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Transformational innovation

The vertical farming concept has been around for over two decades; however, it has gained momentum in recent years, with many companies worldwide adopting the business model. This relatively recent type of business model is a transformational innovation. Why? Because it has wholly revolutionised the way crops can be grown and can completely transform the farming industry. Compared to the traditional flat farming business, vertical farms take up less physical space and are more sustainable, as they consume less energy and fewer resources (water).

Crops are less costly to produce and therefore more affordable to the end consumer. The business model could be operated anywhere globally as the farms are indoors and do not rely on soil or weather conditions to produce goods. In other words, it is an entirely new offering from the conventional way of growing crops.

Innovation can bring many benefits to a company. It enables companies to problem solve and provides them with creative insight. Continual improvement allows the company to stay ahead of the competition by finding new ways to be more efficient. In Plenty's case, it produces less waste and provides customers with easy access to products they love at affordable prices.

It has allowed Plenty to improve its productivity with its AI operated farms. They can reduce costs with fewer human workers as they use robots to care for their crops, and because the farms are located near the end consumer, they also have fewer distribution expenses. Innovation provides them with the upper hand in relation to the traditional flat farming method, as they do not need to rely on soil or weather conditions to grow their produce.

The benefits to partnerships

Fish project tackles malnutrition and boost incomes in Uganda

In Ugandan lakes, three highly nutritious, finger-sized fishes, known locally as 'muziri', 'ragoogi' and 'mukene' dominate fish catches. However, their nutritional – and economic – benefits are not being realised because high post-harvest losses, caused by improper handling and processing techniques, impact quality and consumer appeal.

The NutriFish project is making the most out of these fish through the development of five nutrient-packed, fish-enriched food products, including a cooking sauce and maize meal for mothers and babies. The fish sauce, which is used in place of beans as a source of protein, cooks in just 10 minutes compared to 1-3 hours for beans. Local families are therefore able to cut down on their energy requirements and reduce their environmental impacts whilst meeting their nutritional needs. The project has also engaged street vendors who make chapatti, normally served with beans, to encourage them to sell their flatbread with the fish-enriched sauce to increase uptake.

It has also tackled Anaemia, a deficiency, caused by low iron consumption, that is commonplace in Uganda – where malnutrition in general is rife, and represents a serious challenge to human health and economic development.

Anaemia affects women of reproductive age and children under five years in particular because these groups struggle to access food of animal origin, especially fish, due to unavailability and expense. Rich in protein and other nutrients essential for good health, fish is considered a 'superfood' and optimal for child development.

To help communities reduce their post-harvest losses and access a more reliable supply of processed fish products, NutriFish has introduced solar tent drying technology as an alternative to traditional open-air sun-drying. The tent drying process is faster and cleaner than traditional methods, whilst also being sustainable, and is enhancing the livelihoods of women who constitute the majority of local fish processers. Processed fish quality has improved, increasing the shelf life from 6 to 8 weeks, to nearly 5 months, and has doubled incomes for the women processers.

To further improve the sustainability of small fish processing businesses, the electronic Catch Assessment Survey (eCAS) assessment survey, a simple app, has been developed by the project. Fishers can use this on their mobile phones to collect and transmit catch data on a daily basis. The information provided by the fishers informs the project when fish stocks are low. This data is passed on to local policy-makers and feeds into recommendations that help avoid overfishing and ensure sustainable management of the fish stocks.

Betty Mercy Timbe from Ntoroko landing site on Lake Albert never ate small fish whilst growing up: "I thought they were too small to eat," she explains. But after attending a training session with the project to learn about the nutritional benefits of fish, she tasted fried mukene for the first time - "It was very delicious," she enthuses. Betty has since become a project 'champion', taking the information she learnt back to her community and encouraging more people to eat small fish by offering them as snacks at her local bar. She has also been able to mobilise 11 women into forming a fishing group. Previously, the women had to buy fish from other fishers - who would determine who got what number of fish – but now, they own seven boats themselves and since coming together, have been able to enhance their earnings to an estimated US$1,200 per month from various fish-trading activities. The women are using the income to meet their family needs and expand their businesses.

Upcoming Events And Exhibitions

05 Oct 22 - 07 Oct 22

Agrofood & Plastprintpack

West Africa, Abidjan

Abidjan, Côte d'Ivoire

05 Oct 22 - 06 Oct 22

Poultry Africa 2022

Kigali, Rwanda

22 Nov 22 - 24 Nov 22

Agrofood & Plastprintpack Kenya

Nairobi, Kenya

01 Dec 22 - 03 Dec 22

Agrofood & Plastprintpack

West Africa, Accra

Accra

24 Jan 23 - 27 Jan 23

IPM ESSEN

Essen, Germany

12 Nov 23 - 18 Nov 23

Agritechnica

Hanover, Germany

20 Nov 23 - 22 Nov 23

VIV MEA 2023

Abu Dhabi, UAE

Space

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13 Sept – 15 Sept 22

APNI AND CSIR HOLD A WORKSHOP IN GHANA

The African Plant Nutrition Institute in collaboration with the CSIR Soil Research Institute (SRI) held a one-day multi-stakeholders workshop on adapting the Sustainable Agriculture Matrix (SAM) framework for cacao cropping systems in Ghana

As part of the Belmond Forum funded Sustainable Agriculture Matrix (SAM) Consortium led by the University of Maryland, Center for Environmental Science, the African Plant Nutrition Institute (APNI) in collaboration with the CSIR Soil Research Institute (SRI) organized a workshop in Kumesi, to engage key stakeholders and partners in order to develop a narrative for sustainability of cacao-based food systems in Ghana.

The Sustainable Agriculture Matrix (SAM) is a framework recently developed by the Center for Environmental Science, University of Maryland, USA, to measure agriculture sustainability and contribute to accountable and transparent monitoring of the SDGs. The SAM framework has 18 measurable indicators, based on three pillars of sustainability: economic, environmental, and social. SAM aims to serve as a platform to engage conversations among stakeholders involved in agriculture and to forge positive changes towards sustainability while avoiding unintended consequences.

To evaluate and further develop the SAM framework across socio-economic and environmental contexts, a group of multi-disciplinary teams across six world regions came together to form the SAM Consortium. APNI is part of the SAM Consortium and is supporting the evaluation of the SAM framework in Kenya, Ghana and Morocco.

In partnership with the CSIR Soil Research Institute (SRI), APNI is working to engage key stakeholders to identify critical sustainability indicators that are relevant for cacao cropping systems in the Ghanian context, and to suggest those that are missing from the current SAM framework.

The stakeholder engagement is conducted in a hybrid manner, first via a questionnaire that was sent out to gather information on the current experience in various agricultural sustainability issues and how institutions or organizations are addressing sustainable agriculture. This survey was followed-up through today's face-to-face, one-day workshop that covered:

1. SAM indicator descriptions, performance and historical trends
2. Trade-offs and synergies
3. Next steps

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About APNI:

The African Plant Nutrition Institute (APNI) is a not-for-profit research and development organization founded in 2019 and based in Benguérir, Morocco. Our mission is enhanced plant nutrition for a resilient and food-secure Africa.

Soaring price of fertilizer, stakeholders call for subsidy

We'll partner farmer groups to tackle fertilizer adulteration — FEPSAN

By Jimoh Babatunde

The National President, All Farmers Association of Nigeria, AFAN, Kabir Ibrahim, has called on public authorities, international organizations and donor agencies to look into making fertilizer readily affordable to identifiable Small Holder Farmers.

Speaking in a webinar organised by Agricultural reference agridigitale in partnership with ECOWAS Network of Agricultural Journalists (REJA-ECOWAS), Kabir Ibrahim smallholder farmers need further subsidies.

Kabir said "In Africa, the farmers have to be assisted with sufficient irrigation facilities to enable them to do all-year-round production and to have sufficient energy to process store, distribute as well as consume what they produce efficiently to evolve a veritable food system.

He added that in Africa, agriculture is largely subsistent with the farmers depending on annual rains, chemical fertilizers and other inputs to enhance productivity.

"The Russia-Ukraine war, among other factors, has made fertilizer quite expensive and not readily available to smallholder farmers, who are the engine room of production in Africa."

He noted that the soaring cost of fertilizer portends an even higher cost for crops which fact is already evident all over Africa.

"In Nigeria, which is the food basket of the majority of its neighbours, the farmers are expressing serious concerns about the possibility of a further hike in food prices since their productivity will be affected by lack of fertilizer in sufficient quantities to use on their farms arising from their inability to readily afford it.

"The farmers have to augment what they can afford of the expensive fertilizers with farmyard manure as well as decayed matter from drains and other domestic waste and where possible deploy SCI (system of crop intensification), biotechnology, climate Smart Agriculture as well as seek government assistance in the form of fertilizer subsidy.

Also speaking during the webinar with the theme 'Agriculture in Africa And

Soaring Prices Of Fertilizer: Issues and Outlook' a participant from Ghana, Dr Charles Nyaaba, said the cost of fertilizer in Ghana skyrocketed.

