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technology for the farmer

No 91

Free



Food production in Africa for the future

How to prevent coccidiosis on your broiler farm

How Gallagher's technology makes farming smarter and easier

Trafalgar Logistics takes hands with FAW Trucks


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Farmers hold together the fabric of society

The old adage: "If you've eaten today, thank a farmer", rings as true in modern times as it did hundreds of years ago. Society simply cannot survive without food, and food is produced by farmers.

The push against farmers is a current global phenomenon, and when not passively standing by while farmers cope with high input costs, livestock theft, droughts and floods, some governments are apparently working towards the destruction of farming operations.

If you are not a farmer, it is easy to ignore these changes in the attitude of society and governments to farmers. However, it is not prudent to do so.

Governments are failing farmers. By failing farmers, they are failing us. Society relies on farmers, and never is it more apparent than when supermarket shelves run empty. Perhaps this is a case of not appreciating something until it is no longer there, but I hope for all our sakes that we do not get to that point.

Recently, I have heard of farmers who have suffered devastating effects from stock theft, and many have decided to give up. However, there are those who stand up one more time and try again. For some, it is out of love and passion; for others, out of necessity.

I am thinking to myself, what will happen to a farmer and his family if they interrupt thieves while they are stealing or slaughtering their animals? Now is the time for farmers and all interested parties to stand up and take hands.

We must win this battle together for the sake of our country's economy, the emotional and psychological well-being of farmers, and ultimately, for the survival of future generations.

The agricultural sector should not only be about producing food, but also about creating room for growth and taking hands, so that both women and men can seize opportunities at their disposal. Building a more inclusive agriculture sector requires collaboration between small-scale and commercial farmers.

A little support goes a long way, and I hope that the world soon realises that we can do without private jets, but we cannot do without farmers.

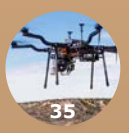
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Cover

Tron Logistics has been in operation for almost a decade. It operates in the courier and express freight sector, and thanks to FAW Trucks, all its deliveries are made on time, every time. Turn to page 3 to read the full story.



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FAW ensures Trafalgar Logistics reaches new heights

by Maryna Steyn

Every fleet owner needs the type of truck that provides him with longevity and durability for the long haul. Whether it is transporting goods and equipment across the border, or delivering harvests to grain silos and markets, this workhorse needs to be reliable and cost effective.

Many fleet owners have found that the FAW JH6-range exceeds their expectations in this regard. These trucks help businesses to be more cost effective while creating a comfortable and safe working environment for drivers. Ryan Rossiter, Co-owner and Director at Trafalgar Logistics, can attest to this.

"Trafalgar Logistics is a family-owned business," Ryan says. "A lot of our business is based on the relationships we have built with suppliers and customers over the years."

The Trafalgar Logistics story

Trafalgar Logistics started in 2002. At that time, there were twelve trucks in the fleet. By 2015, the company grew to 38 trucks and now, in 2023, they have a total of 50 trucks and growing.

"We are based in Boksburg, South Africa, but many of our operations run into Zimbabwe, Botswana, Zambia, and the DRC," Ryan explains. "We mainly serve the agricultural and mining sectors of Zambia and the DRC."

The company specialises in transporting mining equipment to the mines in the Congo and bringing back, in turn, copper and cobalt hydroxide.

FAW contributes to Trafalgar Logistics' success

While on a business trip to the Botswana border in 2022, Ryan noticed that there were many JH6 500FT and JH6 420HP trucks on the road. "I was intrigued and started my own research into these models. I found out that one of my friends in the transport industry also had a few FAW trucks in his fleet. He gave me a review of the brand's fuel consumption and I approached the Kempton Park branch to find out more."

There are three main reasons why Trafalgar Logistics decided to purchase the JH6 420HP-models:

- Value for the price
- Immediate availability of units to join the business
- Fuel consumption that was significantly better when compared to other similar models

"Another feature that made us consider the JH6 420HP in particular, was the warrantee offered on the JH6 420HP, which was for three years or 300 000 kilometres at a very good price," he added. Six JH6 420HP trucks were acquired to serve the growing demand Trafalgar Logistics is experiencing on the DRC route.

"Across our fleet of trucks, we have a wide variety of different brands, and we have found that the JH6 420HP has kept up with the rest of them," Ryan says. "We have also found that this particular model is popular amongst our drivers for the manual transmission, excellent fuel consumption, and driver comfort."

Top-notch service for clients

Ryan is satisfied with the service he receives from FAW. "My experience with FAW has been excellent. The sales consultant has been extremely helpful. He has met our business needs and has always answered our questions.

"In my perception, FAW is certainly keeping up with other brands' technology. If I need to add more trucks to the fleet, I will definitely choose FAW."

Ryan explains that in terms of after-sales, FAW has been fantastic. "There is a dedicated person who runs our after-sales, booking trucks for services, and so on. When the trucks go in to be serviced, they are only out for one day, so we are happy."

He regularly receives calls from other transport operators, asking him about the FAW brand. "They often ask about the power of the trucks, and I explain to them that the JH6 420HPs can pull a super link easily," Ryan elaborates. "We run up those escarpments with the trucks and we have no issues. They also ask about the fuel consumption, which we know is very good.

"My friend who praised FAW's performance phoned me to find out if I was satisfied with the JH6-models. On my recommendation, he obtained a few JH6 500FT trucks as well. I definitely recommend FAW to other fleet owners," he concluded.



Ryan Rossiter, co-owner and director at Trafalgar Logistics is satisfied with the results of adding FAW to their fleet.



The FAW JH6 420HP provides excellent pulling power to flatbeds with heavy loads over the tricky escarpments into Botswana, Zambia, and the DRC.

To find out more about the FAW JH6 420HP trucks, visit the website at **www.faw.co.za** or visit your closest dealer.

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Valuable hints from Novatek:

Pullet management

by Nelia Mbewe

The basis of good egg production is a successful rearing phase, at the end of which the hen must have reached her standard body weight with a well-developed frame and good feed intake.

Before arrival of the chicks, it is important to ensure that the brooding area and building interior are all cleaned and disinfected.

One day before delivery of the chicks, set the brooder temperature between 34 and 36 °C. The brooder area must be comfortable, well-ventilated and have dry bedding. Feed efficiency is affected by brooding temperatures. When temperatures drop, the feed efficiency is also reduced as the chick then uses the feed to generate heat instead of growth.

Beak trimming is an important aspect of pullet rearing. This should be performed between 5 and 10 days of age. This is to control the growth of the beak so as to reduce cannibalism, aggressive behaviour and feather-picking. various methods can be applied in beak trimming, such as hot blade and infrared beak treatment.

Body weight and optimum body structure and composition of the pullets are important for early production. The frame size is developed early, and by 12 to 14 weeks of age the size of the pullet is 'fixed'. It is therefore imperative that birds are fed correctly and that stuntedness is avoided.

Birds having some energy (fat) reserve is also an important factor in preventing post-peak dip that is sometimes observed even when there is no disease and/or management problems. Such issues must be identified and averted even before the birds are transferred to the laying house.

It is recommended to separate the birds into two to three groups based on body weight as early as possible, and then adjust feeding accordingly so that the underweight birds have a chance to catch up in their development before sexual maturity. The first eight weeks are critical for skeletal development. It is therefore important to feed according to body weight and condition, and not according to age. It is necessary to measure daily water and feed intake.

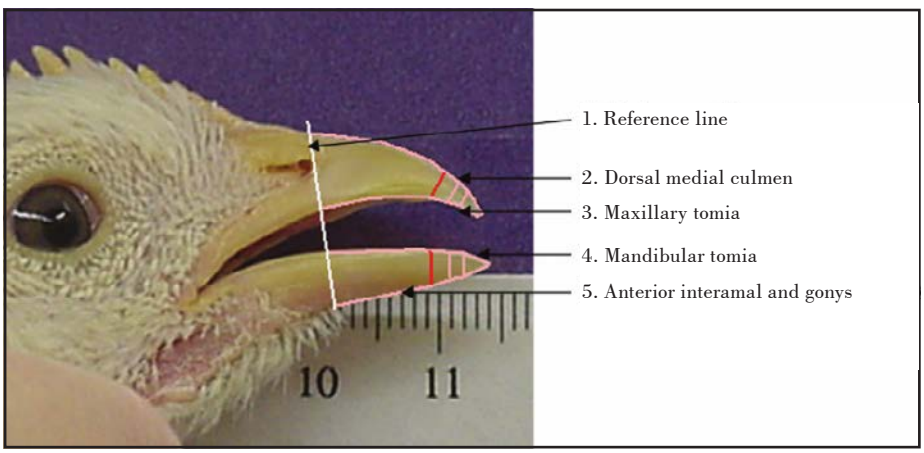
Any strong deviation from the previous day's consumption might indicate the onset of disease or technical problems.

Factors that need to be taken into consideration for the poultry lighting programme include: the intensity and uniformity of the light, the duration (photoperiod), the wavelength and the source of the light.

As the pullets approach sexual maturity, they develop an increased sensitivity to light stimulation. The lighting programme generates a photo-sexual response in rearing hens and allows for the harmonisation of the sexual maturity and stimulation of the commencement of laying.

In conclusion, proper management of pullets in the rearing period will be reflected in the laying period. If management was poor in the rearing phase, a poor laying phase will be observed. It is therefore critical that pullets are properly cared for by proper brooding at day old, provision of adequate and appropriate diet to ensure good development and body uniformity, and also a good lighting programme to that allows harmonisation of sexual maturity.

Novatek is well known as Zambia's leading stock feed producer and distributor. They pride themselves in supplying the best quality feed across the country. For information on Novatek's wide range of products and quality feed, contact Robert Kanyembo, Novatek National Sales Manager on (+260) 97-125-2522.



This diagram indicates how to safely trim a chick's beak. ***(Relationship Between Body Weight and Beak Characteristics in One-Day-Old White Leghorn Chicks: Its Implications for Beak Trimming - Scientific Figure on ResearchGate. Credit: Alan Fahey)***

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The TOPIGS Tempo boar is ideally adapted for African environmental conditions, this proven by our client list, their production results and profitability. Many top farmers in Africa have invested in the breed with huge success. The excellent health status of our genetics is considered a major competitive advantage. Many producers choose to repopulate with Topigs Norsvin genetics to reap the benefits of this advantage.







The TN70

- The TN70 is a cross between the Topigs Large White and the Norsvin Landrace.

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Zambian Pig Genetics is the distributor of Topigs Norsvin genetics in Central Africa. Built on our global research, innovation and absolute commitment to integrity and biosecurity, our close partnership approach means your farm benefits directly from our experience, energy and passion.

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ZAMBIAN PIG GENETICS:
MEET OUR SALES AND TECHNICAL ADVISOR AND INDEPENDENT VETERINARIAN

FRANCISCO KASUBA is ZPG's Sales and Technical advisor. He provides support for pig farmers in and around Zambia, specifically to those who are involved in artificial insemination (AI) and those who bought breeding animals from Zambian Pig Genetics Ltd.

Francisco's support includes:

- AI demonstrations with TN Tempo boar semen
- Farm visits
- Breeding advice
- Free consultancy to ZPG (Topigs Norsvin) clients
- Pig production techniques



FRANCISCO KASUBA
Sales and Technical Advisor at the ZPG Topigs Norsvin production unit in Chisamba.

Francisco is excited and optimistic about the newly bred TN70 gilt/sow.

He praises the TN70's excellent mothering abilities, heavy weaning weights, and large litter sizes compared to previous TN60 gilts and other breeds on the market. Francisco further mentions that the TN70 gilt shows more prominent signs during pre-heat and post-heat periods, making them easier to breed than other animals.

Farmers should consider introducing the TN70 gilt to their herd to maximize their production.

DR. PIOUS SIMFUNKWE is ZPG's (Topigs Norsvin) independent veterinarian who has been on board since 2018. He assists ZPG farmers across the country with artificial insemination, with an average of 10 to 15 gilts every week.

