim that you can only manage what you can measure is truest here and I'd venture that there have already been significant savings as a result of using the app - far far greater than the investment of 300 programming hours. I don't think it unreasonable for a similar business to save over R100, 000 each month by automating checks which, purely as a result of human frailty, can and do fall through the cracks," he ends. The app is available for download in the App Store and there is a YouTube how-to video available for instruction.

New study suggests a solution to the headache of over ripening fruit

Although studies in the 1980's showed that Salicylic Acid, a cousin to the active ingredient in the Aspirin we all know, prevented the production of Ethylene, the ripening hormone gas released by fruit and vegetables, a new study by Curtin University in Perth, Australia demonstrates that that Ethylene Antagonists may be a solution to prolonging fruit life. According to Tru-Cape Fruit Marketing's Quality Assurance Manager, Henk Griessel, the Australians may well have the breakthrough that has up until now required products like SmartFresh (1-methylcyclopropene or 1-MCP), a simple hydrocarbon molecule that interacts with the ethylene receptors of the fruits.

Griessel says that as the largest marketer of South African apples and pears, Tru-Cape

is especially interested in this encouraging research.

"The Australians believe that Ethylene Antagonists may be a solution to prolonging fruit life and their work was acknowledged at the Commercial Innovation Awards 2016 which celebrates the work of Curtin staff and students who have made significant contributions to the advancement of commercial industries," he says. "As a living, breathing product, fruit spoils as its respiration rate increases. We understand that Curtin University's Zora Singh from the Department of Environment and Agriculture, and Dr Alan Payne from the Department of Chemistry, have developed non-toxic Ethylene Inhibitor compounds that can prevent produce from reacting to naturally occurring ethylene gas and we look forward to learning more about this." The best way to prolong the life of your Tru-Cape apples and pears is to store them in the fridge and away from other fruit like bananas, onions, melons or avocado. Apples stored in a drawer in a fridge near to zero degrees celsius will last the longest," he concludes. According to Griessel, how one stores Tru-Cape apples and pears at home makes the biggest difference to their enjoyment:

"It is essential to keep apples and pears cool as they soften 10 times faster at room temperature than in the fridge. We already know to keep apples and pears away from other foods, to prevent the fruit from absorbing other tastes and odours as well as because of the ripening gas. Handle gently to avoid bruising and to test if pears are ripe, press the stalk end very gently. If it yields to your pressure, it's ready to eat.

To ripen pears that are still hard, store them in a bowl at room temperature for a couple of days. To speed up the process, place them in a loosely closed brown paper bag. To slow down the process, store them in the fridge," he says. Tru-Cape recommends preparing apple and pear dishes just before serving to minimise discolouration. "To delay the browning of cut fruit, sprinkle with lemon juice – or dip in lemon juice mixed with water," he ends.

Brian Berkman

See www.Tru-Cape.com for more fruit storage tips.



Harvest of Hope

How a grassroots leader in Cape Town combats hunger—and climate change—through urban gardens

electricity expenses, and, once their efforts bear fruit, share meals.

In many communities, fresh, affordable produce is a pipe dream. Especially in South Africa, where 54 percent of households are at risk of or have experienced hunger. Beyond the price tags on the vegetables themselves, traveling to and from grocery stores can be expensive, time-intensive, and sometimes even dangerous. Malnutrition and obesity are simultaneous side effects of this lack of access. With the changing climate, such vulnerabilities will only worsen worldwide, experts say, and the poorest and most food insecure will bear the greatest burden.

Unless communities make serious efforts to bolster resilience, one in five more people will be at risk of hunger by 2050, according to the World Food Programme.

That's why this year's World Food Day theme—"Climate is changing. Food and agriculture must too"—is essentially a call to action. The message emphasizes strengthening sustainable farming methods and decreasing food waste, especially for

Sometimes Christina Kaba rises as early as one in the morning to get a head start on watering her sprawling vegetable garden. She works alone in the dark, her crops dimly illuminated by the lights of adjacent Manyanani Peace Park.

"If you want to do things, do them with all your heart," said Kaba, who acts as chief executive officer of Abalimi Bezekhaya, an urban farming and environmental action organization working throughout Cape Town's townships. The grassroots NGO, which translates to "farmers of the home" in Xhosa, supports a variety of home and community

gardens via local organic supply centers, heavily subsidized trainings, and ongoing guidance and assessments.