He said Ghana's dependence on agriculture made it subsidize fertilizer in 2017 to be self-sufficient in food by 2023.

"But today, fertilizer has increased by over 150%. This has affected women and youths coming into agriculture. So, the youths are migrating to the capital city for jobs and most companies depending on agriculture for raw materials are closing down.

"Cost of living has increased and the cost of basic food has gone up leading to protest."

Nyaaba said the solution lies in African countries trading with one another and that the government of Ghana to subsidize farming.

"There should be conscious efforts by Africa Union to encourage trade among African countries..

Nigeria Partners Czech Republic On Agricultural Development, Technology

"This project is geared towards transforming the agricultural sector into an industrial hub, through value addition for job creation, youth empowerment, and skills acquisition. It is pertinent to state that the intervention of the Federal Government in the conception and siting of this project is predicated on the belief that 80 per cent of the world economy is advanced manufacturing technology-driven...

To revolutionize farming and food processing through adoption of modern technology, the National Agency for Science and Engineering Infrastructure (NASENI) has said it will partner the Republic of Czech to develop Nigeria's agricultural sector.

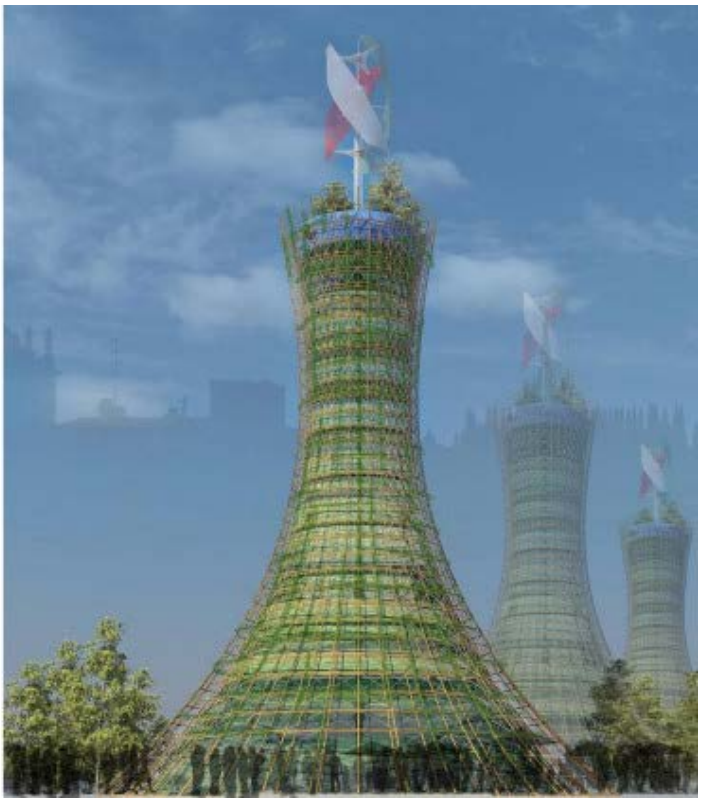
The Executive Vice Chairman of NASENI, Prof. Mohammed Haruna, disclosed this during a ceremony of the Agricultural Machinery and Development Institute (AMEDI) in Lafia, Nasarawa State.

Haruna explained that the establishment of AMEDI in the state was part of the directives of President Muhammadu Buhari to revolutionize agriculture in the country, adding that his agency had succeeded in the development of some relevant equipment and machines in the food value chain – from cultivation to planting, weeding, harvesting, post-harvesting and food preservation.

His words: "This institute is mandated to build on this success and serve as a pilot site for the implementation of the agreement between Nigeria and Czech Republic on agriculture, as approved by President Buhari for the Presidential Implementation Committee. Working with the Technology Agency of Czech Republic, NASENI and AMEDI Lafia will research, develop the equipment and train ordinary Nigerians and professionals in agriculture, food production, harvest and post-harvest, processing technologies, food preservation and packaging. It will also process agricultural waste into renewable energy among others."

On his part, the Nasarawa State Governor, Abdullahi Sule, lauded the Federal Government for establishing AMEDI in Lafia, saying the project was aimed at creating wealth and alleviating poverty in the country.

He said, "This project is geared towards transforming the agricultural sector into an industrial hub, through value addition for job creation, youth empowerment, and skills acquisition. It is pertinent to state that the intervention of the Federal Government in the conception and siting of this project is predicated on the belief that 80 per cent of the world economy is advanced manufacturing technology-driven. I am happy to inform you that NASENI has also set up the North Central Skill Development Centre in Keffi Local Government Area of the state. These endeavors would be critical in the transformation of our dear state into a business hub and will no doubt deepen the availability of skilled manpower to match the influx of companies and organizations that have indicated interest to do business in the state," the governor noted.



13 Vertical Farming Innovations That Could Revolutionize Agriculture

These revolutionary vertical farming innovations might just be the future of food.

1, 2

Cities are heavily reliant on imported food to survive. Be it from the countryside that surrounds it, or from other countries hundreds or even thousands of miles away.

In the latter case, this requires packaging, storing, and transportation of fresh food in such a way that it arrives at its final destination unspoiled and almost as good as the moment it was picked. A vast, seemingly insane, investment in labor and energy could be avoided if the food could be grown in the city. But, with real estate usually at a premium, how could this be possible?

Enter a system called vertical farming.

This revolutionary form of agriculture is still rather much in its infancy, but the potential for it is truly groundbreaking. Let's find out why.

What is vertical farming?

Vertical farming, as the name suggests, is a form of agriculture that is specifically designed to facilitate agricultural production inside vertical structures like buildings. Large-scale versions tend to consist of a series of vertically stacked surfaces that are usually, though not always, integrated into existing buildings, like office blocks.

Source: Vertical Harvest

They can also be created inside repurposed warehouses, used shipping containers, greenhouses, or other buildings that would normally not be suitable for large-scale farming.

You can also make small, domestic-scale, ones in your own home or garden on a shoestring budget.

For this reason, among others, vertical farming can be performed in places that traditionally lack the enormous amounts of open space needed for growing crops — like in metropolitan areas.

Vertical farming is a revolutionary, and arguably more sustainable, method of farming for several reasons. For example, it tends to require much less water than regular farming — by some estimates up to 95% less.

This is because a proportion of the water used can be recycled and reused. Additionally, less water is lost to evaporation.

It also takes up less space (especially the ground footprint), and has little to no impact on local natural soils (apart from the ground surface right below). According to the Vertical Farming Institute, every square meter (10.76 sq ft) of floor space given over to vertical farming produces approximately the same amount of vegetable crops as 50 square meters (538 sq ft) of conventionally worked farmland.

Source: Blaine O'Neill/Flickr

Generally speaking, vertical farms can be operated without the use of pesticides and herbicides that are potentially very damaging to the environment. Because of the controlled conditions provided by vertical farms, all-year-round cultivation of crops is also usually made possible.

Vertical farms are also seen as a great way to deal with an urban phenomenon called "food deserts". This refers to heavily populated areas that lack access to fresh foods like fruits and vegetables. Because vertical farms can generally be built on a small footprint (or inside existing structures), they can improve easy access to fresh food, which would not need to be shipped from distant farms. The fresh food can be sourced locally, rather than needing to be shipped in and stored prior to consumption.

How does vertical farming work?

Vertical farms tend to consist of one of several models, ranging from stacked wooden shelves on garden patios to warehouses and greenhouses that are able to produce enough food for entire communities, to retrofitted facilities in buildings like skyscrapers.

Some, like those built by Eden Green Technology, consist of specially designed towers with stacked plant cups. For larger, purpose-built vertical farms, hydroponic systems are often employed to help control the indoor climate all year round.

Other aspects of vertical farms can also be regulated, including automated control of temperature, light, and humidity. A high level of control is usually vital for the success of the farm, as failure to maintain specific conditions can lead to the loss of entire crops, in a similar fashion to how events such as droughts and floods impact traditional farms.

There are many other examples, and we'll cover a few notable ones in a bit.

Source: Bright Agrotech/Wikimedia Commons

How to start vertical farming or how can you invest in vertical farming?

If you are interested in investing or indeed starting your own vertical farm, you have a few options, but these will also depend on your aspirations. For domestic-scale "off the grid" kind of strategies, simple vertical farms can be created using old pallets, or other custom-made solutions.

You can also buy customized, or standardized, off-the-shelf vertical farm solutions too. We have included a few examples later on in this article.

For larger-scale vertical farming options, you can either directly invest in existing vertical farms (either public or private), or raise enough capital to set up your own. This will, obviously, require large amounts of capital, but the potential for such solutions is predicted to rise dramatically over the coming years.

Some companies (also listed below) offer larger-scale pre-packaged vertical farming solutions that can be quickly scaled up, depending on needs. Many of these solutions can also be combined with more traditional farming techniques, too.

What are some examples of vertical farming?

Now we've covered some of the basics, let's take a look at some interesting examples of vertical farming techniques currently available. This list is far from exhaustive and is in no particular order.

