SILAGE FILMS
COVERIS: The Premium Silage Film Producer From Europe Expanding Reach To Africa P.g 6

Tomra Food Publishes New E-Book For Potato Fresh Packers Pg. 12

Chinese Vaccine for African Swine Fever Advances to Next Trial Phase Pg. 20

Why irrigation is key to feeding Africa south of the Sahara’s growing population Pg. 40
BUYING AND USING PRESERVATIVE TREATED TIMBER

HOW TO PLANT A POLE

The detail in these diagrams assists proper drainage of moisture that may be absorbed by a wooden pole. A structural engineer must be consulted for detailed structural requirements.

Poles intended for planting in the ground must be purchased at required lengths. Never plant a cross-cut end of a treated pole or post into the ground as this will expose the untreated heartwood to fungal and termite attack resulting in premature failure.

CHOOSE THE CORRECT HAZARD (H) CLASS

H6 - High Hazard: Prolonged immersion in sea water (Marine piling, jetty cross-bracing, landing steps, retaining walls etc.)

H5 - High Hazard: Outside in contact with heavy wet soil or in fresh water (piling, substructure for walkways & jetties, vineyards etc.)

H4 - High Hazard: Outside in ground, subject to periodic wetting and leaching (fencing and structural posts, landscaping, stakes, pergolas, etc).

H3 - Moderate Hazard: Outside above ground, subject to periodic wetting and leaching (cladding, decking, stairs, balustrades, log homes, etc).

H2 - Low Hazard: Inside above ground, protected from wetting and leaching (roof trusses, framing, paneling, laminated beams, flooring, etc).

CROSS CUT ENDS

All machining, cutting or drilling of preservative treated timber should be done prior to preservative impregnation. Areas exposed after impregnation due to cross cutting etc., must be treated by liberally applying a suitable paint-on or brush-on remedial or supplemental preservative (excluding ground contact).
CHOOSE THE CORRECT PRESERVATIVE TREATED TIMBER
FOR YOUR END APPLICATION (H classes)

H2 – Low Hazard: Inside above ground
H3 – Moderate Hazard: Outside above ground
H4 – High Hazard: Outside in ground
H5 – High Hazard: Outside in contact with heavy wet soil or in fresh water
H6 – High Hazard: Prolonged immersion in sea water

FOR MORE INFORMATION ON ANY ASPECT RELATED TO TREATED TIMBER PRODUCTS AND THE CORRECT USE OF TREATED TIMBER, OR WHERE TO CONTACT SAWPA MEMBERS, PLEASE CONTACT:

Tel: 011 974 1061
sawpa@global.co.za
www.sawpa.co.za
We’ve all heard the saying – in fact, it’s been driven into our minds as of late: “These are unprecedented times.” But one thing that has held strong is the positivity of the African agricultural community, no matter how uncertain things may be.

This edition we delve from how the pandemic has affected the industry to cover one of Europe’s leading packaging companies, Coveris Group. Coveris Group is setting foot into the African market as they look to partner with African farmers and distributors.

Speaking of the probably the difficult times we have faced in recent history, we encourage the farmers to make hay whilst the sun shines, literally make hay whilst the sunshine!!! Now more than ever there is need for Governments to support smallholder farmers to keep them on their feet, this extending to other facets of the sector, as failure to keep this industry must be the top priority to ensure food security post Covid19, we have seen Kenyan poultry farmers getting support in this period.

As always with the 3rd edition of the year, we seek to prepare farmers and suppliers alike with articles and stories that ensure that they are prepared for the upcoming farming season, and this issue is not different either.

These days, it feels like the world is a different place. But the one thing that stays true is SADC- Agri business community spirit, which shows no signs of fading, no matter what the environment throws at us.

Be well,

Editor
Oath Mthupha
Contents

Hay Making
8 The Art Of Hay Making

Food Processing
10 Niche Food Processing Will Always Remain Prime Business
12 Tomra Food Publishes New E-Book For Potato Fresh Packers

Machinery
14 Operational changes planned for Case IH’s South African dealer network
16 New Loader Carrier Adapters and Pallet Fork Grapples simplify material handling. LS20 Series Sprayers are available in four sizes from 45 to 150 gallons
17 John Deere announces enhanced features of exciting new application controller

Livestock
18 Eye-catching conservation tool protects livestock, lions, and livelihoods
20 Chinese vaccine for African swine fever advances to next trial phase

Poultry
22 Kenya: Poultry Farmers Get Free Chicks As COVID-19 Bites
23 Global egg production continues to rise
24 Matthias Hau has been appointed as Evonik’s regional president for the Europe, the Middle East and Africa (EMEA) region

Agribusiness
42 We are ignoring the only industry we can’t live without
44 Urban Farming: Is It Financially & Spatially Feasible?