Dr. Simfunkwe is satisfied with the results of introducing the "TN Tempo Boar Semen" to pig herds of different Zambian pig farmers.

His clients are impressed with the results of using TN Tempo Boar semen:

- Improved uniformity
- Excellent growth rate
- Increased litter sizes

Dr. Simfunkwe encourages pig farmers to introduce TN Tempo Boar semen to their herds for improved production, especially for herds struggling to achieve desired market weights.

Contact Dr. Simfunkwe: +26 (0) 97-716-0562



DR. PIOUS SIMFUNKWE
assisting a Zambian pig farmer with insemination using the TN Tempo Boar semen.



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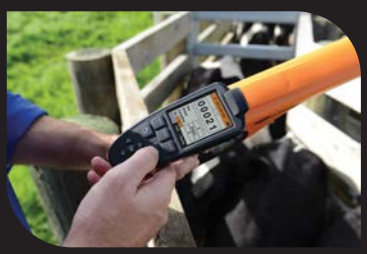
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GALLAGHER

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by Bianca Henning

Farm without effort with Gallagher's smart animal management devices

Gallagher understands the value of your farm and your livestock. They understand that you dedicate all your time and energy to your farm, and that is why they are your safety partner. They offer quality equipment and excellent service to farmers.

Gallagher Animal Management is a division of Gallagher Group Limited, a New Zealand-based company that specialises in electric fencing and animal management systems. The company offers a range of products and services designed to help farmers and ranchers manage their livestock more effectively and efficiently.

Their products include electric fencing solutions, weighing and EID (electronic identification) systems, pasture management tools, and animal watering systems. These products are used to improve the health and productivity of animals, while also reducing labour costs and environmental impact.

Some of these products include, but are not limited to:

Gallagher's Electric Fencing Systems are designed to provide secure containment and management of livestock. They offer a wide range of energisers, conductors, insulators, and accessories to help clients customise their fencing systems to suit their needs.

The benefits of electric fencing systems include lower costs, easy installation, and more flexibility in managing animals.

Manage your livestock's grazing patterns

Gallagher offers farmers peace of mind and has been protecting farmers' assets for 85 years. Electric fencing requires less time, effort and capital than traditional fencing.

However, its true value lies in powerful rangeland management capabilities. This gives farmers careful control over pastures so that pasture and forage crops can be indicated by permanent and temporary subdivisions.

Gallagher keeps your animals safe and ensures your peace of mind.

Estimated breeding values and information gathering form an important part of any livestock farming operation. **Gallagher's Livestock Weighing and EID (electronic identification)** solutions help farmers and ranchers to accurately weigh and identify individual animals.

This information can be used to improve animal health, productivity, and profitability.

Gallagher offers a range of weighing and EID solutions, including weighing scales, EID tag readers, and software. **Gallagher's Animal Husbandry Vet** provides a range of animal husbandry and management products, including livestock handling equipment, stock prods, and animal identification tags. These products are designed to help farmers and ranchers safely and efficiently manage their livestock, reducing stress on both the animals and the people handling them.

Gallagher's Water Management offers a range of water management solutions, including automatic waterers, troughs, and pumps. These products help farmers and ranchers to provide clean, fresh water to their livestock, improving animal health and productivity.

Gallagher Animal Management guarantees quality offers on products, including the range of benefits you will get when using this smart technology. The benefits of Gallagher Animal Management include enhanced soil health for proper grazing management, and can improve soil health by promoting the growth of beneficial plants, reducing soil erosion, and increasing carbon sequestration.

Gallagher's solar-powered electric fencing and watering solutions help to reduce carbon emissions by decreasing the reliance on fossil fuels, leading to reduced water pollution.

This assists with the prevention of contaminating water sources by ensuring that livestock have access to clean water and are not overgrazing in riparian areas.

Electric fencing resolves the issue of wildlife conflict and helps keep wildlife out of areas where they may cause crop damage, thereby reducing the need for harmful wildlife management practices.

Gallagher Animal Management products and services help farmers manage their livestock in a way that is both economically viable and environmentally sustainable.

Overall, these products offer a combination of durability, reliability, and innovation backed by Gallagher's extensive experience and expertise in the animal management industry.

Gallagher animal management products make life easy for farmers by offering a wide range of products and services to help them manage their animals and improve their operations.



Gallagher's Electrical Identification (EID) reader with its large colour display and alpha-numeric keyboard makes this handheld device the most powerful portable data collection and editing platform that delivers flexibility for the farmer right there on his premises.



Identifying and detecting water leaks can be time-consuming and frustrating.
Gallagher offers farmers solutions to track water levels and flow rates with the convenience of their phones.

Gallagher Animal Management SA is headquartered in Johannesburg, South Africa, and has a network of distributors and partners in over 100 countries worldwide. For more information, contact us at 011-974-4740, e-mail us at sales.za@gallagher.com, or visit our website at www.gallaghersa.co.za.

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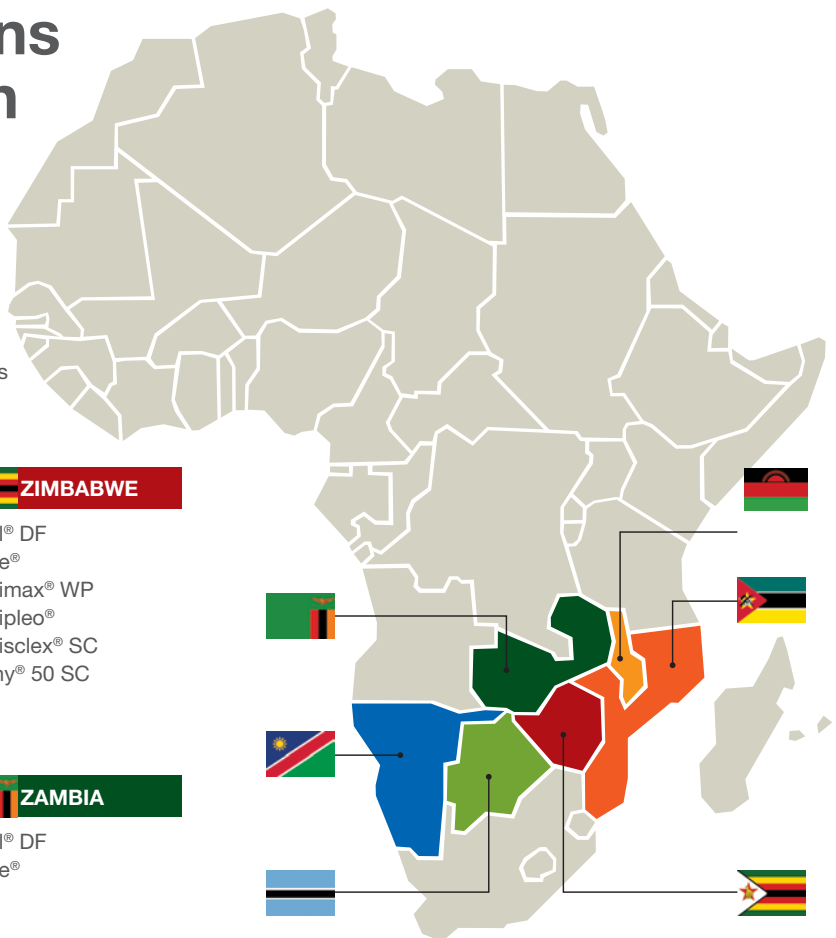




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Product information

INSECTICIDES

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A water dispersible granule biological insecticide for the control of *Lepidopterous* larvae on numerous crops as indicated. Active ingredient - *Bacillus thuringiensis, var kurstaki*, caution (Reg. No. L6441, Act 36 of 1947 (South Africa), W130297 (Botswana), MW/PCB/2021/R/0737 (Malawi), DSV-1545 (Mozambique), N-AR-0943 (Namibia)). DiPel®DF is the registered trademark of Valent BioSciences™ Corporation, USA.

FlorBac® DF
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Nemesis® 100 EC
An emulsifiable concentrate stomach and contact insecticide with insect growth regulant activity for the control of larval/nymphal stages of citrus Red scale (*Aonidiella aurantii*) and Mussel scale (*Cornuaspis beckii*) in citrus,and mango scale (*Aulacaspis tubercularis*) in mangoes and Whiteflies (*Bemesia tabaci* and *Trialeurodes vaporariorum*) in tomatoes. Active ingredient - Pyriproxyfen (phenylether), harmful (Reg. No. L6378, Act 36 of 1947(South Africa), W130334 (Botswana), N-AR 2170 (Namibia)). Nemesis® is the registered trademark of Sumitomo Chemical Company, Tokyo, Japan.

Olyset® Net
Olyset® Net is composed of a resin-based fiber that incorporates a synthetic pyrethroid called permethrin to form a mosquito net for malaria vector control. Active ingredient - permethrin caution (Reg. No. L8411, Act 36 of 1947 (South Africa, N-AR 1055 (Namibia)). Olyset® Net is the registered trademark of Sumitomo Chemical Company, Tokyo, Japan.

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A suspension concentrate contact acaricide for the control of the egg and immature stages of the Red spider mite (*Tetranychus urticae*) on roses and tomatoes, Red spider mite (*Tetranychus urticae*) and European red mite (*Panonychus ulmi*) on apples and pears and various mites on citrus. Active ingredient - Etoxazole (Diphenyloxazoline derivative), caution (Reg. No. L6011, Act 36 of 1947 (South Africa), W130352 (Botswana), MW/PCB/2021/R/0758 (Malawi), N-AR-1238 (Namibia)). Smite® is the registered trademark of Sumitomo Chemical Company, Tokyo, Japan.

Sumi-Alpha® 200 EC & 200 EW
An emulsifiable concentrate contact insecticide with residual properties for the control of insects in crops as listed. Active ingredient - Esfenvalerate (Pyrethroid), harmful (Sumi-Alpha® 200 EC, Reg. No. L6452 (South Africa), N-AR 1237 (Namibia), (Sumi-Alpha® 200 EW, Reg. No. L8821, Act 36 of 1947 (South Africa), W130730 (Botswana), N-AR 2169 (Namibia)). Sumi-Alpha® is the registered trademark of Sumitomo Chemical Company, Tokyo, Japan.

Sumipleo®
An emulsifiable concentrate contact and stomach insecticide for the control of *Lepidoptera* larvae and Leaf miners on potatoes and tomatoes, Diamond back moth larvae in cruciferous crops, African bollworm larvae in lettuce and Fall armyworm in maize and sweetcorn. Active ingredient - Pyridalyl dichloropropene-derivitive, caution (Reg. No. L8377, Act 36 of 1947 (South Africa, N-AR-1236 (Namibia)). Sumipleo® is the registered trademark of Sumitomo Chemical Company, Tokyo, Japan.

VectoBac® WG
A water dispersible granule biological larvicide for the control of mosquito larvae and fungus gnat larvae. Active ingredient - *Bacillus thuringiensis subsp. israelensis*, caution (Reg. No. L7224, Act 36 of 1947 (South Africa), N-AR 1167 (Namibia), DSV-2520 (Mozambique)). VectoBac® is the registered trademark of Valent BioSciences™ Corporation, USA.

HERBICIDES

Sumimax® WP
A wettable powder herbicide for pre-emergence control of annual broadleaf weeds, as listed, in groundnuts, soya beans, deciduous fruit, citrus and vines (and forestry). Active ingredient - Flumioxazin (N-phenylimide), caution (Reg. No. L6358, Act 36 of 1947 (South Africa), N-AR 1792 (Namibia)). Sumimax® is the registered trademark of Sumitomo Chemical Company, Tokyo, Japan.

Yamato® 480 SC
A suspension concentrate herbicide for pre-emergence control of weeds, as listed, in corn. Can be applied post-emergence of corn. Active ingredient - Pyroxasulfone (Pyrazole), harmful (Reg. No. L10746, Act 36 of 1947 (South Africa), N-AR 2224 (Namibia)). Yamato® is the registered trade mark of Kumiai Chemical Industry Company, Tokyo, Japan.