1. Hydroponics – growing plants without soil

Hydroponics is a common system of growing plants used in most forms of vertical farming, and it is slowly but steadily gaining importance. It involves the growth of plants in solutions of nutrients, rather than soil — as in traditional farming.

In this vertical farming method, the roots of the plants are submerged in a nutrient-rich solution which is frequently circulated and monitored.

Source: Oregon State University/Flickr

2. Aeroponics – growing plants with no soil and very little water

Source: MyAeroponics/Wikimedia Commons

Aeroponics is another method used in vertical farming. First proposed in the early-20th century, the technique was refined by NASA in the 1990s when it was looking for efficient techniques to grow plants in space.

This technique involves the growing of plants in an air or mist environment, with no soil and very little water. In aeroponics, seeds or seedlings are "planted" in pieces of foam stuffed into tiny pots, which are exposed to light on one end and nutrient mist on the other. The foam holds the stem and root mass in place as the plants grow.

Aeroponics is considered one of the most efficient methods of vertical farming, as it uses over 90% less water than even the most efficient hydroponics systems. And since the nutrients are held in the water, they get recycled, too. It has also been observed that the plants that are grown this way tend to take up more vitamins and minerals, which may make the plants healthier and more nutritious. The extra oxygen the plants are exposed to also results in faster growth.

3. Aquaponics – growing fish and plants together in one place

Source: Kate Field/Flickr

Another technique used in vertical farms is aquaponics. In this system, fish grow in indoor ponds and produce nutrient-rich waste that acts as a food source for the plants grown in vertical farms.

The plants, in return, purify and filter the wastewater, which is recycled directly back into the fish ponds.

Along with fish and plants, microbes also play an important role in converting fish waste products into useful nutrients for the plants, too.

4. Lokal – growing food in situ

Source: Space10

Another interesting vertical farming innovation is a system called Lokal. Developed in collaboration with IKEA's SPace 10 innovation lab, Lokal is a sort of pop-up farming system. Crops are grown hydroponically, and it primarily relies on artificial light, like LEDs, rather than natural sunlight.

According to the designers of Lokal, their system allows plants to grow three times faster than traditional gardens. In the demonstration model, a salad bar was set up in front of the farm, so that the food could be served up straight away

In the future, it is hoped to integrate sensors and machine learning into the system to enable it to connect to and be controlled by, devices like Google Home.

5. AeroFarms – the smart vertical farming innovation

Source: AeroFarms

First founded in 2004, a company called AeroFarms is making waves in the field of vertical farming. Using a modified form of aeroponics, they have combined genetics, engineering, food safety, data science, and nutrition into developing their products.

According to AeroFarms, "our commercial farms are optimized for year-round production, no matter the season or weather, and we have grown over 550 different varieties of plants including leafy greens, berries, tomatoes, and more."

AeroFarms aims to transform the whole system of agriculture by building and making farms that are environmentally responsible. They are building farms around the world to make sure there is a local production of food that is nutritious, safe, sustainable, and delicious.

In short, they want to grow more crops in less space in the hopes of bringing about a food revolution.

6. Plantscapers – a building that provides food for its occupants

Source: Plantagon

A Swedish food tech company called Plantagon has come up with a creative solution that allows office spaces, and other high-rise buildings, to help grow food to help feed its occupants. Their system is, in part, based on the concept of vertical greenhouses developed by Åke Olsson — from whom they bought the intellectual property rights in 2008.

Olsson developed a rack transport system that gradually moves the planting boxes from the floor to the ceiling of a vertical greenhouse, thus requiring no artificial light. This system can be installed in new builds, or retrofitted to existing buildings.

At present, the company is currently attempting to showcase its vertical farming system into a purpose-built building in Linköping, Sweden.

It is hoped that it will be able to produce enough food to feed almost 5000 people, and includes high-level automation that will be employed for the maintenance and harvest of plants in order to keep the costs very low.

Moreover, everything from sunlight, temperature, and nutrition, to the air quality will be measured through autonomous and controlled systems.

If the concept becomes a success, more countries, such as Singapore, Hong Kong, United States, and others have plans to adopt it too.

7. VertiCrop – a sustainable farming technique for urban areas

Source: VertiCrop

VertiCrop is a proprietary agriculture technique that was been described as one of the "World's Greatest Inventions" by TIME Magazine in 2009. This patent-pending technology was designed and developed so that food could be grown naturally in the environment of bustling urban areas.

This vertical farming method provides up to twenty times the yield of standard field crops, while simultaneously using only 8% of the water that is usually needed for soil farming.

The vertical farming innovation works on a suspended tray configuration that is unique in itself and moves on a conveyor system. VertiCrop offers optimal exposure to both artificial and natural light in addition to nutrients that are precisely measured for every plant.

It has been designed in such a way that it can promote the healthy growth of crops in controlled and closed-loop environments. Furthermore, it entirely gets rid of the need for using harmful herbicides and pesticides and maximizes food value, nutrition, and above all, taste.

8. Modular farms – produce fresh plants virtually anywhere

in the world

Source: modularfarms

Developed by a company called Modular-Farms, this vertical farming solution is an entirely indoor system that has the ability to produce healthy and fresh plants virtually in any climate and anywhere in the world.

Not only that, but it provides a level of customization that provides it near endless application possibilities. Being modular, this vertical farming solution can be scaled rapidly in both size and the types of crops it can grow.

Their vertical farming system uses purpose-built steel containers (not modified shipping containers) that can be installed to supplement existing farms, remote isolated communities, or dense urban centers. Each container is effectively self-sufficient and includes everything from lighting, water supply and treatment, environmental control, and everything else the plants need — just hook it up to the power and water supply.

9. Cubic farming systems – the next-gen in sustainable farming

Source: cubicfarms

Another interesting development in vertical farming is something called Cubic-Farms. This fully automated, environmentally-controlled system uses specialized trays that can be moved in a "v-shape" motion to ensure all sides of the plant receive just the right amount of light to maximize their growth.

The system is based on the concept of hydroponics, with the addition of sophisticated water, nutrient, light, and environmental control systems all contained within specially designed steel containers. Each installation tends to be custom-built and is shipped in an effectively complete state.

10. ZipGrow – vertical farming for the modern farmer

Source: ZipGrow

Another interesting solution in vertical farming comes from a company called ZipGrow. They have combined the tried and tested use of greenhouses, with the principles of vertical farming and hydroponics to develop an innovative, low-cost, high-yield method of farming.

Suitable for domestic and industrial scale, ZipGrow's solutions also offer, in theory at least, all-year-round crop production for its clients be them commercial farmers or homeowners and hobbyists.

The ZipGrow system uses a specially designed rack system with artificial lighting and a specially designed water recirculation system that saves between 90 and 95% of water consumption over more conventional farming techniques.

11. Bowery – possibly the most technologically sophisticated commercial indoor farm in the world

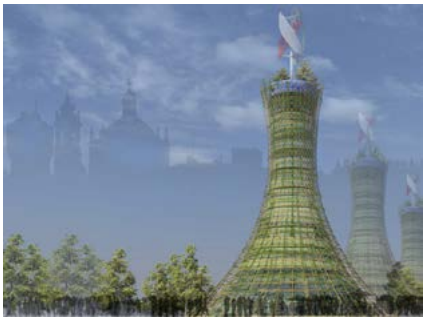
Source: boweryfarming/Instagram

Utilizing hydroponics, Bowery is another company making waves in the vertical farming community. Its vertical stacking solution can, according to the company, allow users to produce 100 times more produce for the same space if traditional farming techniques were used.

Bowery's system makes use of LEDs, and finely controlled air conditions, to provide plants with the "ideal balance of nutrients, light, oxygen, and CO2."

It also uses a closed-loop system to circulate and purify water in order to oxygenate plants and significantly reduce water consumption.

12. Skyfarm – a wind-powered vertical farming tower



Source: Rogers Stirk Harbour + Partners

The architectural firm, Rogers Stirk Harbour + Partners from London have developed designs for a new, and interesting, vertical farming concept called Skyfarm. The idea is to build a hyperboloid tower that makes use of different farming techniques including aquaponics and traditional soil-based planting methods to produce crops within high-density urban areas or at places where land availability is less.

The multi-story building would also partially be built from bamboo, to create a rigid circular frame while maximizing the sun exposure on the farm. The tower supports both the growth of crops and fish together through a re-circulating system where the nutrients from fish water are fed to the crops while the plants provide filters for the fish to thrive.

The bottom of the tower would contain market and restaurant spaces to help raise awareness among the public, as well as allow them to enjoy the fruits of the project. On the next level, a large transparent tank consisting of freshwater for the farming of fish like bass, tilapia, and barramundi. Above this, plants would be grown using a hydroponics system.

Above the hydroponics level, plants would be grown through aeroponics using only water mists and no soil. And finally, the top of the tower would have water tanks and turbines to power the whole thing.

This tower is an example of a sustainable

solution for growing produce with a short shelf life around the year with easy accessibility for the urban population.