Kaba is one of many food-security champions across the globe celebrated by UN World Food Day, an international initiative to promote action and awareness. A seasoned gardener, the 67-year-old has spent decades combating hunger by training Cape Town's most poverty-stricken residents—many of whom live within food deserts—to grow their own vegetables. In the process, Kaba has developed a network of community gardens throughout Cape Town's poorest neighborhoods, whose citizen gardeners trade tips and tricks, split manure and

small-scale operations. After all, environmental injustice, already a significant element of climate change, is especially pronounced when it comes to world hunger.

The day was established in 1979 to commemorate the founding of the Food and Agriculture Organization of the United Nations (FAO) on October 16, 1945. UN World Food Day also promotes awareness of food insecurity and outreach to those suffering from it.

This year's theme of climate action particularly resonated with Kaba. Last summer, amid South Africa's ongoing drought, the worst in 30 years, Abalimi's farmers saw many of their tomatoes and green peppers become scorched and inedible.

"Before, we thought these things were happening overseas, not to us," she said. "But last year was very, very hot."

Unlike in agriculture-friendly central Cape Town, the topsoil of Khayelitsha, the nation's largest and fastest-growing township, is notoriously sandy—as it is in most neighborhoods situated on the barren and windswept Cape Flats. Beginning in the

1950s, South Africa's apartheid government forcefully evicted blacks and other people of color from the city center and re-situated them along Cape Town's eastern outskirts. These removals, sanctioned by the racially segregating Group Areas Act, resulted in the poverty-stricken townships of today. In the decades following the 1994 democratic transition, poor farming conditions have perpetuated this spatial apartheid legacy—and it's only becoming more and more exacerbated, thanks to warming temperatures.

In preparation for what predictions indicate will be another extremely dry season, Kaba has begun reintroducing an age-old technique in Khayelitsha to save water: trench-bed gardening. Farmers bury cardboard and other repurposed rubbish between their nutrient-rich soil beds and the sand below. This barrier holds in liquid, allowing plants to survive up to three days without watering.

Though the situation at hand is particularly dire, such sustainability initiatives have steered Abalimi's mission, ever since its origins in the early 1980s. The organization's

trainers teach exclusively organic methods, not only because of their environmental and health benefits, but also, Kaba says, because they're cheaper. Low overhead costs ensure that even the most impoverished township residents can start their plots.

"There is no poor," she said. "Poor is only in your mind."

Born on a farm in the KwaZulu-Natal (KZN) Province, Kaba dropped out of school at 15 to become a garden laborer and domestic worker. After arriving in Cape Town, she got by cleaning houses in the upscale Sea Point neighborhood.

When Kaba applied to become manager of Abalimi's then new Khayelitsha Garden Center in 1989, she didn't have any official training or certificate, just decades of personal experience. At first, she focused on teaching individuals how to cultivate home gardens to feed their families. Thanks to those efforts, rows of cabbage lined compact backyards, and spinach sprouted from repurposed tires. No space, she proselytized, was too small for a modest harvest. Kaba swiftly rose up the ranks from garden center





manager to educational trainer to CEO. More than 25 years later, she finds her life course to be fully aligned with the philosophy of Abalimi, and with Khayelitsha's urban farming pioneers.

Originally an offshoot of Catholic Welfare and Development, Abalimi grew quickly, in large part thanks to Kaba's tireless leadership and activism.

In 1997, she brokered deals with the local municipality as well as Eskom, South Africa's leading power company, to form Abalimi's first community garden on a vacant plot next to a powerline.

Today, the established nonprofit supports a variety of training programs, greening projects, organic supply centers, and community farms spanning the Khayelitsha, Nyanga, and Philippi townships.

Every Tuesday, an affiliated operation called Harvest of Hope delivers fresh produce, harvested from the more than 75 plots comprising Abalimi's garden network, to subscribers throughout Cape Town, its affluent suburbs, and within the townships themselves. Founded in 2009, the guaranteed purchase scheme provides a stable income to farmers in a community where

the unemployment rate hovers above 50 percent.

"It's so important because the soil is where they can create their jobs," said Kaba. "The soil is gold." Kaba can often be found in Harvest of Hope's pack shed, diligently inspecting spring onions or trimming the roots of kohlrabi. She typically sports a cropped blazer, tailored dress, and colorful head wrap, appearing like she's dressed for an official meeting rather than for sorting the latest harvest. For Kaba, the vegetables' quality is worth the extra check—a final safeguard between the farmers' livelihood and their customers.

Her thoroughness persists in a wide range of other grassroots efforts, too. She's sat on neighborhood councils, founded numerous tree-planting initiatives, and even spearheaded the establishment of Khayelitsha's first community park. Kaba says she's happiest when she's able to give back, straddling the line between social worker and farmer.