Goal™ 480 SC
A suspension concentrate herbicide for use in crops, vineyards, orchards and forestry as listed to control a variety of annual broadleaf and grass weeds as listed. Active ingredient - Oxyfluorfen (diphenyl ether), caution (Reg. No. LL8303, Act 36 of 1947 (South Africa), W130817 (Botswana), N-AR 1681 (Namibia)). Goal™ is a registered trademark of the Sumitomo Chemical Company, Japan.

FUNGICIDES

Legend™ 250 SC
A suspension concentrate surface mobile contact fungicide for the control of Powdery mildew (*Oidium tuckeri*) in table and wine grapes, (*Oidium erysiphoides*) in cucurbit crops and (*Oidium mangiferae*) on mangoes. Active ingredient - Quinoxyfen (quinoline), caution (Reg. No. L6840, Act 36 of 1947 (South Africa), N-AR 1055 (Namibia)). Legend™ is the registered trademark of Nissan Chemical Corporation, Tokyo, Japan.

Rizolex® WP
A protective contact action wettable powder fungicide for the control of Rhizoctonia damping off on seedlings of ornamentals, flowering plants, cotton and beans, as listed, as well as the control of *Corticium rolfsii* on chincherinchee bulbs and Rhizoctonia on potatoes. Active ingredient - Tolclofos methyl, caution (Reg. No. L6376, Act 36 of 1947 (South Africa), N-AR 1239 (Namibia), W130344 (Botswana), DSV-1544 (Mozambique)). Rizolex® is the registered trademark of Sumitomo Chemical Company, Tokyo, Japan.

Sumisclex® SC
A translaminar systemic organic fungicide (suspension concentrate) for the control of diseases on crops and turf as listed. Active ingredient - Procymidone (dicarboximide), caution (Reg. No. L6377, Act 36 of 1947 (South Africa), N-AR 0904 (Namibia), W130322 (Botswana)). Sumisclex® is the registered trademark of Sumitomo Chemical Company, Tokyo, Japan.

PLANT GROWTH REGULATORS

Dormex®
A soluble concentrate growth regulant for delayed foliation in apples, apricots, plums, cherries, wine and table grapes, kiwi fruit, as well as advancement of budding in sultana grapes and berries listed. Active ingredient - Cyanamide, harmful (Reg. No. L5740, Act 36 of 1947 (South Africa), N-AR 0902 (Namibia)). Dormex® is a product of Alzchem Trostberg GmbH, Trostberg, Germany.

Excelero® 10 SL
A liquid concentrate plant growth regulator for use on table grapes to accelerate or increase the colouration in berries and bunches. Active ingredient - s-Abscisic Acid, caution (Reg. No. L10170, Act 36 of 1947 (South Africa), N-AR 1991 (Namibia)). Excelero® is the registered trademark of Valent BioSciences™ Corporation, USA.

ProGibb® 4%
A liquid concentrate plant growth regulator for various usages on Grapefruit, Lemons, Oranges, Grapes, Pears, mangoes Hops, Potatoes and Peppers / Peppadews. Active ingredient - Gibberellins (ProGibb® 4%, Reg. No. L5118 (South Africa), N-AR 0941 (Namibia) (ProGibb® 40% Reg. No. L6777, Act 36 of 1947 (South Africa), N-AR 0942 (Namibia)). ProGibb® is the registered trademark of Valent BioSciences™ Corporation, USA.

ProTone®
A liquid concentrate plant growth regulator for use on table grapes to accelerate or increase the colouration in berries and bunches. Active ingredient - s-Abscisic Acid, caution (Reg. No. L8540, Act 36 of 1947 (South AFrica), N-AR 1178 (Namibia)). ProTone® is the registered trademark of Valent BioSciences™ Corporation, USA.

Sitofex® 10 EC
An emulsifiable concentrate plant growth regulator for increasing the fruit size in kiwi fruit as well as for the increase of berry size and the decrease in berry abscission in tablegrape cultivars as indicated. Active ingredient - Forchlorfenuron, harmful (Reg. No. L6339, Act 36 of 1947 (South Africa), N-AR 0903 (Namibia)). Sitofex® is a product of Alzchem Trostberg GmbH, Trostberg, Germany.

Sunny® 50 SC
A suspension concentrate plant growth regulator for vegetative growth control and for the enhancement and improvement of fruit shape in avocados. Active ingredient - Uniconazole, harmful (Reg. No. L5587, Act 36 of 1947 (South Africa), DSV-2430 (Mazambique)). Sunny® is the registered trade mark of Aquamarine (London) Limited.

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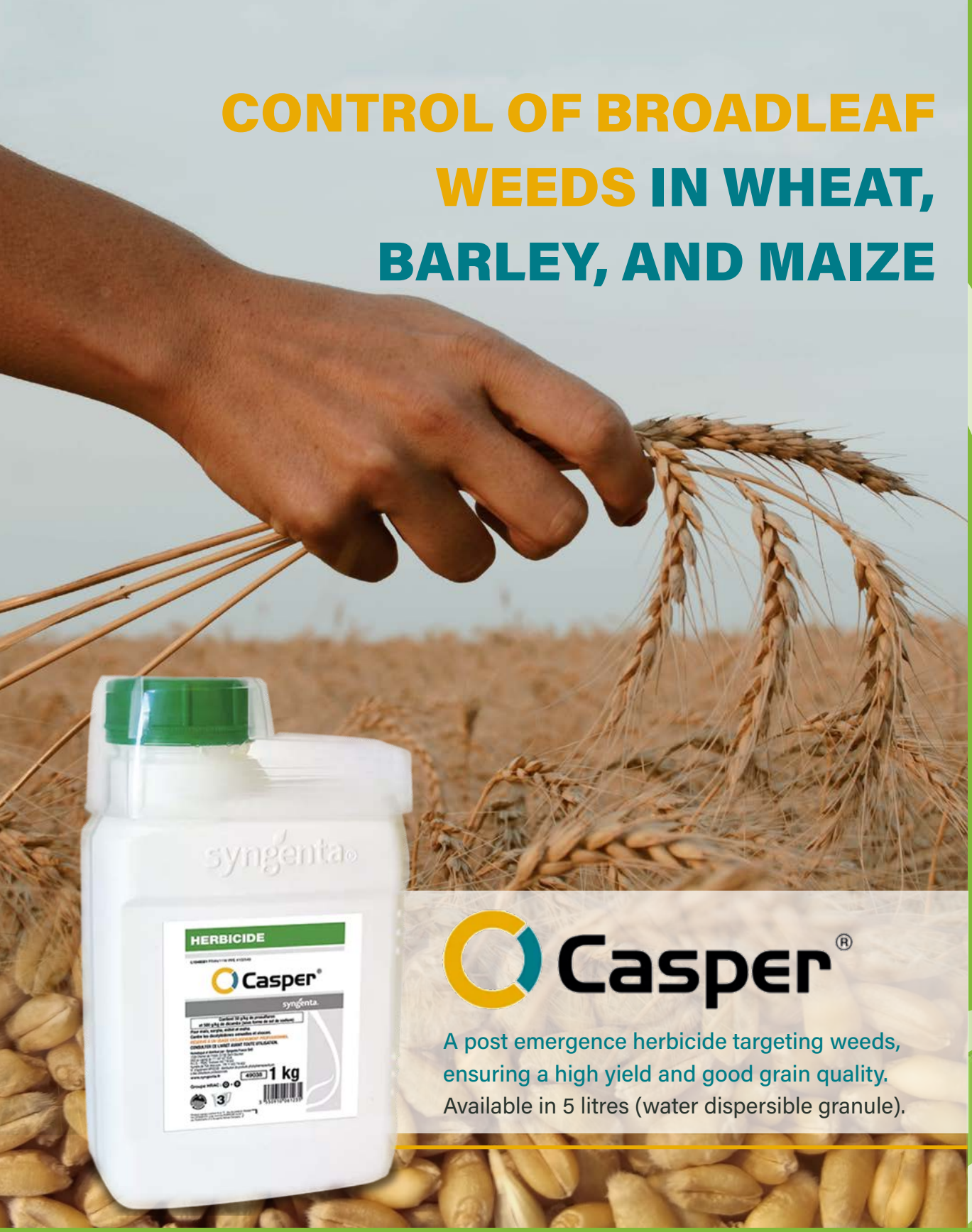
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Philagro's winning formula for African agriculture

Article supplied

As one of the leaders in the drive to transform agriculture in Africa for the greater good, Philagro's philosophy is modestly simple but extremely effective. Henk van der Westhuizen, the company's Managing Director, says Philagro's vision is to add real value to agriculture in Africa by supplying quality agricultural products and providing exceptional service, hence the slogan: Products that work from people who care.

Despite the challenges faced today, prospects for Africa's agricultural sector are remarkably positive. According to the "Agriculture Outlook 2018-27" report from the UN Food and Agriculture Organisation (FAO), the sector will undergo robust growth, with crop production in sub-Saharan Africa projected to rise 30% over the next decade. Moreover, greater access to innovative technologies are expected to support the development and application of smart farming techniques.

A fine example of this technology is Philagro's comprehensive range of proven products that are now available to meet the needs of farmers throughout the Southern Africa region. Commercial and smallholder farmers now have access to total crop solutions with state-of-the-art herbicides, pesticides, fungicides, nematicides, miticides, plant growth regulators and animal feeds. Most of the products distributed by Philagro are very well known in the agricultural world and have earned admiration and respect in the tough world of agricultural remedies.

Philagro has acquired a wide range of registrations against many of the most stubborn pests on important vegetable crops, like the modern active ingredient pyridalyl in SumiPleo®. This product has some outstanding beneficial features that distinguish it from old-fashioned hard chemicals prone to pest resistance.

SumiPleo® is a blue band product and is relatively safe with regard to mammals and birds, and highly specific to the control of certain insect pests such a Lepidoptera or potato tuber moth larvae, diamondback moth larvae, African bollworm larvae, tomato leaf miner and fall armyworm larvae.

It is relatively safe against insect pest enemies such as parasitic and predatory wasps, as well as other beneficial organisms such as earthworms and bees.

In potatoes, SumiPleo® controls potato moth, Tuta absoluta, and also suppresses the flying leaf miners *Lyriomyza trifolii* and *L. huidobrensis*. In tomatoes, SumiPleo® controls African bollworm, Tuta absoluta, and suppresses the flying leaf miners *Lyriomyza trifolii* and *L. huidobrensis*, as well as the tomato semi-looper (*Chrysodeixes acuta)*.

In various cabbage crops SumiPleo® as well as FlorBac® effectively control diamondback moth larvae. In lettuce, African bollworm is kept in check with Sumipleo®. In sweetcorn, SumiPleo® controls the dreaded fall army worm *(Spodoptera frugiperda)*.

For a more effective environmental approach and intelligent resistance management, SumiPleo® is alternated with Philagro's organic Bacillus (Bt) products like DiPel®DF on *Lepidoptera* larvae in most vegetable crops and FlorBac®WG in cabbage crops - specifically against diamondback moth larvae.

SumiPleo® and Bt products boast relatively short withholding periods in vegetable crops, which make them ideal for positioning in a control window shortly before harvesting.

Ultra-reliable Sumimax® is renowned for its ability to control annual broadleaf weeds in groundnuts, soya beans, deciduous fruit, citrus, vines, and forestry, and is one of an impressive array of trusted herbicides from Philagro. Sumi-Alpha 200 EW® contains the highly active synthetic pyrethroid esfenvalerate, which is a contact insecticide for the control of cutworms on all crops, bollworm on cotton, sunflower, maize, and sorghum, and also stalk borer in maize.

Another well-known example of Philagro's comprehensive range is Sumisclex®, a translaminar systemic organic fungicide for the control of diseases on green beans, soya beans, dry beans, peas, and onions.