Animal Health
26 Global animal health company trains Ethiopian farmers
27 What’s needed to do a better job of pre-empting disease outbreaks
28 Evans Vanodine: Specialising in the manufacture of farm disinfectants, and food process cleaning and hygiene chemicals

Agritech
30 5G is Coming to Agriculture
32 Four Agri-Tech Innovations in Asia Pacific that Are Changing the Game for Agriculture

Aquaculture
34 Coronavirus - Africa: Fisheries management works, so it’s time to apply it more broadly
36 SEAC Perfects Belly Cleaning
37 SADSTIA elects a new chairman

Irrigation
38 In Mozambique, water project boosts yields as farmers grapple with climate extremes
40 Why irrigation is key to feeding Africa south of the Sahara’s growing population

Cover Story
6 COVERIS: The Premium Silage Film Producer From Europe Expanding Reach To Africa

Coveris Group is a leading European packaging company that manufactures flexible packaging solutions for some of the world’s most respected brands. We operate in 26 sites in the EMEA region with 4,100 employees.
Coveris Group is a leading European packaging company that manufactures flexible packaging solutions for some of the world's most respected brands. We operate in 26 sites in the EMEA region with 4,100 employees. Headquartered in Vienna, Austria, we develop packaging that protects all types of products - from food to pet food, from medical devices to industrial and agricultural products. Through our broad level of technical expertise, our high-quality range of agricultural stretch films help farmers preserve the high quality of their silage.

WHAT WE CAN DO FOR YOU

Based on 25th years of experience in overseas business, we provide high quality silage films with worldwide shipping to faraway destinations, like Africa, North and South America, Australia and New Zealand. Our large range of silage films offers many benefits that meet special regional requirements, such as high UV and bird protection, easier handling and are available in different colours (green, white, black and transparent). The key advantage of our films is high puncture resistance and extreme elasticity, which helps creating tighter and more rounded shaped bales for easier stacking and transporting. On top of that, the additional film layers increase the mechanical protection which optimizes handling of the bales. What is essential, the oxygen barrier supports the fermentation process and helps reducing the loss of fodder due to mould.

INTERESTED? GET IN TOUCH!

We are looking forward to cooperating with both, local farmers and distributors in Africa. If you are interested in our offer, please get in touch with our sales person Mr. Daniel Wojutycki (speaking English, German, Dutch and Polish).

CONTACT

Daniel Wojutycki
T: +43 5372 601 441
E: daniel.wojutycki@coveris.com
W: www.coveris.com

Coveris: The Premium Silage Film Producer From Europe Expanding Reach To Africa
HIGH PERFORMANCE
SILAGE FILMS

Quality silage wrap from European manufacturer Coveris

High quality silage bales for your special requirements
Available in green - white - black - transparent

CONTACT OUR SALES REP:
Daniel WOJUTYCKI
T. +43 5372 601 441
M. +43 699 16014110
Daniel.Wojutycki@coveris.com

Spoken languages:
English, German, Dutch, Polish

WE ARE LOOKING FOR DISTRIBUTORS IN AFRICA. ARE YOU INTERESTED? CONTACT US!

COVERIS UNTERLAND SILAGE FILMS

CONTACT US!

www.coveris.com
www.unterland-coveris.at
The Art Of Hay Making

Characteristics of good quality hay

Although hay-making is an old process in agriculture, it sometimes seems that not everybody knows the characteristics of good hay. The following are external characteristics of good hay:

- The color of conserved hay should be green and not a “straw color”.
- Hay should be leafy with minimum stems.
- It should have a pleasant aroma, not a sour, damp, or pungent smell.
- No stones, wires, plastic ropes, soil, or foreign plant material should be present in hay.