13. Sky Greens – possibly the world's first hydraulically-driven vertical farm

Source: Sky Greens

The Singapore-based company Sky Greens has developed a revolutionary vertical farming system which might also be the world's first low carbon, hydraulically driven farm. Vegetables are planted on specially designed growing troughs, mounted on A-shape aluminum frames, that are kept on rotation throughout the day.

These frames can be as high as 30-feet (9 meters) tall, each with 38 tiers of growing troughs, and each capable of accommodating different growing mediums like soil or hydroponics.

The plants at the bottom receive water, while the ones at the top receive sunlight, with all plants constantly cycled throughout the day. This approach, the designers believe, minimizes the use of water, land, and energy over conventional farming techniques.

In addition, the Sky Urban Vertical Farming System is capable of producing, it is claimed, 10 times more yield compared to traditional farms. While the system is currently used to grow varieties of Asian vegetables, it could conceivably be used to grow all kinds of fruits and veggies.

And that, vertical farming enthusiasts, is your lot for today.

With more and more people living in cities, and the pressure for supplying good quality fresh food close to the point of consumption, solutions like vertical farming could well be the future of farming in many parts of the world.

From dense urban settings to more hospitable parts of the world, vertical farming is only just "finding its legs" and is predicted to be a very big player in the future of agriculture.

Morocco's OCP Group Donates 15,000 Tonnes of Fertilizers to Rwanda

OCP's initiative is a part of the group's efforts to strengthen agriculture in Africa amid drought seasons and severe ramifications of the Ukrainian war and COVID-19.

Rabat - Morocco's phosphate and fertilizer giant OCP Group has donated 15,000 tonnes of Di-ammonium Phosphate (DAP) fertilizers to Rwanda, in a bid to help the East African country increase its farm productivity.

In a statement to Rwanda's news outlet The New Times, Rwandan Minister of Agriculture and Animal Resources Gerardine Mukeshimana said that OCP's donation is of a "special importance in this period when fertilizer costs are high."

COVID-19 and the Ukrainian war have disturbed the global chain supply and caused a severe shortage of fertilizers worldwide. Soaring prices are also creating uncertainty for farmers and agricultural ministries around the world.

"Of that [the donation] committed amount, 10,000 tonnes are going to be used as a strategic fertilizer reserve. That means we have a stock of fertilizers and whenever there is a need, we will be able to inject it into the farming community," Mukeshimana said.

The remaining 5,000 tonnes will be a "free starting stock of the fertilizer blending plant to support the launch of its production of adapted fertilizers," the Rwandan minister added.

OCP Africa's CEO Mohamed Anouar Jamali warned that the repercussions of the Ukraine war on fertilizer prices and effects of drought in Eastern Africa are likely to cause unbearable situations for smallholder farmers and be disastrous for food security.

Reaffirming commitment to help small farmers in Rwanda and strengthen its agricultural ecosystem, OCP Group further pledged to supply the East African country with additional 17,000 tonnes DAP fertilizers at a discounted price.

This is part of the OCP's initiative to empower African farmers and ensure food security across Africa.

Minister Mukeshimana, Anouar Jamali, as well as other senior Rwandan officials, have visited the construction site of the fertilizer plant in Bugesera District to assess its progress.

The plant, which is a joint venture between OCP Group and the Government of Rwanda, requires an estimated investment of $38 million and it is expected to have a capacity to blend 100,000 tonnes of fertilizers annually.

On the joint venture - Rwanda Fertilizer Company (RFC) -, the OCP representative stressed that the plant testifies to the Group's commitment to develop the Agricultural sector in the continent.

The Rwandan minister noted that the factory is expected to become operational by May 2023.

Egypt's agricultural exports surge to $2.15bln in nine months

Egypt's exports of agricultural crops increased by 9.30% year-on-year (YoY) to $2.15 billion during the nine months (9M) from September 2021 to May 2022, compared to $1.97 billion.

In the September 2021-May 2022 period, Egypt exported 3.54 million tonnes of agricultural crops, an annual slide of 2.60% from 3.64 million tonnes, Ahram Gate cited the Agricultural Export Council (AEC).

A total of 918,000 tonnes (26%) of crops worth $541 million (25%) have been exported during the nine-month period to the European nations outside the European Union (EU), including the UK. Meanwhile, the EU member countries imported 656,000 tonnes (18%) of crops from Egypt a total value of $479 million (22%).

Furthermore, the Arab Republic exported 417,000 tonnes of agricultural crops to Asian countries in exchange for $280 million during the September 2021-May 2022 period.

Egypt's agricultural exports to African countries amounted to 42,000 tonnes worth $26 million, while the North and South Americas, as well as Australia, imported 29,000 tonnes of Egyptian crops at a total value of $34 million.

During the period from 1 January to11 June 2022, Egypt exported about 3.50 million tonnes of agricultural crops were exported, El-Sayed El-Quseir, the Egyptian Minister of Agriculture and Land Reclamation, stated.

African Development Bank Approves a €63 Million Loan

The Board of Directors of the African Development Bank Group has approved a €63 million loan to Kenya to significantly boost cereals and oil seeds production by over 1.5 million metric tonnes over the next two years. The production increase will help bolster national food security and economic resilience.

The loan is part of the African Development Bank's $1.5 billion African Emergency Food Production Facility, an Africa-wide initiative to avert a looming food crisis exacerbated by the war in Ukraine.

The loan will support the country's Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MoALFC). It will enable the government to promptly provide affordable fertilizer and seeds to farmers ahead of the October-December 2022 short rains and into the 2022/2023 long rains crop production season.

"We are pleased to present the Kenya African Emergency Food Production Facility," said Dr. Beth Dunford, the Bank's Vice President for Agriculture, Human and Social Development. "Successful implementation of the Facility will see some 650,000 farmer direct beneficiaries, resulting in the production of 1.5 million tonnes of cereals and oil seeds. In all, the Facility will positively impact some 2.8 million people," she added.

The project entails the delivery of certified seeds, fertilizers and agricultural extension to 650,000 farmers to boost productivity. An e-voucher system will be used to ensure that subsidies for inputs are "smart".

Another component of the project will provide trade finance guarantees and leverage the private sector to ensure sufficient volumes of fertilizer are available to farmers. In addition to boosting staple food availability, the project, which targets smallholder farmers, is expected to particularly benefit women and youth.

"The government is looking into ways and means of addressing the cost of 'unga' (maize flour) to bring it down so that consumers can afford it," said Peter Munya, Cabinet Secretary for the MoALFC.

The agriculture sector remains the backbone of the Kenyan economy, employing 70% of the rural population and accounting for about 65% of export earnings, although its share in the GDP has declined over the recent past.

Still, Kenya—and other countries in East Africa and the Horn of Africa — have been hit hard by not only the inflationary effects of the war in Ukraine, but also locust swarms and climate- and drought-related impacts. The number of food-insecure people in the country's pastoral and marginal areas rose by 48% between August 2021 and February 2022, according to estimates.

These overlapping shocks—together with the Covid-19 pandemic–have set back Kenya's progress towards achieving the sustainable development goals.

On May 20, the Bank Group's Board of Directors approved the African Emergency Food Production Facility, which will provide agricultural seeds to 20 million African farmers. The goal is to produce an additional 38 million tonnes of food, primarily wheat, maize, rice and soybeans that will generate $12 billion over the next two years.

Disruption as the New Normal in Food & Bev

Phil Lewis, Infor's VP of Solution Consulting EMEA looks at how food manufacturers can use technology to boost supply chain resilience in the face of ongoing disruption.

Undoubtedly, COVID-19 pushed the food supply chain to its very limits, with some even going so far as to say it was responsible for breaking it completely. What we have is a perfect storm of challenges for the global food industry. A dire shortage of workers and skills, in combination with sea containers stuck in harbours and spiralling transportation costs, not to mention the rising price of raw ingredients, have meant that many food manufacturers are struggling to meet demand while staying profitable. Existing weaknesses in the global food supply chain have been exacerbated and food businesses the world over are digging deep, doing everything they can to stand firm against all odds.

What can food manufacturers themselves do to boost their resilience against such challenging conditions? The after-effects of COVID-related and other economic pressures certainly do not seem to be going away any time soon, with more food manufacturers realising that they might have to start getting used to disruption as the new normal.

The UK Centre for Food Policy describes the food system as "the interconnected system of everything and everybody that influences, and is influenced by, the activities involved in bringing food from farm to fork and beyond". Right in the middle of this complex system lie food manufacturers and processors, exposed to weaknesses and challenges at both ends of the wider supply chain. Already under pressure from seemingly ever-changing customer expectations and supplier challenges, the global pandemic served to expose and exacerbate pre-existing supply chain weaknesses, leading many food manufacturers to rapidly reassess just how resilient their supply chains actually are.

Ultimately, getting the right product to the right customer at the right time is still the overarching challenge, but with the added pressures of longer lead times and increased costs. What many businesses identified was a need for more flexibility and agility right across the supply chain, establishing more joined-up working, comprehensive visibility and a renewed focus on creating more intelligent supply chains able to adapt quickly and effectively to changing demands. At the same time, the ability to identify potential bottlenecks and inefficiencies before they have a detrimental impact is paramount — taking steps now to create more resilient supply chains.