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For more information about Philagro products in your area or to find your nearest agent contact, Bennie Buys at telephone **(+27)82-809-5447** or email him at **bennie.buys@philagro.co.za.** Visit Philagro's website on **www.philagro.co.za**

SumiPleo® *(Reg.no. L8377, Act 36 / 1947) contains, Pyridalyl dichloropropene-derivative, Caution. (Sumitomo Chemical Company, Japan).*

DiPel®DF *(Reg.no. L6441, Act 36 / 1947) contains Bacillus thuringiensis var. kurstaki. Caution. (Valent Biosciences, USA).*

FlorBac®WG *(Reg.no. L5531, Act 36 / 1947) contains Bacillus thuringiensis var. aizawai. Caution. (Valent Biosciences, USA).*

Sumimax® WP (*Reg no. L6358 Act 36 / 1947) contains Flumioxazin (N-phenylimide). Caution. (Sumitomo Chemical Company, Japan).*

Sumi-Alpha® *200 EW (Reg no. L8821, Act 36 / 1947) contains Esfenvalerate. Harmful. (Sumitomo Chemical Company, Japan).*

Sumisclex® *SC (Reg no. L6377 Act 36 / 1947) contains Procymidone (dicarboximide). (Sumitomo Chemical Company, Japan).*



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Caring of newborn piglets with Tiger Animal Feeds: Part two

by Barbara Mulonda Simbaya, Technical Advisor at Tiger Animal Feeds

Start creep feeding during the second week to train piglets to eat solid food to avoid a crisis after three weeks, when the piglets demand for more milk is higher than the sow can produce.

Simply spread the feed on the floor in the creep area. On average the piglets should weigh at least 5,5 kg if the sow has good mothering abilities. After weaning, weigh them every two weeks to monitor growth. Wean the piglets when they are eight weeks old or weigh at least 16 to 20 kg, and are in good health.

Tiger Animal Feeds produces feeds specifically formulated for achieving optimum results for all classes of pigs. These feeds include:

- Sow and boar meal: 2,5 kg per day.
- Lactating sow meal: From 2,5 kg per day. Increase by 0,5 kg per day until the sow reaches her maximum intake. (Peak lactation normally occurs around day 21, with an average maximum intake at this stage of about 12 kg per day).
- Piglet creep meal or crumble: 1 – 5 weeks, 2 kg per pig.
- Pig weaner: 5 – 12 weeks, 54 kg per pig.
- Pig grower pellet or meal: 12 – 16 weeks, 49 kg per pig.
- Pig finisher pellet or meal: 17 – 22 weeks, 88 kg per pig.



Iron injection given to a piglet.

Parasite control

Internal as well as external parasites are to be kept in check when dealing with piglets. Deworm at eight weeks and then every two months afterwards. Be sure to consult a vet for advice.

Anaemia prevention

It is recommended that iron shots be administered to prevent anaemia in piglets. This should be done three days after birth. Iron injection is given to supplement the sow's milk iron which cannot meet the needs of the piglets, especially after 21 days.

Other ways of supplementing iron to piglets include:

- Putting red soil in the creep area for the piglets to nibble.
- Smearing an iron compound on the udder of the sow. When the piglets suckle, they also swallow the ferrous product.

	Sow & Boar	Lactating Sow	Piglet Creep	Pig Weaner	Pig Grower	Pig Finisher
Protein	135	150	200	180	160	150
Fat	25	25	25	25	25	25
Fibre	80	80	40	40	80	80
Moisture	120	120	120	120	120	120
Calcium (Max)	12	12	10	10	10	10
Phosphorus	6	6	6	6	5	5
Total Lysine	7	8	12	11	9	8

Table 1: Composition of pig feeds.

Addressing rooting behaviour

We tend to raise animals according to their natural behaviours, so we let piglets root. Rooting is a natural tendency for pigs to use their snouts to push at or nudge into something repeatedly. This is their way of exploring their environment and searching for food. Farmers can use nose rings after one month of age to discourage rooting. Young pigs get temporary rings and older pigs have permanent ones.

Routine practices

Within the first three days, the following operations should be done on the piglets:

Docking tails

Tails are docked to avoid tail biting and cannibalism when the piglets are playing or fighting each other in their groups.

This can be done by:

- Completely severing the tail with side-cutter pliers (clippers) or a cauterising tail docking iron. In this case apply an antiseptic product to avoid infections.
- Crushing the blood veins at a point so that the rest of the tail does not receive blood supply. In this case, the part that does not receive blood will slowly degenerate until it drops off.

Clipping needle teeth

Teeth clipping is done to protect the udder of the mothering sow during suckling. It also safeguards the pig attendant when feeding them, cleaning the pens, or handling them. Furthermore it, prevents injuries to other pigs when they are fighting or playing with each other.

Castrating boars not used for breeding

Castration is performed to prevent:

- Indiscriminate mating in the litter or herd that leads to in-breeding.
- Boar taint that is brought about by the male hormones after sexual maturity.
- Impact docility in the males for easy handling.

Carrying out these tasks within the first three days has the following advantages;

- Convenience to the farmer as all operations are done at once.
- The animals are young, and therefore easy to handle when doing the operations.
- Piglets recover easily and quickly from the stress caused by these operations.

Sanitation

Make sure to clean the pens every day to maintain a clean and disease-free environment for the piglets as well as the mother.



Castration being performed on a piglet.

For more information, contact **Barbara Mulonda Simbaya**, Technical advisor at Tiger Animal Feeds by sending an e-mail to **barbara.mulonda@tigerfeeds.com.zm** or phoning **(+260)969-202-207**.



Land management and rehabilitation part 3:

by Tisha Steyn

What are we talking about?

In the previous two parts of this series, we had a look at the impact humans have had on the environment during the past 100 years and how they have lost the spirit of a land ethic, which can be re-instilled to empower land managers to do the right thing to care for the land.

In this issue, Ken Coetzee of Conservation Management Services explains the difference between revegetation, rehabilitation, and restoration. He defines the meaning of each concept and provides valuable insights into the approach of earlier restoration and rehabilitation practitioners.

'Ecological restoration' is a relatively young discipline and restorationists today are active in ecosystems as divergent as coral reefs and tropical forests. However, Ken believes the restoration of the American Midwest prairies played a leading role in the development of the "art of restoration" about half a century ago. In the previous chapters, we referred to the writing of Aldo Leopold in his book *A sand county almanac* from which Ken takes his inspiration.

The terms are often incorrectly used interchangeably to describe the same process. Here are Ken's definitions:

Revegetation involves the establishment of only one or a few plant species to cover the ground with a protective and pretty vegetation cover. There is no attempt to recreate a previous state, and the results are achieved quickly.

Rehabilitation involves the repair of ecosystem processes, productivity, and services to return some of the functions of the ecosystem before it was disturbed. The historical or pre-existing ecosystem is used as a reference, and the desired results take much longer to achieve.

Restoration involves the repair of ecosystem processes to re-establish the original structure and function and the pre-existing biotic species composition and community structure. It requires a great deal more post-rehabilitation and after-care, and it takes much longer to achieve the state before it was disturbed.

"Rehabilitation, therefore, is probably a better description of most of the work that is usually, but erroneously described as restoration," says Ken.

Lessons learned

One can learn from the experiences of early restoration and rehabilitation practitioners. Here are the lessons they have learned:

Reversible or irreversible changes
Human activities have changed the landscape, and there is a difference between changes that are reversible and those that are irreversible. It is important to try to repair changes that can be changed, rather than attempt the near impossible.

Ken advocates a practical, hands-on approach, which can be achieved, at a relatively low cost, by small groups or individuals with a commitment to landscape restoration. "These actions must be directed towards landscape improvement projects in which human changes are reversible."

Understanding human impact
Humans influence the environment, and at the same time, the ecosystem needs to be rehabilitated. How these interact must be kept in mind when planning to rehabilitate the land. If not, even the most carefully made plans and lots of time, effort and money will be wasted.

Nature's resilience
Nature is amazingly resilient and very forgiving. When time and effort are invested, all except the most severely degraded land can be reversed, or at least much improved.

Humans and nature
Mankind and nature must be viewed together. Ecological restoration of the changes caused by man should always be viewed as an artificial recreation of the natural ecosystem, and not as an artificial ecosystem. The ecological integrity of the work will contribute to the naturalness of the landscape, and rehabilitation should therefore be regarded as an essential nature conservation action.

Tiring, but rewarding
Although rehabilitation and restoration work is always tiring and seemingly without end, the results are always satisfying. That is why people volunteer and get involved all over the world, instead of just donating money to nature conservation projects.

The needs of humans, such as cultivating large volumes of wheat in monoculture fields, such as these

wheat croplands, cannot be viewed apart from nature. Man's use of the landscape must be regarded as a part of the biosphere and will have to be managed as such.

Innovative experimentation
The approach to restoration and rehabilitation work, whether based on innovative experimentation or a scientific approach, should always use the best available information.

Natural landscapes must never be allowed to deteriorate further while practitioners wait for scientifically generated guidelines. Innovative experimentation, based on previous experience, is the only practical course of action to take to prevent the loss of biodiversity. Practical knowledge derived from unrelenting trial and error has a huge role to play in the success of landscape restoration activities.

Communication

If you know about a restoration and rehabilitation practitioner who did a good job, you must tell others about it. This knowledge must be shared with anybody who might need it if we want landscape restoration to become a new way of looking at natural resources.

Persons with this valuable experience should share it with others because practical experience is lost if it is not shared. We simply cannot afford to lose this kind of knowledge while forests decline, rangelands become deserts, and alien plants creep closer to the remaining natural wildlands.

Community effort

Landscape rehabilitation should be a community effort. When rural communities are trained and participate, rehabilitation will be successful.

If possible, the community members should be encouraged and hopefully employed to do the physical rehabilitation work. The traditional knowledge within rural communities should not be ignored, for by making use of familiar methods, products, and social systems a great deal can be achieved.







Dedication

Landscape rehabilitation and restoration need a long-term commitment and dedication to the task. This, and hard work, is the basis of an ethical relationship with the land.

"The rehabilitation of degraded land is therefore not for the faint-hearted, but rather for those who have the courage to take on and combat man's greatest folly – the destruction of his own home!"

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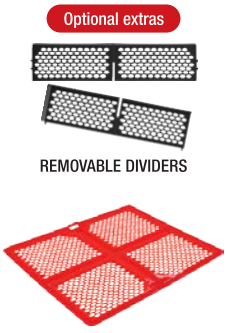
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Food for Africa: Cassava



by Tisha Steyn

The cassava plant is native to South America, but is also grown in other tropical areas, including Africa, because of its ability to withstand difficult growing conditions such as drought. (Source: Pixabay)

Cassava *(Manihot esculenta)* is a versatile, nutty-flavoured starchy root vegetable (tuber) that is used in the same way as a potato. It is an important source of nutrients, carbohydrates, and calories, which provides energy. It is like yams and taro.

Sweet and bitter varieties are available, but the sweet cassava is more common in the United States, where it is often referred to as yuca, manioc, or Brazilian arrowroot.

The root or tuber is the most consumed part of the cassava plant. It can be eaten whole, grated or ground into flour for baking bread and crackers. It is also used to make tapioca starch for baking gluten-free goods.

As cassava may contain harmful compounds such as cyanide, it may be harmful when consumed raw. If it is prepared well, it is a beneficial addition to the diet.

Growing cassava

The plant is native to Brazil and Paraguay in South America, where it is known as yuca, but is also grown in other tropical areas, including Africa, because of its ability to withstand difficult growing conditions, including drought.

Growing cassava successfully relies upon tropical climates and at least eight months of warm weather. It prefers well-drained soil and modest rainfall, but it can survive where soils are wet. The roots however do not tolerate freezing temperatures and it grows best in full sun. From start to harvest may take up to 18 months.