"When people are in her community and they have nothing, they go to her," said Nancy Maqungo, a longtime friend and Abalimi chairperson. "They know that even if she has nothing, she will make means to help. She's that type of person."

Kaba's long litany of accolades reflects this legacy. In 2001, she was named grocery store chain Shoprite Checkers' "Woman of the Year." Most recently, she received the honorary title of 2015's "Best Subsistence Producer" from South Africa's Department of Agriculture, Forestry, and Fisheries. The list goes on.

Her latest community garden project, Moya We Khaya, occupies one hectare of land in Khayelitsha and produces almost a quarter of Harvest of Hope's vegetables. Since its 2014 founding, the farm transformed from an unkempt sandy plot into Abalimi's flagship garden. It is there that Kaba tends to her own vegetables, hosts community events, and imparts her overflowing well of knowledge to fellow gardeners.

"This last project, I did it for myself and my community," said Kaba. "We—all of us—need to take it in our hands."

Her stalwart leadership has forever altered Cape Town's urban farming landscape—embodying World Food Day's call for climate change resilience in more ways than one.

*Words: Hannah Norman
Photos: Fredrick Sjostrand
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You can't outsmart the market

Hedging strategies can limit producers' risk in volatile markets

Major fluctuations in currency and commodity prices, especially over the last 12 months, have exposed producers and users of agricultural commodities to major swings in income and production cost.

The increased volatility and unpredictability of the currency has compounded the difficulty for crop producers to plan and also puts their survival at risk.

Crop producers can limit the financial impact of adverse price movements in the currency and commodity prices through hedging strategies.

Since August 2015 uncertainty has been the order of the day on the currency markets, with the resulting impact on the prices of commodities.

Not only did currency volatility increase dramatically from September 2015 (three months prior to Nene-gate) to August 2016, but the period was marked by dramatic directional swings.

For the period from September 2014 to August 2015, the average difference between the weekly highs and lows in

the value of the rand was 32 cents. For the period from September 2015 to August 2016, it increased by 113% to 68 cents per week, which resulted in great uncertainty for importers and exporters alike.

For crop producers, this caused major fluctuations between the high and low prices of commodities.

For example, the average difference between the high and low during a week for white maize increased by 48% from September 2014 to August 2015 on a weekly basis was R143 per tonne, with an increase to R212 per tonne per week for the period from September 2015 to August 2016.

Since November 2015 white maize prices varied between R 3000 and R 5100 per tonne. This, by implication, means that a producer or processor of white maize experienced a 70% swing in either income or production cost over a very short period of time.

Producers should not try to outsmart the volatile markets, but rather to stick to vanilla hedging strategies to ensure the survival of their businesses.

The correct hedging strategies against price risk, be it currency or commodity, will help producers to lock in a reasonable profit in uncertain times.

Producers who are tempted by the volatility in commodity and currency markets to take speculative positions should open a separate speculative account and decide up-front how much they are willing to invest in such a position.

There will come a time where more aggressive strategies can be followed in future again.

The outlook for the rand remains uncertain as it will be influenced by international and local developments.

While the international risks linger and create uncertainty about the direction the rand is heading, the recent political developments surrounding Finance Minister Pravin Gordhan coupled with a possible ratings downgrade later this year adds to the uncertainty and creates a volatile environment.

With the appropriate hedging strategies, volatility creates opportunities to lock in certain levels once budget levels are known.

Jannie van der Watt, General Manager at GroCapital Financial Services (GroCapital)

Driving the agricultural sector

The market for machinery is growing

The market for agricultural machinery in South Africa is expected to grow by between 3% and 5% over the next four years.

In South Africa the growth in the market for agricultural machinery will be supported by the rapid expansion of technology that will improve yields and make farming more cost effective.

Globally, the agricultural machinery market is expected to grow at a compound annual rate of over 7% during the period 2016-2020, according to global research company Technavio.

In its latest research report on the agricultural machinery market (released in June), Technavio says globally growth will be driven by growing urbanisation, and different initiatives from governments regarding agricultural activities. Many governments, especially in developing countries, are offering credit facilities and subsidies to farmers, which help them in purchasing advanced machinery.

The growth in the market for agricultural machinery in South Africa will largely depend on cyclical factors, especially seasonal rains, whilst the consolidation in the sector due to the drought of the past few years will also play a role.

More robust growth can be expected in Africa, where the commercial farmers are less mechanised than their counterparts in South

Africa. The high demand for mechanisation will definitely play a role in the growth in the agricultural machinery market on the African continent. The vast new developments in Africa on clearing bush for arable land will force the mechanisation route for all farmers and innovative plans for structured deal making on equipment will also play a role.