With disruption quickly becoming the new normal, how can food businesses strengthen these weaknesses, creating more resilient supply chains that are able to scale and flex in-line with ever-shifting demands and challenges?

Going digital

The go-to term for the last few years, 'digital transformation', is often heralded as the panacea for all business ills, including supply chain issues. For food manufacturers, for whom ever-shrinking margins are always a concern, full-scale root-and-branch digitally transformed supply chains aren't always a viable option, particularly if it's a case of change for change's sake. Instead, by breaking larger projects down into more manageable initiatives, it's possible to yield tangible benefits, helping to build a case for further change elsewhere in the organisation.

Maximise organisational visibility

High on the list of priorities has to be ensuring optimum levels of visibility and transparency across the organisation, making the most of the information available from the wider supply chain to optimise operations. The only way to do this is by standardising and uniting business systems right across the business.

It's this level of oversight and visibility that helps businesses readily identify where inefficiencies and bottlenecks lie, enabling them to take the necessary action before these looming problems negatively affect operations.

Increased efficiency

The bringing together of disparate systems eliminates time-consuming manual processes too, streamlining operations and increasing operational efficiency. Delivered via fully inte-

grated systems, this does away with the need for duplicate data entry, a process that's both time-consuming and error prone. For core elements of any food business, such as ensuring regulatory and health and safety compliance, such efficiency is paramount, ensuring not only greater accuracy of information, but speeding up the administrative burden that is part-and-parcel of operating within the international food and beverage industry.

Planning excellence

When it comes to fulfilling customer demand, the right ERP system can make all the difference too. Access to precise and timely stock and inventory levels and forecasts enables a food business to ensure orders are fulfilled, implementing contingency measures when necessary if, for example, delays to ingredient deliveries are predicted. Also, purchasing decisions can be made based on accurate stock positions. It's the transformation of information into insight that allows all this to happen, with businesses able to make sound decisions, safe in the knowledge that these decisions are grounded in accurate, timely and contextualised insight. This is what creates an agile business, boosting supply chain resilience thanks to the insight and foresight that the right systems can provide.

As disruption continues, with no sign yet of stopping, food businesses need to become accustomed to this new normal. Supply chains need to reflect this new reality, able to stand firm in the face of unexpected challenges. The only way they can do this is if those businesses at the heart of the supply chain boost their agility accordingly, using in-depth business insights to inform not only their own operations but the wider supply chain too. By making the most of the information available, food manufacturers are in the ideal position to lead by example, helping to create agile, flexible and friction-less supply chains, ready for even the most unexpected of challenges.

Issued by Perfect Word Consulting

For more information, please contact perfectword@trinitas.co.za

How agritech can be game-changer in your agribusiness

Technology continues to transform industries globally as the trend towards digitising operations to enhance efficiency continues. According to Oxford Business Group's Agriculture Africa Report 2021, the sector contributes around 15% of the continent's GDP and employs a significant amount of people.

Estelle Lubbe, co-founder and CXO of The Awareness Company, believes technology can play a significant role in streamlining agricultural operations across the value chain to enable efficiencies, maximise yields and contribute to food security on the continent, but there are several considerations to take into account.

"There are some very important questions that an agricultural business must answer before procuring technology," she says.

"It is important to first determine whether your farming business is ready for technology and what your technology strategy is. It is also important to have a clear idea of what you would like to improve with the technology, whether you have the budget and how this will disrupt your business. Equally important is to ensure that you have overall buy-in from all the decision-makers of your business, otherwise, you are setting yourself up for failure."

Another key consideration is whether you have a good, stable internet connection on your farm.

"Most technology today the internet in some way, whether it is to operate or analyse the data generated by the technology, therefore connectivity is imperative to

the success of next-generation agriculture technologies, regardless of whether your goal is to increase productivity, increase your processes, reduce your input, improve access to market or a combination of these," says Lubbe.

Agritech: Estelle Lubbe, co-founder and CXO of The Awareness Company, believes technology can play a significant role in streamlining agricultural operations.

Estelle Lubbe, co-founder and CXO of The Awareness Company, believes technology can play a significant role in streamlining agricultural operations. Photo: Supplied/ Ventureburn

"Here I am particularly referring to low power wide areas (LP-WAN) networks such as LoRA and Sigfox, because these allow sensors to send tiny packages of information frequently and the batteries used in these devices can easily last for years, making them excellent for agricultural use cases.

"That said, these networks and devices have pros and cons of their own, therefore it is important to consider future technology plans, including what devices you may deploy in time and whether you can access them on your mobile phone before investing in rolling out one of these networks to ensure that you get the most return on your investment. In an ideal world, you would want a combination of one of these and a GSM network to ensure that you can choose the best device to solve your problem."

She adds that the farm might also require electricity for the solutions depending on what type of solution is deployed, which means they would need to consider the different options around available solar or generators and keep future maintenance requirements in mind, planning for those accordingly as well as take the security of the equipment into account.

Agritech deployment

"The next big part of your AgriTech deployment is the adoption of both the technology and the processes that come with it. It is important to understand what type of skills will be required and upskill your employees, giving them insight into the value the technology will bring to the farm and, in turn, to them. This will increase your chances of success and return on investment," says Lubbe.

It can be difficult to determine the return on investment (ROI), which is why setting goals and objectives upfront is crucial.

"You need metrics that can be accurately measured such as process and employee efficiency, crop quality improvement, money and time savings, how long you will benefit from the technology and increasing your environmental sustainability as a farm through reduced water consumption," she says.

The costliest mistakes made in the process of procuring AgriTech lie in not doing adequate research, therefore the initial research is imperative. "Once you have identified the outputs you are after and determined your ROI goals, it becomes a lot easier to identify potential solutions and service providers," says Lubbe.

"Ask for demonstrations and testimonials, so that you can understand the technical capabilities of your suppliers, and check that you will have access to local support for any hardware and software you implement. Ensure the technology is simple enough to use so that it doesn't detract from your core business and make sure any peripherals required, such as replacement batteries are readily available and at what cost.

"Start small and scale from there and ask for advice from your peers," concludes Lubbe. "Test the technology you would like to deploy on one or two use cases and build on it from there. You might also think your problem is very linear and unique, but the chances are that someone else has also encountered the same problem.

"Also, ask the technology companies that you are engaging with for advice. The chances are that even if their solutions do not solve your problem directly, they can give you a third-party perspective and point you in the right direction to find the most suitable solution."

Drones used to boost pig breeding in Rwanda

In Rwanda, breeding pigs can be a headache for smallholders who often have to travel several kilometres to hire a male stud or collect pig semen. But a pilot project is changing things, delivering swine semen by drone to farms. Zipline, the company behind the project has been operating it since the beginning of this year working with RAB, the Rwandan Agriculture and Animal Resources Development Board.

Isaiah Rugirababiri is a pig breeder in Kayonza, Eastern Rwanda. He welcomes the initiative which also provides access to animal health products. "What motivated me to use this drone-transported pig semen is that it is a good breed that will increase my production. With this method, I don't have to worry as much as before about the quality and the breed I have chosen.", explains the farmer.

The ambition of this programme is to increase livestock production to boost Rwanda's food self-sufficiency. Anicet Karambizi has been a pig breed for 11 years, out of his 145 pigs, 82 were born thanks to drone seed deliveries. He says the method could also reduce the risk of transmissible diseases such as African swine fever. "I have significantly increased my pig production with this drone-transported pig semen. Using boars used to cause us a lot of trouble with inbreeding, but now we have noticed the difference. With the drone delivery, we receive them on time and the farmer is one hundred per cent sure that he has the right breed.", explains the pig breeder.

Smallholders pay between 6.50 and 10 US Dollars to inseminate a female pig and the drone transport is paid for by the government.

"The deployment of drones to improve our national heads and also the life of our livestock in a bid to provide more, I guess I should say sufficient and nutritious food is very welcome and is what we are trying.", says Solange Uwituze, Deputy Director General of Rwanda Agriculture and Animal Resources Development Board (RAB).

To double the estimated population of 1.8 million pigs, RAB, has set itself the target of inseminating more than 150,000 pigs per year using drones.

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Zim to export 5000t of avocado

ZIMBABWE'S avocado picking season is now underway, with local growers targeting to export about 5 000 tonnes of the fruit this year.

Avocados, among an array of horticultural products, offer viable solutions for local exporters who are looking at increasing their export values.

In Zimbabwe, avocados are being commercially grown in the Eastern Highlands, with export prospects to the rest of Africa, Europe and Asia, according to ZimTrade, the country's export trade promotion body.

"Zimbabwe avocado picking season is now well underway, with the estimated export targets of 5 000 tonnes well in our sights," said the Zimbabwe Avocado Growers Association (Zaga) in an industry update.