Cassava is sometimes dried and used as flour, which is gluten-free. (Source: Pixabay)

Cuttings

Cassava is always grown from stem cuttings of plants that are at least ten months old. Once the tubers are harvested, the stems are cut off from the tubers and the leaves are removed. The stems are stored in a cool, dry place for the next planting season. Cuttings should be 20 cm to 30 cm long and about 1,5 cm to 4,0 cm thick with two or three viable nodes.

The cuttings can be planted directly into prepared soil or in a pot in a sunny spot indoors until the outside temperature is at least 21 °Celsius. Keep it lightly misted to keep it moist. Transplant them outside once the cuttings have sprouted leaves and have at least 5 cm of growth.

The plants grow faster in warmer temperatures. There are several pests that eat the leaves, but the plants are mostly free of diseases and pests.

Keep the plants moderately moist and use a slow-release fertiliser in spring. If the plants are in pots, they can be moved indoors before freezing temperatures occur, and



Cassava roots are sold in local markets in towns in Africa, where it is a staple food, providing carbohydrates in the diet of many families. (Source: Pixabay)

moved back outside when it gets warmer.

At present, scientists are mapping the genetic structure of cassava. This information may be used to grow superior plants that will have more nutritional value and be more resistant to disease.

Nutritional value

Cassava root has many health benefits as it is particularly high in vitamin C, an important vitamin that acts as an antioxidant, supports the production of collagen, and enhances immunity.

It is also rich in copper, a trace mineral that is necessary for energy production and iron metabolism.

Cassava is a significant source of carbs. It also provides a little fibre, vitamins, and minerals. A 100-gram serving of cooked cassava root contains 191 calories, of which about 84% comes from carbs, while the rest come from protein (1,5%) and fat (3 grammes). One serving also provides some fibre (2 grammes).

Besides Vitamin C (20% of the daily requirements, one serving also provides copper (12%), thiamine (7%), folate (6%), vitamin B6 (6%), potassium (6%), magnesium (5%) and niacin (5%).

Potential health benefits

Resistant starch: Cassava may have several health benefits. It contains resistant starch, which can bypass digestion and has similar properties as soluble fibre. This feeds the beneficial bacteria in the gut and may help promote digestive health, while reducing inflammation.



Cassava can be boiled, baked, or fried as snacks. (Source: Pixabay)

Resistant starch may also improve metabolic health and reduce the risk of obesity and type 2 diabetes. This may be related to improved blood sugar management and an increased feeling of fullness which may reduce appetite. The cooling of cooked cassava root may increase the content of resistant starch.

Vitamin C: Vitamin C is important for many health aspects, including immunity. It also helps protect against oxidative stress and supports the function of immune cells in your body. It also protects against skin damage and stimulates the production of collagen, a type of protein found throughout your body in your bones, skin, muscles, and joints.

Cooked cassava root used in cooking and baking is beneficial to people with food allergies, as it is free of gluten, grains, and nuts.

Potential downsides

As with all foods, cassava should be consumed in moderation, as it is high in calories. Cassava must be cooked before eating it, as it can be poisonous if consumed raw.

It must be kept in mind that the use of cassava may also have downsides, such as high calory content of 191, compared to sweet potatoes, which contain only 90 calories, and carrots, which contain only 60 calories.

The high calorie content makes cassava an important staple crop in many countries. It must be kept in mind that consuming more calories than you burn can contribute to weight gain over time. It is therefore best to eat it in moderation as part of a balanced diet and not eating more than a quarter to half a cup per serving.

It must be noted that preparing the cassava by peeling, chopping, and cooking can also reduce the vitamins, minerals, fibre, and resistant starch content. Boiling instead of roasting



Cassava flour can be used in the baking of gluten-free cakes. It is growing in popularity because of this, but also does not contain allergens, is a resistant starch that bypasses digestion and has properties similar to soluble fibre. (Source: Pixabay)



The cassava root must be peeled and cooked to remove toxins that may be harmful to health if eaten raw. (Source: Pixabay)

and frying retains more nutrients. Processed forms like tapioca also have limited nutritional value.

Caution

Cassava must be cooked before eating it, as it can be poisonous if consumed raw.

Cassava contains chemicals called cyanogenic glycosides, which, when eaten raw, in large amounts or when prepared improperly, can release cyanide into the body.

Cyanide poisoning can impair thyroid and nerve function and may lead to paralysis, organ damage, and even death. Especially people with poor nutritional status and low protein intake are likely to experience these negative effects.

Soaking and cooking cassava decreases the content of the harmful chemicals, and if eaten as part of a well-balanced diet that is high in protein may reduce the risk.

Preparing cassava

The skin of the cassava root contains most of its cyanide-producing compounds, so it is best to peel it and discard the peels before cooking it.

Soaking cassava in water for 48 to 60 hours before cooking may reduce harmful chemicals. Cook it thoroughly by boiling, roasting or baking before eating it.

Eating protein (meat or eggs) along with cassava may be beneficial as it helps rid the body of toxic cyanide.

Including a variety of foods in the diet rather than relying on cassava as the main source of nutrition may reduce harmful effects.

Eating cassava

Cassava is normally used in the same way as potatoes as an addition to many dishes. It can be used to make snacks and side dishes by slicing it and then baking or roasting it as you would potatoes.

It can also be mashed or added to stir-fries, omelettes, and soups.

When ground into flour, it can be used in grain-free bread, tortillas, pancakes, and crackers.

Tapioca, which is made from the starch extracted from the root by washing and pulping it, can be used as a thickener for soups, stews, pies, and puddings.

Products made from the root, such as flour and tapioca are safe to eat as these products contain little or no cyanide-inducing compounds.

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Cassava must preferably be used with a protein, such as meat or fish for a well-balanced diet. (Source: Pixabay)



Cassava is grown from cuttings from a mature plant. (Source: Pixabay)

Snail production Part 4
Choose the right housing

by Tapuwa Mashangwa



(Source: africabusinessclassroom.com)

Heliciculture is a good source of income for farmers as its products are highly beneficial as food and for the pharmaceutical industry. Both industries require the highest quality of snail product. It is important to understand that the profitability of the production system largely depends on the quality of housing at each stage of snail's life cycle. Housing has an influence on breeding, feed conversion ratios, and quantities of snail slime produced.

One housing option for snails is free range pens. These pens are large mini-paddock pens: a fenced area of up to 10 by 20 m, planted with plants, shrubs, and trees that provide food and shelter from wind, sun, and rain. In the same structural form as a mini-paddock pen, the vertical fence must be extended inwards to prevent snails from escaping. If the fence is constructed of fine chicken wire mesh, the overhang is not obligatory because snails dislike crawling on wire mesh. The fence must be dug at least 20 cm into the ground. These pens can be completely enclosed and roofed.

Generally free-range pens can be used as a sole snail enclosure in an extensive snail farming system, or as growing and fattening pens in a semi-intensive production system.

In the extensive snail farm, the entire life cycle of the snail takes place within the open pen: mating, egg laying, hatching, hatchling development, and growth of the snails to maturity. Snails feed on the plants provided in the pen.

In a semi-intensive snail farm the pens are used as growing and fattening pens for adult snails, which were raised through the egg hatchling to juvenile stages in hutch boxes or trench pens.

The advantage of a simple fenced free-range pen is that it is easy and cheap to construct, and management is limited to occasional replanting of food and shelter plants. Provided that the vegetation within the pen is kept well, additional feeding of the snails is not necessary.

A fully enclosed and roofed pen can be expensive to build, and if a concrete floor is used, an apron and a drain are to be included in its construction.

Free-range pens have several disadvantages namely: they require more land than other types of snail farming; it is difficult to locate and protect eggs and small snails which may lead to poor disease management and higher mortality rates compared to other snail production systems; snail performance in free range pens is difficult to track, and therefore more efficient and effective record keeping is necessary; and predators and poachers can easily gain access to open type free range pens.

Quality feed needed

Optimum snail production is not only determined by the quality of housing but also by the food the snails are



(Source: thenewgreece.com)

given. The distinction between extensive, semi-intensive and intensive snail farming systems applies not only to housing, but also to feeding.

In an extensive system, snails feed only on vegetation planted in their pens specifically for that purpose. In a semi-intensive snail farm, external feed is provided to hatchlings, juveniles, and possibly to breeding snails housed in hutch boxes or trench pens. In an intensively managed snail farm, all snails, at whatever growing stage, are always provided with external feed. Snails are kept in hutch boxes or trench pens.

In very intensive systems, the snails are fed a formulated snail feed mix containing all the proteins, carbohydrates, minerals, and vitamins required for optimal growth. Snails are housed in boxes or trench pens.

Snails are vegetarian and will accept many types of food. All snails will avoid plants that have hairy leaves or produce toxic chemicals, like physic nut (*Jatropha curcas*). Young snails prefer tender leaves and shoots; they consume about twice as much feed as mature snails.

As they get older, mature snails increasingly feed on detrited fallen leaves, rotten fruit, and humus. Older snails should be fed the same items as immature snails. If a change in the diet has to be made, the new food items should be introduced gradually.

Snails need carbohydrates for energy, and protein for growth. In addition, they require calcium (Ca) for their shells, as well as other minerals and vitamins. Snail meat is low in crude fibre and fat; for that reason, these components are of minor importance in snail feed.



(Source: www.inisescargot.ie)

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Doing better – re-defining success in agriculture

Empowering farmers, nurturing the environment

Article supplied

Increased sweet piquanté peppers harvest from a farm in the Southern Province of Zambia.

In a world increasingly plagued by pressing societal issues and environmental concerns, conscious individuals and companies are re-evaluating our roles and responsibilities, seeking ways to positively impact a better future. Post-Pandemic, this sentiment has only grown stronger, with a heightened awareness of the need to address sustainability, social well-being, and the welfare of our children and their children.

Gerhard Coetzer, Managing Director of Bontera South Africa, shares his thoughts:

"In pursuing a better tomorrow, we have defined 'doing better in life' as achieving more for less while ensuring that progress is sustainable and doesn't come at the expense of harm to others.

"Farmers are the bedrock of our society, and obviously, the primary goal in agriculture is to provide a reliable and continuous food source for the population. But we need to look beyond this vital service. We need to look at doing better for ourselves and our children. At the heart of our philosophy lies the principle of enriching people's lives. This means going beyond profit margins, focusing on providing solutions that enhance crop yields and quality, and nurturing a clean, healthy environment for all. By embracing natural and sustainable practices, we aim to share its knowledge and resources with farmers and growers, empowering them with innovative tools to solve age-old problems more efficiently and eco-consciously while still providing and even increasing crop yield."

A recent great example of this philosophy and practicality in action was with a partnership with a farmer in the Southern Province of Zambia that enabled him to achieve more, with a better product for consumers, while reducing the impact on the environment, assisting in future crop growth. Following a Bontera programme, he harvested an average of 18,9 tonnes of sweet piquanté peppers per hectare, all with significantly reduced chemical inputs. His adjacent fields - where the Bontera programme was not followed - yielded less than 15 tonnes per hectare.

"We envision a future where agriculture thrives without relying on harmful chemicals, reducing water consumption, and promoting a harmonious coexistence with the environment. Our commitment lies in supporting crops





Gerhard Coetzer, Managing Director of Bontera South Africa.



with their natural microbial structures, reserving synthetic interventions for exceptional cases rather than routine practices," continues Gerhard.

However, there are challenges to be faced in implementing innovative solutions such as these within the agricultural industry. Regulatory bodies can sometimes be slow to embrace innovations and new practices, hindering the speed of progress. Categorisation of product registration is also limited to conventional chemical regimes and reinforces a conservative mentality less likely to adopt new, more regenerative, more sustainable agricultural practices.

"We can't keep doing the same things expecting a different outcome, so the company remains undeterred and advocates for sustainable and innovative approaches to agriculture.

"This is not only key to actively caring about what is happening in the environment and the soil our food is grown in, but also to ensure future food security, which is a major and growing concern here and across the globe," adds Gerhard.