AFGRI has taken the lead with innovative finance schemes in Zambia and Uganda.

In Zambia, AFGRI's John Deere dealership, in partnership with Zanaco and the Zambia National Farmers Union (ZNFU), provide agriculture asset finance to help farmers mechanise their operations.

In Uganda, the Abba Mechanisation Circle, through AFGRI's Agricultural Development Services Division, provides farmers with access to mechanisation, which is purchased by AFGRI and made available to them through rental agreements.

Much more is needed in Africa to drive the agricultural sector and increased demand for agricultural equipment. To assist farmers in Africa to increase their yields through the use of modern equipment, government involvement is crucial, and so is the availability of financing for agricultural equipment.

This will require the banking sector to take some calculated risks.

As Africa is the lowest mechanised continent, the growing demand for mechanisation

will drive the market for agricultural equipment. According to the Technavio report this will be supported by the announcement that agricultural departments across the continent will allocate more than US\$ 48 million in subsidies to small farmers during 2015-2017.

In some countries, notably Zambia, there is good support to make finance available for farmers to buy mechanised equipment, but the difficulty to access finance can hamper the growth rate.

Technavio expects that Asia Pacific (APAC) will continue to generate the bulk of the revenue for the global agricultural machinery market. In APAC the market is expected to reach US\$74 billion by 2020 compared to US\$46 billion expected in North America. APAC has a larger share of the market mainly due to the growing population in this region, which gradually boosts the demand for food. Increased mechanisation is supported by government initiatives such as subsidies for agriculture and credit availability.

In contrast to this rapid growth, the agricultural machinery market in North America has reached maturity and is expected to witness slow growth due to a decline in the price of commodities and a weak forecasted economic cycle in North America.

Patrick Roux, Managing Director at AFGRI Equipment

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A time of change

The far-reaching consequences of drought

Rainfall is at the lowest recorded level since 1904. What is the immediate impact of drought on farmers? What are the financial consequences? What forms of support exist? Are they adequate? How could they be improved? We asked Prof. Johan Willemse, of the Department of Agricultural Economics at the University of the Free State, to unpack these issues for us; his response follows below.

The South African weather service indicated that the rainfall for 2015 for the whole country was the lowest on record. More important is that the previous three years also showed a declining rainfall pattern. The first part of 2016, up to November 2016, was also well below normal and in some regions even worse than the 2015 rainfall.

The impact is that subsoil moisture and underground water continued to decline,

with irrigation dams also slowly but surely dropping in levels.

The size of crops has deteriorated substantially and South Africa will have to import year about 9 million tons of grain during the 2016/17 – a new record. Infrastructure remains under severe pressure, as the bulk of the commodities needs to be transported inland, by road.

The fact that prices have increased sharply during this period, reflecting the costs of imports and also the weakening rand exchange rate, has resulted in food inflation running between 10-12% on average. However, for some staples, such as maize meal, price increases of more than 30% have been passed on to the consumer, reflecting the higher costs of imports, etc.

The difference compared to early 1900s is that the South African population has increased significantly: estimates indicate that we are close to 70 million people, of which about 70% live in urban areas, that

is, they are not producing their own food. They are dependent on food available on store shelves and for that they need income to afford to feed their families. However, unemployment is increasing and unofficial estimates indicate that one in three people do not have adequate food. Numerous requests to Government to step in to support consumers have been ignored. The result is that the drought has effected the larger part of our population very negatively.

In the case of grain farmers, large numbers of farmers had three years in a row where they were not able to cover their production costs. For the 2016 harvest year, a large number of farmers in the central and western production areas had no crops, so the high prices did not assist them at all. Grain farmers' financial position deteriorated substantially and what we are currently experiencing is that banks did not extend loans to produce in the new season and are forcing farmers to sell their businesses and land to pay off debt.

The planting intentions for the 2016/17 production season indicate that farmers plan to plant 355 000 hectares fewer than what was the case before the drought. The negative results are continuing without any government support and it is not a given that South Africa will be self-sufficient in terms of grains and oilseeds in 2017. Preliminary analysis shows that we will again be a net importer of grain and oilseeds in 2017/18.

Irrigation farmers are faced with cuts to their irrigation water and in some areas no water is available for irrigation. In the case of water cut backs, the farmers will not be able to plant a normal crop, reducing their income; in some cases they will not be able to pay for overheads during 2017.

Livestock farmers have been hit from several angles. Reduction in grazing resulted in the need to buy in feed at elevated prices and then also to transport the feed to the central areas.