It is important to remember that if CP content of the pasture or hay is above 13%, the animals can maintain their weight and above 18% they will gain weight. However, if the CP content falls below 6 to 8%, their appetites will be depressed and the pasture intake by the animal will decrease.

How to produce good quality hay

The following factors influence hay quality:

Fertilisation

By cutting hay two to four times per season, feeding elements like nitrogen, phosphorus, and potassium, as well as other macro and micro elements, will be removed. In a grazing situation, some elements will be recycled by dung and urine, but not when hay is cut and removed. Therefore, annual fertilisation according to soil analyses is important.

Cutting stage

The growth/cutting stage directly influences the nutritional value of the hay. In many cases, the emphasis is on maximum production (t/ha), when the hay is cut at a tall, matured, and dry stage. If it is done at this late stage, the quality will be low because of more stems and less leaf material.

Curing or drying

The ideal is to cut the material early in the morning, to let it dry in the sun during the day, and to bale it late in the afternoon of the same day. In many cases, it is difficult to do so, particularly in countries such as Zambia and Kenya, because of frequent rains during the season when grasses are in the cutting stage.

The moisture content of grass at a young stage can be as high as 70 to 80%, and to bale it successfully the moisture should be reduced to 10 to 20%. This can be done with grass species with fine stems and thin leaves and by using the correct implements.

Sunshine and rain are two of the most important climatic elements in agriculture, but if we do not manage our hay-making process correctly, they can both decrease hay quality. Drying hay for too long in the sun (2 to 4 days) is harmful, but rain on the
material during the drying process may also cause damage. Some important factors to consider:

- Consult the existing weather forecast services
- Do not cut more material than can be baled on one day
- Newer and well-equipped machinery can be useful
- Use cultivars with fine stems and thin leaves (as mentioned earlier)

Hay-making implements

Mowers

Mowers with bruisers or crimpers (conditioners) are ideal to bruise the plant material and accelerate the drying process. This is the ideal mower to use when hay is mowed at a younger stage for higher quality. Remember, mowing at a younger stage improves quality and will result in more cuts per season, thus not lower production per season.

Rake

The traditional round wheel rake is one of the most popular implements to place the hay in windrows. The disadvantage is that it forms rolled windrows and it cannot spread the material to be aerated.

Tedder

The tedder is not well known and it is expensive, but by using it, the drying process is much shorter to prevent sun and rain damage, and that means higher quality hay. Most modern mowers place the material in a window and that can be followed up by the tedder that spreads it open to aerate it. The tedder action can be repeated two to three times a day, to speed up the drying process for baling on the same day.

Baler

The type of baler is the farmer’s own choice, but the traditional small square baler is still popular because its bales are so easy to handle or stack. Round balers are becoming increasingly popular as they too have advantages. They are quicker to bale more material per day. Some of these balers can be adjusted to compact the hay differently (loose or compacted), thus slightly wet material can be baled loosely and more aerated, to prevent damage. The cover material of most of these balers are dense and prevent water penetration. Round bales can also be wrapped to make grass silage.
Focus on Artisanal Wheat & Ancient Grain Milling

Wheat – that grain used for our daily bread and descendant of the ancient grains originally grown and selected in the fertile crescent and the mainstay of the agricultural revolution, in modern times was the domain of large scale industrial mills, very often due to centralized government policies and bread subsidies to the masses. The village wheat flour mill practically disappeared.

Since the early 1990’s ABC Hansen Africa piloted the way for artisanal milling of flour in plants of 12 to 75 tons per day and focusses on high value, low volume, highly efficient milling.

Ordinary commercial wheat flour can broadly be classified as follows:

- **Cake Flour:** Protein 8-10%; Particle size < 160 micron; Ash < 0.65%. Colour – white with very few noticeable bran specks. Extraction 50-60%. Used for confectionery baking, often with baking powder rather than yeast due to lower protein. White Bread flour; Protein 10-12%; Particle size < 212 micron; Ash < 0.78% Colour white with some noticeable specks. Extraction 70-78% Used for baking most yeast product where a good rise is required. Brown bread flour; Protein 9-11% Particle size 85%< 212 micron; 15%-<212 micron; Ash – not measured. Colour white with large flakes of bran.Used almost exclusively for brown yeast bread.