The company's close collaboration with growers and stakeholders is crucial in fostering a sustainable agricultural ecosystem. Bontera's hands-on approach involves spending time on farms, listening to growers' challenges, and providing tailor-made solutions. Feedback and insights from the field are invaluable for their research and development teams, driving continuous improvement and the pursuit of excellence.

Bontera's vision of "doing better in life" extends far beyond profitability. By championing sustainability, enriching lives, and fostering innovative practices, the company sets a powerful example of how individuals and companies can positively impact the world.

For more information visit Bontera's website on https://www.bontera.co.za/







How to prevent coccidiosis on your broiler farm?

by Dr Oscar Blanco, Phibro Animal Health Corporation, Central and Eastern Africa.

In our previous article, we discussed the main species of coccidia affecting broilers, their effect on productivity and health, as well as the basis of prevention. In this article we will analyse prevention in more detail, focusing on the utilisation of coccidiostat products.

Factors determining the occurrence of coccidiosis in poultry

Coccidia are parasites distributed in every poultry enterprise, all around the world. This high prevalence is the result of the intensive conditions under which chickens are currently grown, which increase the chances of these parasites to multiply and produce disease. Therefore, to reduce the impact of these problems, the implementation of preventative measures is essential.

Strategies to prevent the occurrence of coccidiosis in poultry

Prevention is based on three main aspects, namely management, immunisation, and utilisation of anticoccidial drugs **(Figure 1)**.

Management

One of the main managerial aspects of cocci control is hygiene. Oocysts



Figure 1. Components of a coccidiosis prevention program.

(environmental stage of the parasite, see previous article) are extremely resistant to disinfectants; therefore, it is very important to mechanically remove faeces and soiling from the poultry house by washing and scrubbing.

Secondly, prolonged downtime periods between flocks do help in reducing the number of oocysts in the environment, decreasing the possibilities of infection. Thirdly, as explained in our previous article, coccidia oocysts need to be exposed to humidity and warm temperatures to become infective. Such conditions are given in dump bedding material, for example near the windows during rains, or when water is spilled below the drinkers. Precautions should be taken to prevent the litter from getting wet (such as proper curtain management in rainy days) and removing wet litter as soon as possible.

Immunisation

Commercial live vaccines can be applied on the first days of the chicks' life. Such vaccines contain attenuated oocysts of different coccidia species. When administered to the birds, such oocysts multiply in the gastrointestinal tract, inducing immunity without producing major damage in the intestine.

Vaccination against coccidia is very useful to protect long-lived birds, such as replacement pullets and breeder pullets. In broilers, the implementation of vaccination in our region is not a common practice.

Anticoccidial drugs

Anticoccidial drugs, generally known as coccidiostats, are a crucial tool of coccidiosis prevention. They are included in all commercial feeds and, when administered correctly, confer

good protection against clinical and subclinical coccidiosis. There are two main groups of coccidiostats, namely ionophores and chemicals **(Figure 2)**. The prolonged use and/or misuse of a coccidiostat may lead to the development of coccidia strains that are resistant to it and to other drugs of similar chemical structure.

Preventing resistance to coccidiostats

When using a coccidiostat to prevent coccidiosis, sooner or later coccidia will develop resistance to it. For products containing an ionophore or a combination of ionophore + chemical, resistance may appear as quickly as 8 months if the same active ingredients have been used continuously. When chemicals are used alone, the time for developing resistance can be as short as 6 to 8 weeks. Since there are no new coccidiostat drugs available in the market, all existing products should be used smartly to maintain their efficacy.

Resistance to coccidiostats can be controlled by creating anticoccidial programs that alternate the use of coccidiostats of different groups. This can be achieved by using some form of rotation or shuttle program.

Rotations **(Figure 3)** consist of phases in which a given drug is used for a few growth cycles, changing to another drug of very different chemical structure in the following phase, for example from an ionophore to a chemical and vice versa **(Figure 3)**. In each phase of the rotation, all ages receive the same drug. The objective is to eliminate cocci strains that may have already developed resistance to the previous coccidiostat. Products combining an ionophore and a chemical (for example Phibro Aviax Plus) are also helpful to "break resistance". The length of time a coccidiostat is used depends on its tendency to induce resistance. After a product phase ends, such product may be used again after a lapse of time. Rotations are the usual approach to coccidiostat management followed by commercial feed mills.

Shuttles are based on alternating two drugs of very different chemical composition in the same growing cycle, for example a chemical in the starter period followed by an ionophore during the grower period. This helps to reduce the development of resistance to both shuttle drugs.

What to consider when designing a coccidiostat program?

- Change the coccidiostat drug periodically, alternating between an ionophore and a chemical.
- After a rotation phase finishes, allow for a sufficient resting period for the used product, as well as any products in the same category/group. For ionophores allow at least 6 months for products in the same class. For chemicals, rest at least 12 to 24 months depending on the product.
- Do not alternate between drugs of similar structure (for example between two monovalent *ionophores*) since it will not break resistance.
- The combination of a glycoside ionophore (for example *Semduramicin*) and a chemical (for example *nicarbazin*) will reduce the chances of developing resistance while lowering the chances of toxicity.
- Always stick to the recommended inclusion levels to ensure effective control. Too low an inclusion level can lead to coccidiosis challenges and too high an inclusion (in some cases even marginal) may have negative impacts on feed and water intake.
- Apply the withdrawal period for each product to ensure good food safety. Note that withdrawal periods for products with the same active ingredient may differ.
- Some coccidiostats reduce water consumption and should be managed with care or avoided in summer (for example *monensin*). Other drugs increase water intake and excretion by the chicken which can lead to wet litter, so they should be given with care in wet climate (for example *lasalocid*).
- Shuttle programs, which include an ionophore in starter feed and a chemical in the grower feed, can also contribute to reduce the development of resistance against coccidiostats.
- If you use commercial feeds, you should consider that each commercial feed mill has its own coccidiostat program. If you would like to change between feed brands, it would be advisable to discuss with the feed mill nutritionist and/or your veterinary advisor whether the coccidiostat included in the new feed is compatible with the previous coccidiostat program, and whether it fits the epidemiological/resistance situation at your farm.

As usual, please seek professional (veterinary and/or nutritional) advice before implementing or modifying a coccidiostat program.

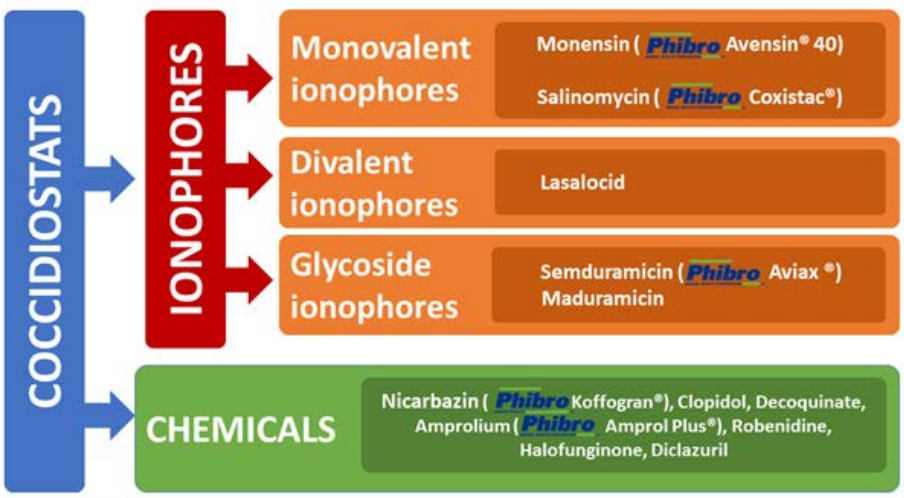


Figure 2. Classification of coccidiostats used in poultry production.

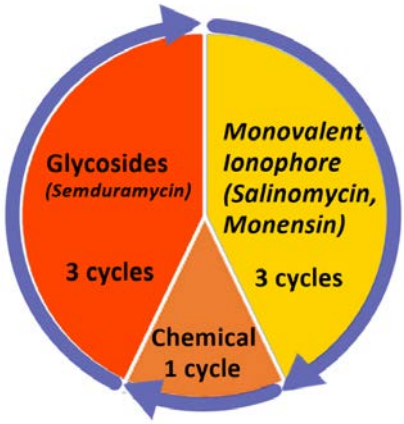


Figure 3. Example of a coccidiostat rotation program.

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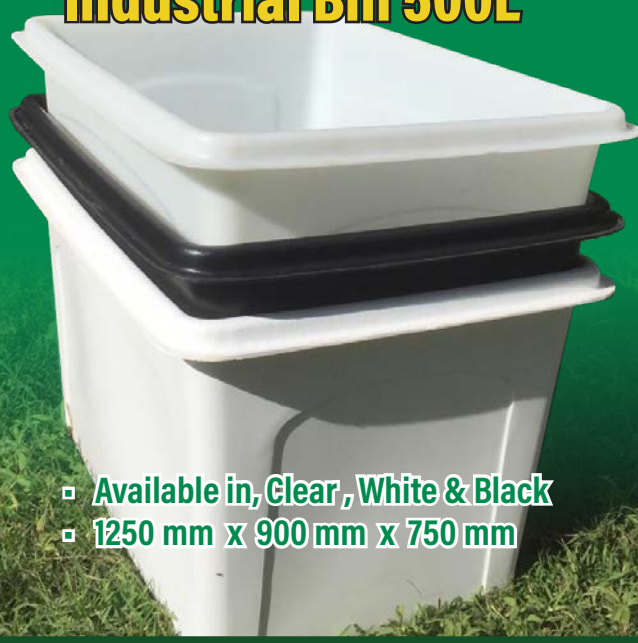


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Fruit production part 7: Dragon fruit



by Maryna Steyn

Dragon fruit is a tropical fruit that has gained significant popularity in recent years for its unique appearance. The brightly coloured fruit is also known as the pitaya or pitahaya, belonging to several cactus species.

Since dragon fruit are from various species, the fruits can have different appearances. The spiked outer skin usually has a bright pink colour with leaf-like attachments, but some varieties have a yellow skin. The inner flesh is often white with small black seeds dotting it. Certain varieties have dark pink flesh.

The most common varieties include:

Pitaya blanca *(Hylocereus undatus)* is the common version with a pink skin and white flesh.

Pitaya roja *(Hylocereus megalanthus)* has red or dark pink flesh.

Pitaya amarilla or yellow pitaya *(Selenicereus megalanthus)* has a yellow skin and white flesh.

Dragon fruit taste similar to melon as it is sweet, but bland in comparison to the bold exterior.

Among the many health benefits of dragon fruit, it contains many antioxidants that give you a glowing and younger looking skin. It contains vitamins A, B and C, as well as the minerals iron, magnesium, and calcium.

Thanks to its aesthetic appearance, people are inspired to create interesting dishes with these fruits. These include jams, jellies, smoothies, juices, sauces and even wines.



Dragon fruit are harvested by hand. You can wear gloves to protect your skin from the thorns. (Source: Vecteezy)

Climatic and soil requirements

Originally from Southern Mexico and the Pacific coasts of Guatemala, Costa Rica and El Salvador, the plant is best suited for tropical or subtropical climates and have shown great success in countries such as South Africa and Vietnam.

Climates best suited for these cacti are the same as those where macadamias, avocados, and bananas flourish. Average day temperatures should be between 21 and 29 °Celsius. In extreme weather it can tolerate temperatures in the high thirties, and up to –1 °Celsius, but it does not tolerate frost at all.

Pitaya cacti fare well in soil with good drainage and high levels of organic matter. The ideal soil acidity is between 5,5 and 7 pH.