Obviously, normal production was not possible and farmers had to sell off their animals to pay for the purchase of feed.

Production of new calves and lambs has dropped significantly. Added to this, surveys estimates indicate that the national breeding herd decreased by 15-20%. The end result is that livestock farmers will have a reduced stock of lambs and calves to sell during 2017/18, again resulting in a drop in income, putting further financial pressure on the sustainability of livestock farmers.

The result of this is that the agriculture sector's contribution to economic growth was negative during the past two years and this will most probably be the case in 2017. The rural economy is in a recession and local towns are slowly collapsing from the strain. Unemployment is increasing and migration towards the cities has increased significantly. The social cost of non government intervention is quite high and will permanently change the rural farming communities and towns. Poverty will increase and it will be very difficult to change this around without concerted government support, which is not happening.

Commercial, emerging and subsistence farmers all have had serious financial losses and losses of livestock. My personal view is that it will alter the face of agriculture significantly. Why should a young person risk his



Prof Johan Willemse Professor: Agricultural Economics at UFS

savings to try and farm in a country with a harsh climate and with no Government support (other countries offer support)? The risks are just too high, given the possible profits that can be made.

New farming models will emerge and large, diversified grain and livestock farming enterprises will be needed to be able to withstand the risks of drought and floods. Small and medium farmers will need to find alternatives to keep going.

There have been a number of efforts to convince Government that South Africa should develop a disaster support system for rural areas.

Most urbanized and successful agricultural countries have permanent support systems in place because they put a high premium on keeping the rural economy healthy and

ensuring a sufficient supply of affordable food to the people living in cities.

The most popular support system is a subsidized insurance scheme for farmers, where government subsidizes the premium paid for insurance against drought and floods. It is available to all sizes of farms and the technology exists to implement it in South Africa. Unfortunately, the government is not viewing this as a priority. The result will be that farmers will have to deal with the risks on their own, which will make farming unattractive, reduce new entrants and result in a tendency for South Africa to become more reliant on expensive food imports over time. At the same time, we will witness a slowly decaying rural economy.

To contact Prof. Willemse: WillemseBJ@ufs.ac.za

Manage the bugs

Integrated pest management (IPM) through thorough record keeping improves residue management

The old saying “to measure is to know” remains the backbone of agriculture. Granddad already knew that “the years when the gumtrees shed their bark” would be wet ones. He however could not predict when such promised rains would indeed fall.

With the past dry winter, Cape farmers are cautious about the possible summer rains ahead, as the gums have indeed shed their bark. This kind of uncertainty is a risk which complicates farm management and can mean the difference between export and local class produce.

Today's farmers are risk-managers, equal to stock traders, who utilize weather stations, spore traps, attractant-baited insect traps and various other measures of orchard monitoring, in order to collect sufficient data to ease decision making. Services such as PPM™ (Precision Pest Monitoring) visually presents monitoring data, enabling early detection and identification of pest hotspots, allowing targeted applications.

Residue management complying with strict export standards requires thorough planning and recordkeeping. Monitoring throughout the year is of crucial importance in order to timeously position the most suitable crop protection product(s). Agricultural advisors and agrochemical agents rely on this

Today's farmers, like stock traders, are risk managers who use data to ease decision making

important information to compile suitable recommendations, based on the registered crop protection available.

Where complete weekly monitoring is practiced, by systemic inspection of all

data points of a tree, from the roots, stem, branches, leaves, flowers and/or fruit, a good oversight can be obtained. The development of pest hotspots can be observed early and managed accordingly, preventing the use of heavier non-target specific cover applications. Management of targeted areas allows focused applications, whilst a suitable environment for natural predators can be created and maintained. Predators such as *Anagyrus* spp., *Coccidoxenoides perminutus* and *Cryptolaemus montrouzieri* are typical examples of biological control agents for mealybugs in grape vines and citrus, which are only effective in a fully integrated pest management strategy. With dedicated monitoring, knowledge about the present mealybug instars allows selection of the most suited predator(s) for release. Thorough planning with regards to follow-up sprays will ensure that released predators are not affected adversely. This is directly applicable to *Aphytis melinus* predators against citrus red scale, *Amblyseius swirskii* against thrips & whitefly, *Aphidius* spp. against aphids, Sterile Insect Release (SIR) and many others.

As with the limitation of tank-mix incompatibility on some plant protection products, follow-up applications (if any) need to be considered, especially where products such as Nucleopolyhedrovirus or Granulovirus and bacteria such as *Bacillus thuringiensis* are incorporated in an IPM program for Lepidoptera management. This group of products is highly compatible with release of predators and most plant protection products and therefore presents an important additional dimension for complete pest management.