"With nearly 1 000 containers, mainly from Peru on the water, which is expected to reach the European Union (EU) in the next week or so, avocado supply will be extremely high and this will undoubtedly put pressure on pricing going forward.

"Some buyers have even advised producers to slow down picking in anticipation of this. It remains critical that in order for Zimbabwean avocados to remain competitive in the international market, there is need to expand into other global markets where reliance on the EU is reduced. It is here that the China protocol will make a difference," the association added.

Zaga, however, said the rise in the cost of fuel has already had a negative impact on viability as the knock on effect on fertiliser prices for the next season can be felt by producers countrywide with some fertiliser prices having increased by 40% over the previous season.

According to Trade Map, avocado imports globally almost doubled between 2015 and 2020 from US$3,8 billion (bn) to US$7,2bn.

Currently, the largest importers of avocados are the Unites States (US$2,54b), Netherlands (US$1,03bn), France (US$518m), Spain (US$318m), Germany (US$371m) and United Kingdom (US$346m).

The Netherlands and the United Kingdom are already top importers of Zimbabwean horticultural products, according to ZimTrade.

"Local farmers can use existing channels to introduce more avocados into these markets. Some promising markets for Zimbabwean-produced avocados in the European market include Norway, Portugal, Belgium, Poland and Spain. In the medium to long-term, China and the rest of Asia are also promising prospects," said ZimTrade chief executive Allan Majuru in one of his articles.

The global demand for avocados has been steadily increasing for the last decade, and this trend is expected to continue, experts say.

To easily penetrate European markets, Majuru said Zimbabwean farmers can take advantage of the interim Economic Partnership Agreement, which allows local sector players to enjoy duty-free and quota-free access to the EU market.

Small-scale farmers can also focus on these markets because their market entry requirements are easily attainable compared to the EU and Asian markets, he said.

Apart from these international markets, there is also scope for exporting avocados to other African markets.

According to Trade Map, top importers of avocados in Africa in 2020 were South Africa, Morocco, Egypt, Namibia, Tanzania and Botswana.

"Most of these markets are easily accessible, riding on logistical advantages and bilateral as well as multilateral trade agreements," Majuru said.

South Africa is already Zimbabwe's top trading partner and should provide a sound market for farmers who want to improve exports of avocados. For the rest of the markets with potential, local farmers can ride on the African Continental Free Trade Area, Comesa, and Sadc trade agreements that offer preferential treatment in the reduction or elimination of customs duties.

There are two main varieties of avocados produced and consumed across the world, which are Hass and green-skinned avocados such as Fuerte, Bacon, Gwen, MacArthur, Pinkerton, Reed and Zutano avocados. Around 80% of avocados produced and consumed worldwide are Hass, which also happens to be the main variety grown for export in Zimbabwe.

Cuba and South Africa sign agreement on animal and plant health

The agreement was inked by South African Minister of Agriculture, Land Reform and Rural Development Angela Thokozile Didiza and Cuban Ambassador Enrique Orta Gonzalez.

The deal will increase information exchange on animal diseases and plant pests, prevention measures and regulations and the training, research and exchange of experts, which will contribute to better control of agricultural and food production in both countries.

It will also contribute to strengthening and intensifying commercial relations, thus diversifying exports and imports of agricultural products in mutually advantageous and safe conditions.

After the signing ceremony at the Department of Agriculture, Land Reform and Rural Development in Pretoria, the South African minister thanked Cuba for its contribution to the fight against Apartheid and continuing assisting South Africa after the defeat of that regime by developing a number of cooperation projects. She said that the Cuban and South African peoples have proven how much progress can be made by addressing common challenges collectively.

For his part, the Cuban ambassador highlighted the practical importance of the new agreement and stressed that it is a continuation of the ideals and legacy of historic leaders Nelson Mandela and Fidel Castro, and the willingness of both peoples to strengthen their historic ties and deep friendship.

Local chicken feed could solve poultry challenges in Sierra Leone and boost maize production

With poultry feed prices at a historical high, a successful 18-month project by Sierra Leone's Leecon Poultry to produce feed from local ingredients and reduce the sector's dependence on imported chicken feed, could not have come at a better time.

The project, which was partially funded by Invest Salone, a UK Government private sector development initiative, under its COMPETE Salone grant facility, has been so effective that Leecon was able to produce enough feed for its own chickens and sell a surplus of 381 metric tonnes to other local farmers.

Another significant achievement of the project was that Leecon was able to sell 800 metric tonnes of maize, the raw ingredient of poultry feed, to visiting buyers from Mali. This is the first time a Sierra Leonean poultry company has sold locally produced maize on the regional market.

Poultry and fish are the primary sources of protein in the Sierra Leonean diet. However, cheap imported eggs and chicken dominate the Sierra Leonean market, making up almost 50% of imported animal products. The local poultry sector, which is constrained by the high cost of imported poultry feed, has been unable to compete. At the height of the COVID-19 pandemic, supply chain problems led to a shortage of poultry feed. Subsequently, rising feed costs, a consequence of the Russia-Ukraine war, have squeezed profits even further.

Avril Pratt, a consultant with Invest Salone, explained the rationale behind the initiative: "Feed accounts for up to 70% of the production cost of poultry, therefore a locally produced feed would substantially reduce costs and increase margins for Sierra Leonean poultry farmers," she said.

With maize making up over 50% of poultry feed, it was essential to ramp up local production. Leecon's response was to build relationships with 1,500 smallholders, supporting them with training and agri-inputs. This included supplying seed and fertiliser on a cost recovery basis and guaranteeing to pay the market rate, which is higher than the usual price paid locally.

Leecon Poultry worked with scientists from Njala University to develop nutritious chicken feed from locally sourced ingredients, including maize, fishmeal, oyster shells, rice bran and cassava flour. Concentrate – a mix of essential oils, vitamins, and minerals - is currently the only imported ingredient. However, work on identifying a viable local alternative is on-going.

Tests with a control group of 150 birds showed that the locally produced feed performed as well as the imported variety.

Baibureh Conteh, Managing Director of Leecon Poultry said: "The grant from COMPETE Salone provided a welcome 20% of our project costs and gave us the opportunity to take a chance on producing our own local poultry feed. The trial has been a great success and we will be continuing production of our local feed. A key element of the success of the initiative is our relationships with maize farmers and our ability to support them for the first time with a dedicated team of company-trained field staff.

COMPETE Salone supports innovative projects with the potential to create jobs, improve livelihoods and increase exports. Those who are awarded grants must provide funds of at least 50% of the total cost of the idea and demonstrate their capacity to implement the proposed project.

Dairy Sector Takes Positive Steps

By Precious Manomano

Growth of the livestock sector is critical in achieving food security, providing raw materials for further processing and promoting sustainable agriculture in line with Vision 2030 of an empowered upper middle class society.

The livestock growth plan is part of the agriculture food systems transformation strategy, which seeks to achieve an US$8,2 billion agriculture economy by 2025.

The Government has put in place measures to address animal health such as the January Disease outbreak, and that has seen intensive dipping and toll manufacturing of dip chemicals.

Speaking during World Milk Day commemorations in Harare last Friday, Director of Veterinary Field Services in the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development, Dr Jairus Machakwa, said Zimbabwe was making strides towards Vision 2030, improving agriculture production, productivity and profitability for the attainment of national and household level food and nutrition security.

The World Milk Day commemorations were held under the theme: "Dairy Net Zero".

Zimbabwe had taken a proactive approach by distributing seed for fodder crops that include lablab, sun hemp and velvet beans and the Ministry was training farmers under the Presidential Pasture Production Scheme to promote the production of fodder by over 500 000 rural households.

"Milk is an important part of a healthy balanced diet, and this World Milk Day provides the perfect opportunity to spread the word.

"As much as milk is beneficial, it is crucial that the production, processing, and consumption chain is done in a way that protects, maintains and improves our environment.

"I am very happy that this year's theme for the celebrations is anchored on ensuring sustainable economic practices that help preserve our environment for future generations.

"On behalf of Government, I would want to state that we are committed to the sustainable development of the livestock sector," said Dr Machakwa.

All farmers were encouraged to comply with animal movement regulations and not move cattle, pigs, goats and sheep without a permit issued by the Veterinary Department, as such animals would be destroyed and the farmers prosecuted.

Farmers had to produce all their cattle for dipping at each dipping session, and could be prosecuted if their animals were found infested with ticks.

"Apply tick grease onto your cattle in between dipping (sessions) or when you notice ticks.

"Sell off non-productive cattle and manage your livestock farming as a business," said Dr Machakwa.

The signing of the Dairy Declaration of Rotterdam in 2016 by representatives of the global dairy community, demonstrates the commitment of the sector towards sustainable development.

In line with the first pillar of the Comprehensive Africa Agriculture Development Programme, dairy farmers are committed to producing nutrient-rich milk on their dairy farms for consumers to enjoy a healthy lifestyle.

In 2001, World Milk Day was established by the Food and Agriculture Organisation to recognise the importance of milk as a global food, and to celebrate the dairy sector.