Planting

For commercial growing, it is recommended that seedlings from trusted nurseries are used. However, cuttings can be made to propagate plants. 20 cm cuttings can be made, placed in the

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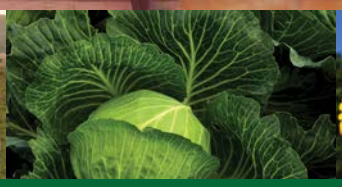
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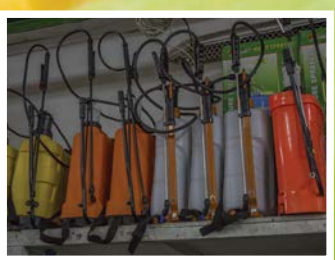
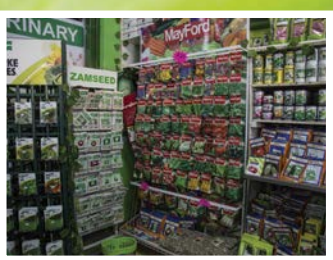










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Once the flowers are pollinated, it takes 50 days for the fruit to form. Plants can flower up to six times per season. (Source: Vecteezy)



The interesting appearance of the dragon fruit inspires interesting food creations. (Source: Pixabay)



The flowers bloom at night, giving it the name "lady of the night" or "moonflower". (Source: Pixabay)

soil and lightly irrigated to encourage roots to sprout.

To prepare the soil bed, start by ploughing and tilling the soil. The goal is to create a fine texture that is free from weeds. Next, a trellis structure should be erected to support the heavy vining cactus.

A single pole trellis system is recommended. Plant 1,8 m high precast concrete poles. A circular frame on top assists in balancing the structure and holding the heavy heads. Each post can carry three or four plants.

- The stems grow up to 4 m.
- Spacing between posts can be 4 m by 2,5 m, or 5 m by 2,5 m.
- It will flower twelve to fourteen months after planting.
- An establishment of dragon fruit can produce to up to 30 years!

Irrigation

The cacti needs yearly rainfall between 600 to 1 300 mm. If the area in which the orchard is located receives less than 400 mm per annum, it is recommended that irrigation systems are set up.

Pollination and harvesting

The plant blooms at night and mostly rely on nocturnal pollinators, but in commercial production in Southern Africa, growers use bees as well. Flowers usually open at 18:00 and close again at 11:00. Because of this, the flower is known as a "lady of the night" or a "moonflower".

Cross-pollination encourages fruit set, so it is recommended that more than one cultivar is planted.

A grower can expect the plant to flower between three and six times per season.

Fruit matures 50 days after pollination and once harvested, has a shelf life of 40 days. Dragon fruit also can have a long fruiting season of almost six months if managed well.

Fruits are harvested by hand once the colour starts to grow deep.

Fertilisation

In its vegetative state, the plant can be fertilised with a mixture of muriate of potash, super phosphate and urea in the ratio of 40:90:70 g per plant. Increase this amount yearly with 20 g as the plant grows larger.

Pest and diseases

Animals such as monkeys, birds and livestock eat both the leaves and fruits. In areas where the animals damage the orchards, shade netting can be constructed to keep them out.

Other pests include mites, thrips, ants, scale insects, mealy bugs, beetles, slugs, borers, nematodes, fruit flies and rodents.

Dragon fruit is susceptible to the following diseases:

- Stem rot
- Anthracnose (causing red-brown lesions)
- Fusarium spp
- Aspergillus spp

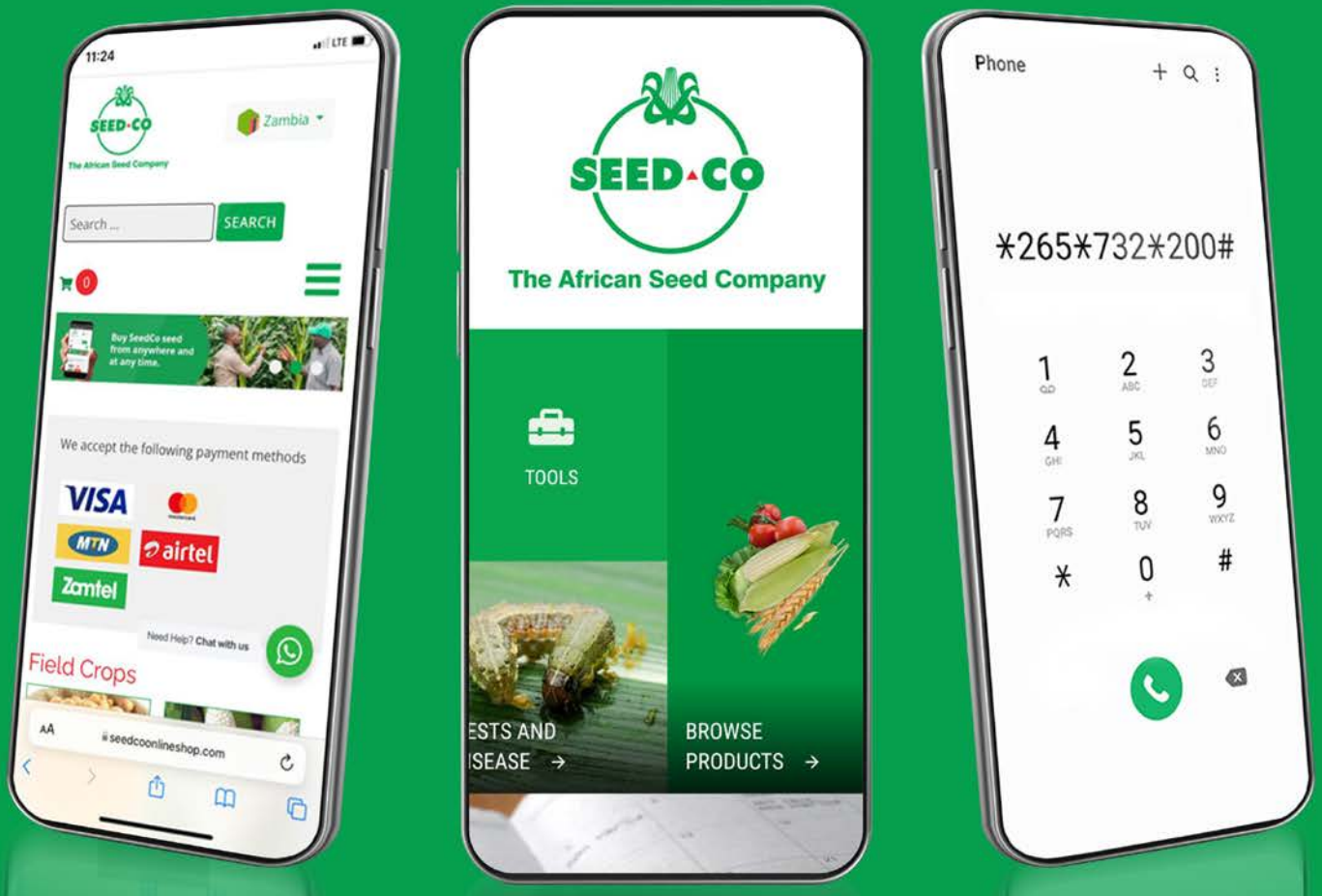
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2023: The new AGRAS T40 is equipped with the Coaxial Twin Rotor design, enabling it to carry a spray load of 40 litres and a spread load of 50 kg, making it useful for larger operations, even for grain farming. (Source: UVSSA.co.za)

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Derek Kruger walks around the hologram image of Orchard SA07/13 and frowns. The report from the drone swarm checking the sugar index of the oranges to determine the best harvesting time has also pointed out a calcium deficiency in the leaves of the north facing rows of trees. The images clearly show the tips of the leaves curling in.

Calcium deficiency is a tricky problem. It can result from many different variables.

Derek looks out of the window of his office above the new packhouse in Birambo, Rwanda, just in time to see an autonomous BVLOS (beyond visual line of sight) sprayer drone coming in to the self-charging docking station. Farming with tea and vegetables in the mountains of Rwanda has been made possible with the assistance of the latest drone technology which allows them to stay comfortable within the limits of the allotted carbon footprint.

With a sigh he calls up Sarie, the South African agricultural version of Siri. As always, she promptly answers in her well-modulated voice.

"Good morning, Derek. I was wondering when you would ask my advice."

He cannot resist teasing her a bit. "Actually, I just need you to organise me a cup of coffee. And please use the 2030 beans from our plot in Cameroon."

"Ah, going for vintage this morning," she remarks, and almost instantaneously the aroma of freshly grounded beans fills the room. "Well, are you ready now to face your calcium challenge?"

"Yes, please run down all the checks."

As Sarie talks him through the tests she has already ordered, he looks at the glass screen of his desk. Although paper is coming back in fashion after the hemp industry proved compliance to all sustainability parameters, he prefers his old-fashioned screen reports.

"As you can see, the soil sample collection drone has already fed the sample into the AI-analyser. There is no issue there, the soil content is good, although the moisture level was a bit lower than expected. The leaf analysis, however, also shows that there are other deficiencies, notably iron and potassium. The dosage applicator reports that the correct nutrient quantities have been measured out and fed into the irrigation system. What would you like me to do?"

Derek smiles. "This one is on me," he says and activates the satphone on his wrist. Back home in South Africa his son, Paul, answers sleepily.

"Morning son, have you been playing 'find the bone' with Robodog in Orchard 13?"

"Yes Dad, how did you know?"

"Easy, there is something wrong with the water feed to the last rows of trees. I believe that dog of yours has been digging and damaging the lines. Get yourself down there and fix it."

> SA's small drones' market is seeing fast growth, and is estimated to reach $134,5 million by 2025, growing at a compound annual growth rate of 22,35% from 2020 to 2025, according to research firm Industry ARC. (16 Sept 2022)

Sarie laughs. "Well Sir, again you have proven that humans can still solve some of the problems caused by them. Would you like a report on the progress with the reforestation programme in Ethiopia? The seed pod shooting drones have been performing exceptionally well in the clear weather."

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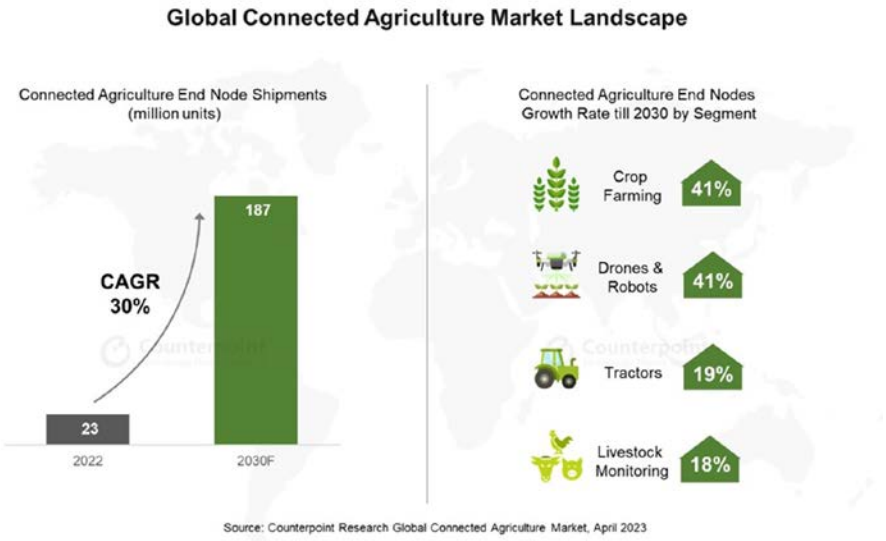
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While Sarie drones on about the reforestation programme, Derek thinks back to 2023 when he, fresh out of college, had to convince his father to invest in drone technology. He still remembers the list of functions and new technology in the making that he compiled at that time with the help of the relatively primitive AI website of the time, Chat GTP.

All those technologies became commonplace, but also many more.