- **Self-raising flour:** This is simply low protein (below 9%) cake flour with baking powder added to it to allow for easy baking of non-yeast products and is a home-bake, small package value adding product by industrial mill.

- **Industrial flour:** Protein – not measured. Particle size < 300 micron. Ash – > 1%. Off-white flour with many bran specks. Used in brown bread mix as well as for biscuits and other confectionery products where its off-white colour and rise is not important. Also used as filler in foods and sweet meats, soups, gravy etc.

- **Semolina:** This type of flour is coarse – normally above 300 micron and below 1 mm and is traditionally made from durum wheat – a wheat type with very low gluten (the protein in wheat that lends wheat its “stretchability” needed to expand in the fermentation process while retaining the “bubbles” intact. This is used in manufacturing pasta and couscous for instance and is separated from fine bran by air and vibration through a machine called a purifier.

By-products:

Wheaten bran used in animal feeds and fillers. Polliard (very fine bran) used as fillers in food such as processed meats, biscuits etc. screenings used as animal feeds.

Our focus however is on Stone Ground Artisanal Flour milling......

StoneGround* artisanal flour: As the name indicates, this can be virtually any flour that works for the application it is milled for; be that for confectionary, artisanal (rather than industrial) bread, flat breads, pit breads, pizza crust, sourdough breads etc, and is normally of higher ash value** than industrial white bread, has a colour varying between white, slightly creamy up to almost Khaki coloured and has the same particle size as cake flour and white bread flour, has the wheat germ (with its many nutrients) intact, is not chemically bleached and has many variations the miller can apply to make custom flour for his ultra discerning baker-customer.

Ancient grains such as spelt, Khorasan wheat (Kamut), freekeh, bulgur, farro, einkorn, emmer, barley, oats, rye and the pseudocereals quinoa, amaranth, buckwheat, and chia for which a limited upper end demand exist, can be profitably milled with a stone ground artisanal milling system.

** Ash content denotes the percentage of minerals, primarily originating in the bran, remaining after the flour has been incinerated, therefore providing an index as to the bran content in the
flour and subsequently its “purity” in terms of advanced refined carbohydrates – nothing to be really proud of for those seeking healthier food products.

Why an Artisanal StoneGround Mill?

• Stone Ground* flour is known to absorb more water due to the higher starch damage inflicted on the grain which in turn provides a softer mouthfeel in the final product.

  It has more fine bran particles allowing better digestion and reducing the incidence of colon cancer for instance. It can be processed to have as low ash content as industrial white bread and cake flour but it defeats the object.

• It has minimal contact with steel in die grinding process and in smaller plants specifically, steel roller mills need not be used at all. Rollers are primarily used to increase low ash content yield for those millers who still rely on having to be competitive with the large industrial mills.

• It retains the wheat germ with its all wholesomeness.

• It is never chemically bleached neither are chemicals and enzymes added to improve poor flour’s baking quality.

• The artisanal miller can produce flours and flour blends that suit a variety of baked products and lend a special taste, appearance, and mouthfeel to such custom products.

• An artisanal mill in your town encourages local industry, provides local employment and entrepreneurship, supports organic and high-quality grain growers, encourages healthy eating habits, and contributes to the community.

So, what equipment should be used to produce StoneGround artisanal flour?

To produce StoneGround* flour, a miller needs the following equipment:

An intake system for wheat as well as storage in at least 3 silos or bins, from which a grist is blended to ensure the same quality flour over a longer period and to optimize on raw material cost.

A day bin in which the grist is placed prior to milling is also important.

A ABC Hansen Quail* II Cleaner and aspirator, dampener and conditioning bins where cleaned and moistened grain is detained for 24 – 36 hours prior to milling ensures high quality mature flour.

A scourer or polisher – in the case of ABC Hansen’s mills a Tempest* Stone Grain Polisher removes some of the outer bran and dirt collected on the grain kernels.

A Hurricane* roller mill with four roller passages may be used to remove all the bran from the endosperm providing for a whiter flour. Alternatively the wheat can be milled through several passes over StoneGround* stone mills until the endosperm is completely milled down.

If a roller mill is used, high capacity and a cleaner flour can be achieved. Once flour and bran is screened out, the middlings (coarse endosperm particles) are then introduced to the stone mill or several stone mills followed by sifting processes.