Martin Wohlfarter, Business Development Manager, Laeveld Agrochem, Western Cape

Feel free to contact your closest Laeveld Agrochem agent for a tailored IPM program, which encompasses the most optimal combination and placing of plant protection products, given your crop and farming conditions, to ease effective residue management. Use PPM™ to transform field data effectively into information for your orchard specific IPM program.



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Hope wanes

Cape Town community farm faces eviction

The residents of a community farm and "eco-village" that has been operating for 21 years in the Cape Town neighbourhood of Tamboerskloof on the slopes of Signal Hill are facing imminent eviction. Returning from a meeting with legal advisers, the farm's caretaker

and overseer André Laubscher, enters a goat pen and opens a satchel slung over his shoulder.

"Meet the new residents of the farm," he says to his daughter. In the bag are two chicks chirping for water. After feeding them, he tucks the birds away and follows her to a

fire pit, where three young residents — also facing eviction — are sitting after returning from the same meeting.

The 8.4 hectare farm, officially listed as ERF 81, is on land managed by the Department of Public Works. The land once housed military barracks, which have been turned into informal homes. There are also vegetable



gardens, nurseries, chicken coops, and grazing areas for goats and ponies. The land is home to 30 full-time residents, many of whom came to the farm as a last resort.

At the end of July, the Department of Public Works gave residents one month to leave the property. The businesses on the farm were told they had to vacate the property by Wednesday, 31 August. But the residents

say that so far they have not heard from the police or city officials. An online petition to stop the eviction has gathered over 1,900 signatures.

Thami Mchunu, spokesperson for the Department of Public Works, said the department was aware of the petition and planned to hand the property back to the Department of Defence. But the residents of ERF 81 said they were hoping for a lease from the Department of Public Works for one year to attract investments and donations. The department has said it is unwilling to grant the one-year lease.

Mzukisi Zele, a resident involved in the legal proceedings, said: "We agreed that we will continue regardless." Laubscher said he believed there was an important role for the farm in Cape Town in building a community.

"I strongly feel that the right thing should be happening, should be supported," he said. "I know we need housing in Cape Town; it's a serious issue. But we also need the things happening on the farm."

Planting a seed, attracting investors

Chuma Mgcoyi, who has lived on the farm for three years, said she moved there because she could not afford the rents in Observatory. She and five other young Capetonians have since founded Tyisa Nabanye, an urban gardening collective that grows organic food on the property and hosts weekly farmers' markets. Unathi Dyanty, one of the project's co-founders, said the threat of eviction had made it difficult for Tyisa Nabanye to attract investors and donors. "People don't want to invest if they don't know if tomorrow we're going to be evicted."

Zele, also a co-founder, said he felt the government should appreciate the gardening

collective for its promotion of social cohesion and hands-on, community-based work. "The government should look at us and support us because this is the kind of youth they want in this country, youth that created something out of nothing," he said. "We are the state." "This is my home, my everything"

The ERF 81 farm was a foster home for three years, and since then, has become known as a safe haven for children and a place to interact with farm animals, said Illiona Morris, Laubscher's daughter. She said the first foster child was now 20 years old and beginning his university studies.

Fourteen-year-old Thimna Jack has lived on the farm since age two. She said she saw Laubscher as a father figure, someone to go to for advice and support. Her mother lives in Khayelitsha, but the two did not see each other often, she said. "I wouldn't be where I am if it wasn't for [André]," she said. "This is my home, my everything." ERF 81 also engages with the Tamboerskloof and Bo Kaap neighbourhoods nearby.

The land is open to the public. After school, local parents such as Candice Kotze, who said she has been taking her son to the farm several times a week for the past four years, often bring their children to climb the trees that ring the property and play with the animals.

Laubscher said he wants the farm to have an educational aspect for children raised in urban environments. "If you grow up on a farm, there's enough media to make you know you want to be a doctor," he said. "But for a city kid?" "It's priceless," interrupted a mother who had brought her children to play at the farm.

*Diana Mellow and David Doochin
groundup.org.za*





State support for agriculture

Minister commends pro-women agri initiative and other government news

Agriculture, Forestry and Fisheries Minister Senzeni Zokwana has welcomed an initiative by a group of Western Cape women, who have set up a network of entrepreneurs to help women and youth to get into farming.

In an interview with SAnews, the Minister said the initiative makes it easier for government to work with communities in order to help members of the community, especially women and youth, to organise themselves and become small-scale and subsistence farmers.