- Improved sensors and payloads: Agricultural drones are equipped with advanced sensors and payloads, including hyperspectral and multispectral cameras, LIDAR (Light Detection and Ranging), thermal imaging, and even specialised sensors for measuring soil conditions and crop health. These sensors enable more precise and comprehensive data collection, allowing farmers to make better-informed decisions.
- Artificial Intelligence (AI) and Machine Learning: Integration of AI and machine learning algorithms is becoming more common in agricultural drones. These technologies help in processing the vast amounts of data collected by drones and analysing it to identify patterns, anomalies, and crop health indicators. AI-powered drones can provide real-time insights and actionable recommendations to farmers.
- Autonomous and swarm capabilities: Drones with autonomous flight capabilities are being developed, enabling them to follow predefined flight paths or execute complex tasks without continuous manual control. Swarm technology, where multiple drones work together collaboratively, is also emerging, allowing for efficient coverage of large areas and coordination in data collection.
- Long-endurance drones: Battery life and flight time are improving, leading to the development of long-endurance drones capable of covering more significant distances and remaining in the air for extended periods. This advancement is particularly valuable for large-scale agricultural operations.
- Precision application systems: Agricultural drones are integrated with precision application systems, allowing targeted and localised delivery of fertilisers, pesticides, and other inputs. This reduces waste, minimises environmental impact, and enhances resource efficiency.
- Improved software and analytics platforms: The software that accompanies agricultural drones is evolving, offering user-friendly interfaces, data visualisation tools, and analytics platforms. These enhancements help farmers interpret the collected data more effectively to make data-driven decisions.
- Weather and environmental monitoring: Some agricultural drones are equipped with weather and environmental monitoring sensors, providing real-time data on temperature, humidity, wind speed, and other weather-related parameters that influence crop growth.
- Hybrid drones: Hybrid drones that combine features of fixed-wing and multirotor drones are being developed. These hybrid designs offer the benefits of both types, such as long-range coverage and vertical take-off and landing capability.
- Risk management and insurance: The integration of agricultural drones with crop insurance and risk management services is on the rise. Drones provide valuable data for accurate crop yield



Market.us predicts that the agricultural drones market will exceed USD11,08 billion by 2032 from USD1,7 billion in 2022, with a projected compound annual growth rate (CAGR) of 21,2% between 2023 and 2032.



2023: Drones equipped with hyperspectral, multispectral, or thermal sensors can identify areas that require changes in irrigation, nutrient deficiencies, and pests not visible to the human eye. (Source: UVSSA.co.za)

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Each bird must consume about 1.2kg to obtain target weights.

BROILER **FINISHER**

Nutrifeeds Broiler Finisher is a high energy ration developed as the finishing feed for broiler chickens. It should be introduced at day 29 until market stage. This feed is the last stage in the Nutrifeeds broiler range feeding program. Each bird will consume about 1.2kg - 1.5kg depending on target weight.







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Derek even provided his father with photographs and company names. It was quite difficult at that time to get permits and licensing to fly drones, and drone companies were delivering "in-the-box" solutions by deploying their own drones and collecting the information or delivering the services farmers needed.

Getting involved in the drone business at that time was indeed a wise decision and it opened the door to Africa for the Krugers. The growth in the industry was even more remarkable than the most optimistic projections.

The use of drones between 2023 and 2030 shot up with much more than the predicted 41% and now, in 2040, farming without drones would be unthinkable. There was a time before global control standards were agreed upon when drones were crowding air space to such an extent that many calls went up for the banning of all info-drones in favour of satellite information services.

It was a valid point, but then again, no satellite can give you the close monitoring, physical sample collection, and even the mobility you need to manage today's complex farming activities, Derek thinks, while strapping himself into his Repressed Sound High Performance transporting drone which will take him to the next stop on his list of personal visits, the freshwater kelp farm in Lake Kivu.

There seems to be a problem with the communication of the underwater drones harvesting the kelp. A human touch is needed.



2023: Valmont, the holding company of Valley Irrigation, recently completed an industry-first long-distance (124 km) beyond visual line of sight (BVLOS) drone inspection flight enabled by 5G-connectivity. The flight proves that drones are a viable, safe, and efficient alternative to helicopters for monitoring infrastructure. (Source: valmont.com)



2022: The company AirSeed Technologies has developed a drone that can fly autonomously and plant over 40 000 seed pods per day. It can be used for reforestation or commercial planting of trees. (Source: airseedtech.com)



2023: Self-charging autonomous flying of drones became a reality with this South African developed docking station. (Source: Skydock.co.za)



2023: An easy way to move from farm to farm is to get into your own passenger drone! (Source: mashable.com)



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Apimondia focus:
Best bottle of liquid gold

by Tisha Steyn



600 hives are placed in suitable spots with ample forage throughout the Western Cape. (Source: Wildflower Honey).

Clayton and Roxy Sanders-Perrin's Wildflower Honey won a special award for what judges believe could be the best honey in the world at two recent honey competitions, namely the Cape Honey Festival in Paarl and the Africa Apimondia Regional Conference in Durban.

At Apimondia, Wildflower Honey achieved the Special award as the Best Bottle of Honey among 152 entrants at the international symposium. It also won 1st prize in the Light Honey Category and 1st prize for Citrus Honey. This is a remarkable achievement as the couple became full-time beekeepers only three years ago and entered competitions for the first time this year.

Nature lovers

"I was born and bred in Hout Bay in Cape Town," says Clayton. "Besides being very sporty, I have always had a love affair with nature and spent much of my youth exploring the Cape outdoors."

Roxy, his wife, is a 'farm girl' from the northeastern parts of South Africa where she ran a cattle farm and managed sales and marketing of her family's business, and she shares Clayton's love for nature.

Big leap

Clayton worked in the rope access industry, which is the professional use of ropes to do inspections, maintenance, and other types of work, which took him to places around the world. "It was an exciting time in my life, but the best part of it all was always coming home to the Cape."

In 2020, he took the big leap to leave his offshore career to invest all his time and money in Wildflower Honey. "I wanted to be home with my family and work closer to nature. We have so much passion for what we do."

Wildflower Honey

There is a lot of emotion invested in their business name, Wildflower Honey. "Roxy moved to the Cape during the month of August. She was so mesmerised with the sight of wildflowers popping up all over that she even had wildflowers tattooed on her back!"

Clayton wanted their business logo to be based on Roxy's tattoo to give it a personal touch. "The resilience of a wildflower is inspiring and that is exactly what it takes to start your own business, especially with something that is affected by the elements of nature! "The same month the business name was officially registered, their daughter Isabella was conceived. "She is most definitely our precious Little Wildflower!"

Family-run business

The business is run by Clayton and Roxy. "I am Wildflower's only beekeeper with the help of my right-hand man, Talent Mugumira, and occasionally our son Ethan pitches in to help during school holidays."

Roxy focuses on sales and marketing and has started a side-line operation of, among others, beeswax candles and lip balms with the help of Elina Samati.

Following the flowers

At present, they have about 600 hives, but there will be more after the season's splits. "The hives are based all over the Western Cape and we drive long distances to work them. I guess that is one of the challenges of beekeeping: the honey price has become related to the price of diesel!"



"The colour and moisture content of the citrus honey are perfect, and the aroma is distinctly citrus without a hint of wildflowers," according to beekeeper Louis van Zyl. (Source: Wildflower Honey).

They must also keep moving the hives around depending on the season and the available forage, which includes canola, 'bloublom' or Paterson's curse, eucalyptus, fynbos, citrus, and a myriad of other flowers.

Fruits of the hive

They produce approximately ten tonnes of honey and about 300 kg of beeswax throughout the year. About 100 kg of propolis is harvested once a year. Most of the honey is sold to delis and boutique coffee shops in and around Cape Town.

Quality does not come cheap

Clayton believes cheap honey is never real honey. "Sadly, there has been an influx of honey from China, mostly pure glucose. We pride ourselves in our honey being pure, raw, and untouched."

The couple hopes to educate people about the importance of buying real honey and supporting local beekeepers. "It is vital that we protect our bees and grow their numbers. If we don't have bees, we will starve."

Bees need trees

Another pressing issue for beekeepers is the loss of foraging land. "With eucalyptus trees being cut down and some farmers using harmful chemicals, it has become increasingly difficult to find safe spaces for our bees. We have been very blessed to find ethical farmers who are happy to have our bees on their land. It is a win-win situation for farmers, the beekeeper and most importantly, the bees!"

Another issue is the ransacking and destruction of hives by honey thieves. "Finding a good site is one thing, but then there is also the issue of security." Also, honey badgers that demolish hives for bee larvae are another threat. "However, this is a part of nature, and you must factor this in and write off the losses."



Clayton and Roxy's son Ethan helps with the beekeeping during school holidays. (Source: Wildflower Honey).



Clayton and Roxy all suited up to work with the hives in the family-run business. (Source: Wildflower Honey).

Best bottle of all

"We have never, ever doubted the quality and pureness of what we produce, but we were absolutely overwhelmed when our honey won best bottle overall at The Cape Honey Festival, and, very hugely, at the African Apimondia Symposium. Being relatively new in the industry, this was really an immense moment for us," says Clayton.

Elize Lundall-Magnison, a member of the Honey Judges Guild at the African Regional Apimondia Symposium, said Wildflower Honey's Citrus Honey is delicious. "Reg Morgan, another judge, said it tasted like 'real orange honey', and I agree. It was a beautiful honey with a very light colour and a unique taste and aroma. It had a high density that would not easily crystalise."

Patience pays off

Clayton believes that when you work with nature, it works with you. "There is also definitely something to be said for our Capensis bee – they are the master blenders of nectar!"

He also believes that it pays off to be extra patient when working with your bees. "I try to take my time when I work our bees. I am extra meticulous, paying careful attention to the little details in each hive."

Pollination plans

Clayton and Roxy plan to put a lot more hives into pollination services this year. "We have had very fruitful results with our pollinations and have established good working relationships with our farmers. We hope to gain more pollination contracts as we are confident of our bees' capabilities."

Liquid gold

They also hope to get into more delis, coffee shops, gift stores, road stalls, boutique hotels, and the like. "Our honey is so close to home; we are not



Clayton runs 600 hives with the help of only one helper. (Source: Wildflower Honey)



Isabella, Clayton and Roxy's daughter, loves being a bee. (Source: Wildflower Honey)



Besides honey, Wildflower Honey also produces wax products for sale in selected shops and farm stalls. (Source: Wildflower Honey)

aiming for a mass-produced market. We would rather have our special little bottles of 'Liquid Gold' be enjoyed by families around the country who appreciate knowing all the hard work that goes into every drop, for both beekeeper and bee."

Next stop, London

They are also hoping for sponsors to assist them to get to the honey awards in London to compete against the world's best. "I think South African honey is just super special and we would love to be able to showcase our honey in London and make a positive impact for our country."

Most of all, they want to play a role in helping to grow the South African honey industry by educating everybody about the values of pure honey. They also want to team up with organisations to donate hives and educate rural communities across Africa.

Mentors

Since Clayton always wanted to farm, beekeeping provides the opportunity to experience a farming lifestyle and work in nature. He has always been intrigued by bees and in 2018 started beekeeping as a "serious hobby". "I got the opportunity to work under Brenden Ashley-Cooper, who has been my mentor from the start. Beekeepers like himself and Louis van Niekerk have been so generous with their knowledge and advice. I will remain forever grateful for all their freely shared wisdom."

They are also thankful to Riette van Zyl and the rest of the team at the Western Cape Bee Association, SABIO, and the Honey Judges Guild for awarding them the opportunity to participate – and succeed.

Wildflower Honey's logo was inspired by Roxy's tattoo. (Source: Wildflower Honey)



Clayton and Roxy Sanders-Perrin of Wildflower Honey with their children Ethan and Isabella. (Source: Wildflower Honey)



Clayton and Roxy Sanders-Perrin's Wildflower Honey proudly display the three awards they achieved at the Africa Regional Apimondia Symposium in Durban in March this year. (Source: Wildflower Honey)

For more information, contact Clayton and Roxy at wildflower-**honey2020@gmail.com** or follow Wildflower Honey at https://instagram.com/wild.flower.honey.co?igshid=NTc4MTIwNjQ2YQ== and https://www.facebook.com/Wildflowerhoneycapetown?mibextid=ZbWKwL

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