An ABC Hansen blender is always a requirement to blend bran and flour at the correct proportions or rye flour and wheat flour or any of the other ancient grains for specialty flour. StoneGround stone mills is a registered brand of ABC Hansen fitted with the world-famous Danish Engsko stones (circa 1900).

Tempest grain polishers, Hurricane roller mills, Quail cleaners and Hippo hammer mills are all registered brands manufactured by ABC Hansen.
Tomra Food Publishes New E-Book For Potato Fresh Packers

Tomra Food has published an eBook to help potato fresh packers tackle operational challenges intensified by the COVID-19 pandemic. The 19-page publication, downloadable free-of-charge from the company’s website, offers information and advice which will be helpful to packhouses not only now, while market conditions are distorted, but also long after the pandemic has passed.

The eBook starts by acknowledging that the damage inflicted on the potato industry by COVID-19 is not even-handed. While many potato growers and processors have suffered because of loss of demand from foodservice outlets, others are thriving because retail sales of fresh pack potatoes have been boosted by the increased frequency of home-cooking. The eBook reports how the monetary value of potato sales at multiple-outlet supermarkets quickly increased by 67%.

The eBook welcomes the fact that consumers have rediscovered fresh potatoes, but also asks whether this newfound fondness will last. Surveys report that a majority of consumers expect to continue cooking more at home after the pandemic, and 63% of Millennials say they will keep on eating the comfort foods they have enjoyed during lockdowns. Even if this should not prove to be the case, the global consumption of fresh potatoes is rising: the growing numbers of people earning middle-class incomes in developing nations, where rice is the traditionally favored staple, are acquiring more varied tastes influenced by western-style diets.

Keeping up with demand by increasing throughputs is the biggest challenge many packhouses have faced during the pandemic. Though this is understandable, the eBook observes that it is also unfortunate: when big potato retailers find that their regular suppliers cannot deal with greater volumes, they look elsewhere for help, and business that gets steered away doesn’t always come back. Another demand-related challenge is the need to take advantage of the opportunity to gain new business, yet some packers lack the operational systems, line technologies, or people power to do this.

Difficulties recruiting and retaining manual labor, familiar to packhouses for years now, have also been intensified by the pandemic. Fewer people are willing to do this kind of work. In developed nations, most unskilled laborers prefer the security of permanent employment to seasonal contracts; in developing nations, manual laborers are now finding they have more desirable jobs to choose from. Many packing businesses consequently rely on temporary foreign workers, but because of pandemic-related travel restrictions, in many places this pool of labor has dried up.

Another labor-related challenge is the fear, fueled by reports of outbreaks at numerous American and European food processing plants, of catching COVID-19 at work. This is awkward for pack lines which rely on manual methods for removing poor-quality potatoes and often have people working in close proximity to each other.

Another challenge heightened by the pandemic is the need for operational flexibility. The increased popularity of fresh potatoes means they have become a weapon of choice in the battle between supermarkets to tempt shoppers with special offers, but such offers change quickly from one week to the next. This means packhouses must have the ability to switch the line from one potato type or product specification to another at short notice.

The eBook also looks at the longstanding needs for consistent product quality, which can be as influential as supply and demand in determining profitability, and improved productivity, because typical pack-out rates of 60-80% mean that packers are losing 20-40% of incoming product. These figures emphasize the value of product recovery. The eBook gives the example of how packing Grade 1 potatoes in clear bags might seem like good business because the product is premium-priced, but profitability can depend on recovering inferior potatoes from the line for sale as Grade 2 product.

TOMRA Food’s new eBook concludes by explaining how all of these challenges can be solved with optical sorting technologies. As a primary benefit, sorting machines ensure food safety and consistent product quality by eliminating foreign material and unmarketable potatoes from the packing line. But more than this, sorters also reduce dependency on manual labor; make it possible to switch with agility from one product batch to another; improve throughput by identifying line-flow issues; maximize yields by recovering product that need not be wasted; and precisely grade each potato to ensure the product meets the required specifications.
POTATO FRESH PACKERS AND COVID-19 CHALLENGES

How disrupted market conditions are accelerating the need for change
Operational changes planned for Case IH’s South African dealer network

• CNH Industrial is moving to strengthen its local presence with the planned purchase of four divisions of Capital Equipment Group (CEG).