He said this when he visited the Business Women Network, including a site visit of three poultry and piggery projects in Malmesbury.

"We appreciate [the initiative by the Business Women Network] because it links easier with government. If I were to come here and look for women who are interested in agriculture, I would not know where to start.

"They formed a network, which in itself organises, identifies opportunities and comes up with what is possible and it shows people who have already succeeded," he said.

The Business Women Network, which was founded by six women earlier this year, now

comprises 50 women, who have shown an interest in expanding their network with the aim of contributing positively to the agricultural sector.

The network, which is in a process of being registered as a formal business, gets business women to identify opportunities in the agricultural space in the Western Cape, including training and mentorship opportunities, for those who have never been exposed to farming.

The visit by Minister Zokwana gave the women's network an opportunity to brief him about the challenges they encounter as they seek a breakthrough as smallholder farmers. This includes, among others, smallholder farmers affiliated to the network occupying a piece of land that previously belonged to the Housing Development Agency, which was earmarked for human settlements.

The business network is seeking assistance to get the land to be rezoned for farming purposes so that it can be developed further.

They also asked the Minister to assist them with access to farming in order for them to increase their farming operations; technical training for farmers for both animal and crop production and farmer-to-farmer mentoring.

The Business Women Network's Nokuthula Mgwebile welcomed the Minister's visit, and said she was optimistic that he would assist them with their challenges.

"Right now, there are trucks going all over. The commercial farmers are actively doing their thing right in front of our eyes and we are just tired of this island of poverty sitting here...and there are opportunities for us to tap into."

The Minister said a team of officials from national, provincial and local government departments would have to be deployed to the area to assist the women with these and other challenges.

"One of the reasons [I came here is] we always appreciate that food security is one of the fundamental programmes of the department.

As our Freedom Charter says, everybody has the right to food.

"That right can be achieved when we partner with those who are trying their best to be subsistence, small-scale or commercial farmers.

"Our aim is to create a link between the commercial, subsistence and small-scale farmers so people can be able to do things on their own with government assistance.

"I think my coming here has shown that these things we always think of are possible. People on their own are doing things. What they need is support and guidance," said the Minister.

R212m to support farmers in drought-stricken provinces

The Department of Agriculture, Forestry and Fisheries has allocated R212 million to assist provinces that have been severely affected by the drought.

The money is to be used for animal feed in seven provinces including the Free State, KwaZulu-Natal, Limpopo, Mpumalanga, North West, Northern Cape and Eastern Cape. These provinces have declared a provincial state of drought disaster, as South Africa battles the worst drought since 1992.

R29 million has been allocated to the Eastern Cape, Free State R31 million, KwaZulu-Natal R23 million, Limpopo R28 million, Mpumalanga R26 million, Northern Cape R25 million, North West R38 million and the Western Cape allocation is R12 million.

"The Western Cape has declared a local state of disaster in three municipalities - Central Karoo, Eden and the West Coast. Gauteng is the only province that has not

yet declared a state of drought disaster," the department said in a statement.

During the 2015/16 financial year, the national Department of Agriculture allocated R263 million towards drought relief through reprioritising the Comprehensive Agricultural Support Programme (CASP). Provincial Departments of Agriculture made R198 million available through their equitable share funding.

"These funds were utilised to assist affected farmers with animal feed and water reticulation for livestock. For the 2016/17 financial year, the department further requested for drought relief assistance from National Treasury through the National Disaster Management Centre," the department said.

While some parts of the country are experiencing some rain, the department noted that the country in its entirety is receiving below average rainfall compared to previous seasons due to the El Nino.

Most rivers are not flowing normally and dam levels are at their lowest in a decade.

Limpopo has potential to flourish

Deputy President Cyril Ramaphosa says government has an opportunity to rebuild Limpopo as a place of innovation, production and commerce.

He was addressing the Limpopo Provincial Economic Summit held in Polokwane.

"We have an opportunity to revive this region as the breadbasket of Africa by exploiting the full value chain of agriculture and agro-processing. Limpopo has great potential to become an industrial hub but to do so, we need to build partnerships with the private sector.

We need to become an attractive destination for local and foreign investment. Good governance must be our creed."

He said government must ensure that it uses its spending muscle to empower small businesses and not a select few individuals.

"We want a provincial administration that is efficient, clean and places a premium on excellent service.

This province has extensive mineral resources. It has fertile soil and significant agricultural capabilities," he said.

The province lies between the industrial heartland of South Africa and the rest of the African continent. It has a unique

opportunity to become a strategic export hub for Southern African road freight.