Since then, the benefits of milk and dairy products have been actively promoted around the world, including how dairy supports the livelihoods of one billion people.

The strength of your machine is defined by its pivot joints

BMG's Nord-Lock range of bolting solutions includes Expander System pivot pin components that comprise advanced pivot pin technology, to offer dependable solutions that combat the challenges of lug wear in diverse industries.

Pivots, which are at the centre of any rotational movement, often experience lug wear, which occurs due to the clearance between the bore and the conventional pin. This is commonly repaired with line boring – a technique associated with high costs and protracted downtime.

"Through Nord-Lock's advanced Expander System, which consists of a comprehensive range of components, BMG specialists are able to supply the correct pivot to prevent the problems that lug wear causes excavators, mobile cranes and dump trucks, in order to maximise uptime, enhance safety on site and minimise maintenance costs," says Wean Marais, National Product Manager - Nord-Lock Group, Fasteners Division, BMG. "The Expander System – which comprises an assembly that includes an axle tapered at both ends, two expansion sleeves, two tension washers and two fasteners – has been designed for convenient onsite repairs. Even in a situation where the lugs are badly worn, a repair can be made in the field, with minimum downtime. The sleeves of the Expander System simply expand to conform with the wear pattern and lock the system in place, without the need for time consuming and costly welding and line boring. Once retorqued, the system locks from both sides, significantly increasing stability.

"This system has also been designed to improve safety on site. By replacing a traditional straight pin with an Expander

System pivot pin of the same diameter, the risk of axle breakage is reduced and the strength of the machine is enhanced through the system's double sided axial locking design.

"There are many other benefits, which include a permanent solution to lug wear, quick and easy installation and removal, increased service life of bushings, bearings and seals and greater safety. A key advantage of this system over conventional pivot pins is pressure distribution. A conventional system only distributes the load onto a very small area, where the Expander System distributes pressure over the whole contact area in the direction of the force.

"There is no need for additional fastening holes, threads or welding of locking rings on the machine and no need for fine machining in the lugs, as this system makes it possible to use wide tolerances. The Expander System can also be combined with Nord-Lock washers for enhanced efficiency in vibration-intense applications."

BMG's customised Expander System pivot pins are specifically adapted to suit exact requirements, through the use of specific materials, hardening treatments, surface coatings and the correct tolerance for each application.

This system is suitable for use in many industries, including construction, steel, railway, bridge building, mining and quarrying, forestry and agriculture, manufacturing and processing, shipbuilding, marine energy and power generation, oil and gas, transportation and machine building.

Severe vibration of heavy machinery is a major challenge in the mining industry. BMG specialists recommend the use of the Expander System in conjunction with Nord-Lock wedge-locking washers as an efficient vibration-resilient pivot solution for reduced maintenance and downtime in loading and hauling equipment, drilling, excavators and mechanical scalers.

Safety and productivity are critical on any construction site, where the continuous operation of equipment and machines makes lug wear prevalent. The Expander System has been designed to extend the service life of pivot joints in articulated haulers, excavators, dump trucks, backhoes, wheel loaders, cranes and bulldozers.

Forestry and agricultural machinery often operate in isolated locations, which are long distances from workshops and technical support. This makes them susceptible to long periods of downtime if they break down. The Expander System is quick and easy to install and remove, allowing for on-site maintenance, substantially decreasing production losses associated with downtime.

In the oil and gas sector, the Expander System increases control and precision during the handling and setup of drilling equipment, while enhancing safety on the rig or extraction site.

This system is also designed for efficient use in manufacturing and processing. For example, in cutters, sludge filters, centre rollers and jack-screws in paper mills, and balers, intake and trimmers used in saw mills. In energy plants, these pivot pins are used in roasters, stoker feeders and grapples and in steel mills, in cooling beds, tensioning arms, oscillator and segment machines, side roller guides and side tensioner frames.

Nord-Lock Expander pivot pins - used by many leading Original Equipment Manufacturers - have been endurance tested for over 50,000 hours without failure and more than 1 million pivot pins have been installed in over 60,000 applications.

BMG specialists work closely with customers in all sectors, to offer a complete service solution, where the team's technical expertise supports quality structural fasteners and fastening components.

Wood-Mizer's footprint in Ghana grows further

Ranking amongst the best in Africa, Wood-Mizer's dealer-representative in Ghana, Gyadosaboc Ltd expands its machine sales, spares and blades stockholding, service support and branch network to support sawmillers in West Africa even better.

Gyadosaboc Ltd, managed by timber and sawmilling sector veteran Philip Gyamfi, ranks amongst Wood-Mizer Africa's most successful dealerships in Africa.

Gyadosaboc's 13 branches allow access to Ghana's widely diversified timber economy with the company's branch network now also reaching into neighbouring Togo, Benin and the Ivory Coast.

Philip Gyamfi, Gyadosaboc Ltd's CEO has a clear and unobstructed view of what it takes to remain competitive in Ghana's highly contested trading environment.

"We supply a superior product that is matched by high stock levels, quality after-sales service and technical support together with ready access to consumables and training available at all our branches in Ghana and neighbouring countries.

"Wood-Mizer prides itself on assisting sawmillers without delay. Time is money and our high stock levels at all our branches ensure that downtime is kept to a minimum with spares and blades immediately available," Philip continues.

Wood-Mizer Ghana's headquarters is located in Kumasi, roughly 200 kilometres north of the country's capital, Accra.

Serving as Wood-Mizer's national hub, the HQ in Kumasi has a birds-eye view of the key timber production regions where Wood-Mizer Ghana's branches are located.

The three regions – Great Accra, Central and Western, Ashanti and Brong Ahafo is managed from Kumasi with branches in Accra, Takoradi, Adansi Asokwa, Gyinyase, Bibiani, Goasa, Sinyani, Techiman, Ejura, Twifo Praso, Sefwi Asawinso, and Sefi Edwenase.

Every Wood-Mizer branch is close to where sawmillers work.

When mills break down or blades have to be replaced, sawmillers don't need to waste valuable time to fix a sawmill or get new blades by travelling far to reach their closest support centre.

Experienced branch managers are also available to assist sawmillers with replacement parts, find the right blade for the job or give advice.

Wood-Mizer Ghana's new machine sales, training and technical support teams are also ready to travel to sawmillers to assist with any inquiry whenever needed.

Wood-Mizer's sawmilling equipment range includes entry-level through to industrial sawmilling solutions that are proven in Ghana. Many small sawmillers in Ghana have grown successful and highly profitable sawn timber export companies through their partnership with Wood-Mizer.

Wood-Mizer is also a market leader in bandsaw blade production, quality, and range.

Specially formulated metals, blade profiles, hook angles and blade thicknesses made to factory specifications and that are tested to ensure compliance with the highest quality standards, combine to cut the exotic hardwoods that are found in Ghana accurately, consistently, and affordably.

Wood-Mizer's bandsaw blade maintenance range makes it easy for sawmillers to maintain their blades with a ready supply of sharp blades always available.

"I want to challenge sawmillers in Ghana," Philip Gyamfi says.

"There are many sawmill manufacturers in Ghana that promise better sawmills, cheaper blades, better service.

"If they can match Wood-Mizer's product ranges, service support, stockholding, technical know-how and experience earned over more than 30 years trading in West Africa, then you're free to consider their offer.

"But if they cannot, and you pay the price for empty promises, you know where to find Wood-Mizer," Philip concludes.

Top safety tips for operating your Generator

Keep the lights on and your family warm with these safety tips for operating your generator

The latest round of daily load-shedding this winter, ranging from Stage 2 to Stage 6, has left many South African households and businesses in the dark and out in the cold. Alternative sources of electricity – and generators in particular – seem to be our only hope for the foreseeable future to counteract South Africa's unstable power grid. But many may still be hesitant to make the investment due to safety concerns.

Mark Odell, Husqvarna South Africa's Product Manager, says that generators have long been the top choice as an alternative source of energy. While there are potential safety hazards, as is the case with most heavy machinery, they are the most robust and reliable option to offset the frequent disruptions to our electricity.

"Thousands of households and businesses have turned to generators to keep their lights on and appliances running," says Mark. "The majority of generators are fuel-driven and they can be dangerous but by following the safety instructions that appear on every machine, you can have power and stay safe."

He offers six safety tips that must be followed when operating a generator:

1. Never run a generator in a closed space or indoors
Generators must only be operated in open areas with good airflow to prevent carbon monoxide build-up. You should never run your generator in a partially closed room, garage or inside your house. The ideal situation is to run your generator in a well-ventilated, covered area that is at least five meters from your house or office with the engine exhaust directed away from any windows and doors.

2. Don't attempt to "backfeed"
Never attach a generator directly to the electrical system of your home or office by plugging the generator into a wall outlet. Known as "backfeeding', this practice puts utility workers, your neighbours and your household at risk of electrocution. It also bypasses some of the built-in circuit protection devices so you could end up "frying" some of your electronics. If you are operating a business, it's VERY important that you do not run a welder or an inverter off a generator as it will lead to catastrophic failure of the generator.