• CEG, previously owned by Invicta Holdings Limited, includes Case IH distributor, Northmec.

• The acquired divisions will form part of a fully-owned CNH Industrial legal entity based in South Africa.

Case IH, through its South African distributor Northmec, will continue to deliver an exceptional customer experience which will be enhanced further by the intended acquisition Northmec by the brand’s parent company, CNH Industrial. The expected takeover date will be 1st January 2021 subject to Competition Commission approval.

Northmec is one of the four divisions of the Capital Equipment Group (CEG), which CNH Industrial has agreed to acquire from Invicta Holdings Limited, and will form part of a fully-owned CNH Industrial legal entity based in South Africa.

Northmec is one of South Africa’s most established agricultural equipment distributors. It is the sole distributor of Case IH machinery, offering implements and other agricultural equipment, providing a full product line for South African farmers.

Case IH’s product offering, aftermarket sales and services will continue to be delivered at the high standard provided by Northmec, as expected by customers.

By taking control of operational management of the commercial distribution and aftermarket network, CNH Industrial will strengthen the relationship between the Case IH brand and its customers in South Africa and other southern African markets.

Case IH’s product offering, aftermarket sales and services will continue to be delivered at the high standard provided by Northmec, as expected by customers.

In anticipation of final approval by South Africa’s Competition Commission and the subsequent conclusion of the deal, the parties have entered into a transitional period for the business, which sees CEG remaining in control of the operations.
The most powerful tractors currently on the market, the latest Case IH Quadtrac and Steiger models produce some of the market’s most impressive power and fuel economy figures. But power is nothing without precision, and Case IH ensures the operator is able to control these tractors with the ultimate precision, courtesy of cabs that set new standards in comfort and operation. The result is machines that are the masters of productivity where high-output farming is concerned, the sort every large farm needs in its fields.

The Steiger and Quadtrac family has nine models ranging from 406 to 608 hp to choose from with both track and wheel configurations customized for tillage, planting, seeding, nutrient placement, land leveling and tile plow operations. And no matter which Steiger or Quadtrac you operate, you will see the advantages of the innovative Case IH design for unparalleled power to the ground and unprecedented durability.
New Loader Carrier Adapters and Pallet Fork Grapples simplify material handling. LS20 Series Sprayers are available in four sizes from 45 to 150 gallons.

John Deere expands its lineup of versatile Frontier equipment with the addition of new loader carrier adapters, pallet fork grapples and tractor-mounted sprayers.

Frontier Loader Carrier Adapters are ideal for customers who are looking to trade for a newer John Deere tractor and loader package without updating their current inventory of implements or for customers with an older tractor and loader who want to upgrade to new implements.

"Loader Carrier Adapters let you keep your current loader implements or help you fit your older tractor with new implements," said Scott Geier, sales and marketing manager for John Deere. "These are ideal for property owners or non-commercial ag users who use skid-steer style attachments and they can be attached or detached in under 50 seconds."

Five models are available to fit a variety of compact and larger utility-sized tractor and loader combinations.

The new Pallet Fork Grapples can be attached to compact or utility tractors to move those awkward piles that are not easy to grab with a pallet fork, including brush, firewood, or lengths of pipe. The grapple's tooth pattern is built for gripping, not piercing, and provides a secure way to move material. The PG11 and PG12 match John Deere compact and utility tractor and loader combinations with an available third-function hydraulic connection.

The LS20 can be ordered with 45-, 60-, 110- or 150-gallon tanks to best fit your field size or coverage area. Five boom widths are available from 10 to 30 feet wide.

A boomless option for spraying across rough terrain or when obstacles are present is also available in 24- or 30-foot spray widths and can be fitted with flat spray nozzles. The LS20 comes equipped with a handy spray wand or spray gun to help spray those hard-to-reach or smaller areas.

All three of the new Frontier product families are now available for ordering and can be added to your new tractor purchase to help keep monthly payments low. For more information visit the Deere.com website.
John Deere announces enhanced features of exciting new application controller

The new John Deere application controller, available as a “bolt-on” or ‘after-market’ kit and compatible with a host of existing machinery, enables enhanced Active Implement Guidance (AIG). Distance Trip and iGrade.