"We have not yet fully harnessed the economic potential of Musina, which is currently the busiest inland port on the African continent.

"We look to this summit to outline concrete action plans to strengthen the provincial growth points, including the Musina-Makhado Special Economic Zone (SEZ) development corridor. As indicated in the National Development Plan, we need to change the structure of our economy."

Focus must be on beneficiating mineral resources, investing in manufacturing, improving technology and leveraging opportunities in processed agricultural goods.

The Deputy President also said there are major investment opportunities in automotive and electronics products that are easily exportable by road into the rest of the continent.

"Risks associated with manufacturing can be lessened by creating and sustaining our special economic zones. It is important that business and the private sector collaborate with the provincial government to develop new special economic zones and attract new inward investment."

He called on the provincial government to continue to do its part to strengthen integration and implementation.

"We also need to examine how the province's growth drivers, such as mineral resources and energy, can be positioned to attain inclusive, sustainable economic development. Implementation of our industrial policy is paramount as it promotes labour absorbing sectors.

"We must diversify our industrial and services base. We must build sustainable export industries, and we must expand production in rural and agrarian communities," said the Deputy President.

He called on all South African business leaders to renew their commitment to citizens by investing their talents and resources to eradicate the scourges of poverty, unemployment and inequality from our land.

Biotech crops impact economy positively

The Department of Science and Technology Director General, Dr Phil Mjwara, says biotechnology or genetically modified (GM)

crops have had a positive economic impact on South Africa.

He said this when he briefed journalists upon releasing the second survey on the Public Perceptions of Biotechnology in South Africa.

The survey was conducted by the Human Sciences Research Council (HSRC).

"It is estimated that the economic gains from biotech crops for South Africa for the period 1998 to 2013 was US\$1.6 billion and US\$313 million for 2013 alone.

"In 2014, South Africa was growing more than 2.7 million hectares of GM crops. About 86% and 90% of maize and soya produced, respectively, are GM. Cotton is 100% genetically modified," he said.

Dr Michael Gastrow, from the Human Sciences Research Council, said one of his observations from the survey, which was conducted amongst 2 900 adults in 500 areas across the country, was that there was a better understanding of how much people know about biotechnology from the younger generation, and that attitudes tend to get more positive with the young ones.

Dr Gastrow also said that the privileged – from the level of education, to those with a better living standard – have a better understanding or knowledge about biotechnology.

"When you look at attitudes towards biotechnology in terms of health, safety, environment and economic contribution... there are significant proportions that are in favour of a particular attitude, a significant proportion [that are] against, and a significant third... that just doesn't know enough about biotechnology," he said.

He said most South Africans are aware they are consuming genetically modified food.

The survey revealed that 48% were aware that they were eating genetically modified organisms, while 49% believed it was safe to do so. The first survey conducted in 2004 revealed that public familiarity with the term 'biotechnology', stood at only 21%, while public awareness of GM consumption was at 13%. The latest survey commissioned by the department last year showed that the figures have tripled, 53% and 48% respectively.

Dr Gastrow said there had also been a major increase in attitudes that favour the purchasing of GM foods.

The proportion of the public that would purchase GM foods on basis of health

considerations increased from 59% to 77%, while that of cost considerations increased from 51% to 73%, and environmental considerations from 50% to 68%.

GM forms of maize, soybean and cotton have been approved for commercial production in South Africa and these crops have become established in some parts of the country.

Dr Mjwara said, meanwhile, that while genetically modified crops have been approved and adopted in South Africa and worldwide by science-based regulatory systems and farmers, they still remain a source of apparent public controversy.

While it is entirely appropriate for the public to have varying opinions on the technologies and their applications, where misinformation or deliberate misinformation is offered, it needs to be countered with scientific evidence, he said.

This controversy contributes to extreme precautionary approaches by some countries, resulting in increased regulatory burdens and delays, with associated development costs, timelines and risks that have limited the number of countries adopting the technology – including countries in Africa.

"[This has] limited the application of the technology to relatively few crops, with limited traits, and only a handful of developers – usually multinational companies – have the capability and the resources to commercialise GM crops," Dr Mjwara said.

To counter this perception, the Department of Science and Technology established the Public Understanding of Biotechnology (PUB) Programme, which sought to promote awareness and understanding of biotechnology to the broader public. The PUB Programme was broadly successful in a number of interventions, including developing media roundtables; critical thinker sessions; exhibitions; training of media on science and technology issues, and the development of biotechnology in school curricula.

However, it had very limited ability to respond to inaccurate, misleading or vague media (newspaper, television and radio) reports.

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