3. Water and electricity don't mix
To avoid electrocution, never touch the generator with wet hands – keep your generator dry and do not use it in rainy or wet conditions. If you are outdoors, operate the generator on a dry surface under an open canopy-like structure, such as a tarp held up on poles. If you must use an extension cord, it should be a heavy-duty cord rated for outdoor use (in watts or amps). Check that the entire cord is free of cuts and that the plug has all three prongs, critical to protecting against shock if water has collected inside the equipment.

4. Storing and using fuel
If you have a petrol or diesel generator, you will need to keep extra fuel on hand. Double-check that you are using the correct type of fuel as specified in the instructions and store it in an appropriate safety container in a cool, well-ventilated place (definitely not next to the generator). When you need to add more fuel, make sure that the generator is switched off and cooled down. And to prevent youngsters from accessing the fuel, store it in a locked cage or cabinet.

5. Keep the area clear
Generators are small engines and as such, give off a lot of heat. Wear protective gloves before touching your generator and prevent fires by keeping it well clear of any other items. And always keep a fire extinguisher close at hand.

6. Maintenance
And finally, like your car, service your generator regularly to keep it in optimal condition and running smoothly. This will also further ensure your safety when you are using it.

For more information or to view Husqvarna's range of robust and reliable generators, visit www.husqvarna.co.za.

Listings

Agricultural Consultancies
- ICS France
- Valtra Inc. - Africa

Agricultural Equipment - General
- Alvan Blanch Development Ltd.
- Baldan/Pan Trade Services Ltd.
- Bentall Rowlands Storage Systems Ltd.
- Briggs & Stratton AG
- Case IH
- Deutz-Fahr
- Eurodrip SA
- Fairtrade GmbH & Co. KG
- ICS France
- Micron Group
- New Holland Agriculture
- Nogueira/Pan Trade Services Ltd.
- SAME
- Valtra Inc. - Africa

Agricultural Projects
- Bentall Rowlands Storage Systems Ltd.
- Eurodrip SA
- ICS France
- Symaga SA

Animal Health Products
- BioPoint
- Socorex Isba SA

Applicators for Granular Insecticides, Herbicides
- Guarany Ind. Com. Ltd.

Automatic Chain Feeders
- Big Dutchman International GmbH

Bagging plant
- Bentall Rowlands Storage Systems Ltd.

Bale Handling Equipment
- Nogueira/Pan Trade Services Ltd.

Biofuel/Biodiesel
- Bentall Rowlands Storage Systems Ltd.

Briquetting Plants
- Alvan Blanch Development Ltd.

Bulk Storage Equipment
- Alvan Blanch Development Ltd.
- Bentall Rowlands Storage Systems Ltd.
- Chief Industries UK Ltd.
- KEPLER WEBER
- Symaga SA
- The GSI Group South Africa (Pty) Ltd.

Cages & Batteries
- Big Dutchman International GmbH

Cassava Processing Equipment
- Alvan Blanch Development Ltd.

Centre Pivot Equipment
- Valmont Irrigation

Cocoa Production
- Alvan Blanch Development Ltd.

Coffee Processing, Handling & Storage
- Swingtec GmbH

Computers & IT Equipment
- Big Dutchman International GmbH

Conveyors and Elevators
- Awila Anlagenbau GmbH
- Big Dutchman International GmbH
- KEPLER WEBER
- Lubing Maschinenfabrik
- Gmbh & Co. KG

Coolers - Environmental
- Big Dutchman International GmbH

Coolers - Evaporative
- Lubing Maschinenfabrik
- Gmbh & Co. KG

Cotton Handling & Storage
- Swingtec GmbH

Crop Drying and Ventilation
- Alvan Blanch Development Ltd.
- The GSI Group South Africa (Pty) Ltd.

Crop Handling & Storage
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- Bentall Rowlands Storage Systems Ltd.
- Chief Industries UK Ltd.
- Griffith Elder & Co. Ltd.
- Swingtec GmbH

Crop Protection Equipment
- Bentall Rowlands Storage Systems Ltd.
- Jacto/Pan Trade Services Ltd.
- Swingtec GmbH

Cultivators
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- LEMKEN GmbH & Co. KG
- Poettinger

Cultivators - Tined
- Bomford
- Briggs & Stratton AG
- Maschio Gaspardo S.p.A

Disinfectants
- Intraco Ltd. n.v

Drills
- Maschio Gaspardo S.p.A

Drinking Systems
- Big Dutchman International GmbH
- Fairtrade GmbH & Co. KG
- Lubing Maschinenfabrik
- Gmbh & Co. KG

Dryers
- Alvan Blanch Development Ltd.

Egg Collection
- Big Dutchman International GmbH

Egg Layer Breeding Stocks
- Lohmann Tierzucht GmbH

Egg Layer Parent Breeders - Brown
- Lohmann Tierzucht GmbH

Egg Layer Parent Breeders - White
- Lohmann Tierzucht GmbH

Egg Layers
- Lohmann Tierzucht GmbH

Exhibitions and Conferences
- Fairtrade GmbH & Co. KG

Extruders for Food, Feed
- Alvan Blanch Development Ltd.

Feed Additives
- BioPoint
- Coprex
- Evonik Industries AG
- Intraco Ltd. n.v
- OLMIX
- Varied Industries Corporation (Vi-COR®)

Feed Concentrates
- Intraco Ltd. n.v

Feed Growth Promotant Probes
- Varied Industries Corporation (Vi-COR®)

Feed Ingredients
- Coprex
- Intraco Ltd. n.v

Feed Premixes
- Coprex
- Intraco Ltd. n.v

Feed Processing Plants
- Alvan Blanch Development Ltd.
- Bentall Rowlands Storage Systems Ltd.

Feed Supplements
- BioPoint
- Varied Industries Corporation (Vi-COR®)

Feeding Systems
- Big Dutchman International GmbH

Fertiliser Spreaders
- Baldan/Pan Trade Services Ltd.
- Guarany Ind. Com. Ltd.
- Maschio Gaspardo S.p.A
- PICHON

Fertilisers
- Hebei Monband Water Soluble
- Fertilizer Co. Ltd.
- Omex Agrifluids Ltd.

Fish Farming
- Socorex Isba SA

Fish Feeds - General
- Alvan Blanch Development Ltd.

Fogging Machines
- Big Dutchman International GmbH
- Swingtec GmbH

Foliar Fertilisers
- Hebei Monband Water Soluble
- Fertilizer Co. Ltd.
- Omex Agrifluids Ltd.

Food Processing Equipment
- F.H. Schule Muehlenbau GmbH

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- Case IH
- New Holland Agriculture
- Nogueira/Pan Trade Services Ltd.
- Poettinger

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- Bomford
- Guarany Ind. Com. Ltd.
- Valtra Inc. - Africa

Fruit Processing
- Alvan Blanch Development Ltd.

Generating Sets
- Briggs & Stratton AG

Genetic Research
- Lohmann Tierzucht GmbH

Grain - Drying & Ventilation
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- Bentall Rowlands Storage Systems Ltd.
- Chief Industries UK Ltd.
- KEPLER WEBER

Grain - Handling, Cleaning & Processing
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- Awila Anlagenbau GmbH
- Bentall Rowlands Storage Systems Ltd.
- Chief Industries UK Ltd.
- F.H. Schule Muehlenbau GmbH
- KEPLER WEBER
- Privé SA

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- Poettinger

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- Deutz-Fahr
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- New Holland Agriculture
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- Micron Group
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- Big Dutchman International GmbH

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- Nogueira/Pan Trade Services Ltd.
- Privé SA
- Silos Cordoba S.L.

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- Nogueira/Pan Trade Services Ltd.

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- Awila Anlagenbau GmbH

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- Lubing Maschinenfabrik
- Gmbh & Co. KG
- Symaga SA

Pig Feeding/Drinking Equipment
- Big Dutchman International GmbH
- The GSI Group South Africa (Pty) Ltd.

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- Big Dutchman International GmbH

Pig Health Products
- OLMIX
- Socorex Isba SA

Pig Housing
- Big Dutchman International GmbH
- Silos Cordoba S.L.

Plant Protection Chemicals
- Omex Agrifluids Ltd.

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- Baldan/Pan Trade Services Ltd.
- John Deere (Pty) Ltd.
- Poettinger

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- Big Dutchman International GmbH

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- Baldan/Pan Trade Services Ltd.
- Vellag Ltd.

Ploughs - Mouldboard
- John Deere (Pty) Ltd.
- LEMKEN GmbH & Co. KG
- Poettinger

Poultry Consultancy Services
- BioPoint

Poultry Equipment - Drinking
- Big Dutchman International GmbH
- Lubing Maschinenfabrik
- Gmbh & Co. KG
- Silos Cordoba S.L.
- The GSI Group South Africa (Pty) Ltd.

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- Bentall Rowlands Storage Systems Ltd.

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- Bentall Rowlands Storage Systems Ltd.
- Big Dutchman International GmbH

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- BioPoint
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- Valtra Inc. - Africa
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