Maintaining the best crop quality is often compromised by cropping practices that require multiple passes through fields. Each pass during the production cycle puts the crop at risk.

With the new upgraded John Deere AIG, “producers no longer have to worry about the final crop quality as both the machine and implement are operating on the A-B line,” says Wayne Spaumer, Product Specialist for Precision Agriculture, Sub-Saharan Africa at John Deere.

Moreover, AutoTrac™ assisted steering system paired with AIG allows operators to be more productive by allowing them to focus on tasks other than steering.

Using AutoTrac and AIG together greatly reduces the strain on the operator because the system accurately guides the implement to execute optimum passes, or accurately distribute seed or fertiliser by placing, “industry-leading implement control at the operator’s fingertips,” says Spaumer. In addition, passive AutoTrac Implement Guidance allows machinery to travel off guidance lines, “meaning that no steering mechanism is needed to keep the implement on the intended path,” says Spaumer. This system is optimal for first-pass applications like pre-season nutrient dressing, tillage, planting and seeding, or strip-filling. At the end of the season, the results are better crop quality and improved yield.

Other operator benefits of John Deere’s enhanced AIG include:

- Closer monitoring of parts, enabling preventive – rather than reactive – maintenance.
- Freeing the operator to look for obstacles such as rocks, washouts, or holes caused by broken tile lines.
- The ability to turn the implement steering mechanism manually in tight spaces through simple fingertip controls.

All of these benefits result in, “more uptime for the equipment – and an operator who is more alert throughout the day,” says Spaumer.

Risk is also minimised when seed is planted with AIG. Precise seed placement provides a straighter path for subsequent passes throughout the season. Compaction and crop disturbance are also reduced as AIG keeps the implement and tractor on the same guidance path.

From November 2019, both the John Deere Application Controller 1100 and Application Controller 1120 were replaced with a new version of the hardware. This new hardware has resulted in improvements to several software applications.

Key improvements to Application Controller 1100 include:

- Automation of machine guidance as well as hydraulic controls, unlocking multiple solutions via a StellarSupport™ portal activation.
- The ability to perform land levelling and distance-based operations through automated hydraulic control enabled by iGrade™ and Distance Trip.
- Location and precise tracking of implements via John Deere AIG and Plow Steer.
- Removal of the need for external valves.

Key changes to AIG enables:

- Plow Steer to adjust plow width, maintaining a selected centre point between guidance lines.
- Vision cameras and specialty hitch designs to move cultivators in row crops.

Key changes to iGrade™ and Distance Trip include iGrade compatibility with up to three scrapers with elevation and slope control. The John Deere enhanced AIG also enables Distance Trip to; create headland furrows in ditch irrigation, equidistant post holes for fencing operations, and plot-based alignments for seeding and spraying operations based on segment length. The new functionality also, “provides up to ten user-defined patterns with associated reference points including grid (90-degree, equilateral triangles, alternating rows, integrated angels), parallel lines, fence posts and plot pattern,” says Spaumer. Patterns may also use, “manually entered guidance line track spacing to synchronise application controller spacings,” he adds.

Furthermore, yield documentation enables producers to record harvest information from harvest operations, and plot-based operations. Typical uses include harvesting potatoes, onions, and beetroot. Thereafter, “data can be easily transferred to John Deere Operations Center via Wireless Data Transfer (WDT), JDLink or USB for further analysis around yield and agronomic impacts for nutrient removal and residue levels,” explains Spaumer. “AIG is available for all John Deere and non-John Deere tractors with either an open or closed-centre hydraulic system, “by merely adding an external suction control valve (SCV) and SCV switch available at any John Deere dealer,” concludes Spaumer.
painting eyes on the rumps of livestock can protect them from attacks by lions in landscapes where they coexist, a joint study from UNSW Sydney, Taronga Conservation Society Australia and Botswana Predator Conservation shows.

Scientists present their method, which they suggest as a more humane alternative to using lethal control, and a more ecologically sound alternative to using fencing to separate livestock from carnivores.

They describe how they painted eyes on the backsides of a select number of cattle in the Okavango delta region in Botswana where livestock rub shoulders with lions, leopards, spotted hyenas, cheetahs and African wild dogs. They theorized that because predators rely on being undetected by their prey for a successful attack, they could perhaps trick lions into thinking they had lost this advantage and ultimately to give up on the hunt.

“Lions are ambush predators that rely on stalking, and therefore the element of surprise, so being seen by their prey can lead to them abandoning the hunt,” says joint UNSW Science and Taronga Western Plains Zoo researcher Dr. Neil Jordan.

“We tested whether we could hack into this response to reduce livestock losses, potentially protecting lions and livelihoods at the same time.”

UNSW Ph.D. student Cameron Radford worked with farmers in the Okavango delta region to paint cattle in 14 herds that had recently suffered lion attacks. They painted one-third of each herd with an artificial eyespot design on the rump, one-third with simple cross-marks and left the rest of the herd unmarked.

Normally cattle herds (ranging from about six to 110 individual cattle) are kept in predator-proof enclosures overnight, but generally graze unattended for most of the day, when the vast majority of attacks from lions and other predators occur.

The researchers found that cattle painted with artificial eyespots were significantly more likely to survive than unpainted or cross-painted control cattle within the same herd. In fact, no painted ‘eye-cows’ at all were killed by ambush predators during the four-year study, while 15 unpainted and four cross-painted cattle were killed.

“While these results do support our initial hunch that creating the perception that the predator had been seen by the prey would lead it to abandon the hunt—the detection hypothesis—there were also some surprises,” Dr. Jordan says.

“Cattle marked with simple crosses were significantly more likely to survive than were un-marked cattle from the same herd. Although eye-marked cattle were more likely to survive than the other groups, this general ‘conspicuousness’ effect suggests that novel cross-marks were better than no marks at all, which was unexpected.”

From a theoretical perspective, these results interested the researchers. Although eye patterns are common in many animal groups, notably butterflies, fishes, molluscs, amphibians, and birds, no mammals are known to have natural eye-shaped patterns that deter predation.

“To our knowledge, our research is the first-time eyespots have been shown to deter large mammalian predators,” Cameron Radford says.

“Previous work on mammal responses
to eye patterns has generally supported the detection hypothesis. We think this may suggest the presence of an inherent response to eyes that could be exploited to modify behavior in practical situations—such as to prevent human-wildlife conflicts, and reduce criminal activity in humans.”

In addition to the science, the researchers have also produced practical guides to the “eye-cow” technique in both English and Setswana. While they are hopeful that farmers will take up this simple tool, they stress that it is important for potential users to understand the potential limitations in its use, and choose for themselves.

As Dr. Jordan explains, “First, in our experimental design, there were always unmarked cattle in the herd. So it is unclear whether painting would still be effective if these proverbial ‘sacrificial lambs’ were not still on the menu. Further research could uncover this, but in the meantime applying artificial marks to the highest-value individuals within the herd may be most pragmatic.”

Another consideration is habituation, meaning that predators may get used to, and eventually ignore, the deterrent.

“This is a fundamental issue for nearly all non-lethal approaches, and whether the technique remains effective in the long-term is not yet known in this case. Habituation may be a key issue where resident carnivores frequently encounter ‘eye-cows’, but in many areas, carnivores may be simply passing through, and habituation is less of a concern there.”

Dr. Jordan adds that in these cases, incorporating this technique into existing practices may contribute to providing carnivores with safe passage during dispersal or during occasional forays from adjacent protected areas.

“Protecting livestock from wild carnivores—and carnivores themselves—is an important and complex issue that likely requires the application of a suite of tools, including practical and social interventions. The eye-cow technique is one of a number of tools that can prevent carnivore-livestock conflict—no single tool is likely to be a silver bullet. Indeed we need to do much better than a silver bullet if we are to ensure the successful coexistence of livestock and large carnivores. But we’re hoping this simple, low-cost, non-lethal approach could reduce the costs of coexistence for those farmers bearing the brunt,” Dr. Jordan says.
Chinese vaccine for African swine fever advances to next trial phase

Agriculture ministry reports positive results from animal tests in Heilongjiang, Xinjiang and Henan

It’s too early to say when a vaccine will become available, veterinary professor says

A Chinese vaccine against African swine fever will advance to the next phase of clinical and production trials after a series of positive tests, the Ministry of Agriculture and Rural Affairs said on Tuesday.

The progress means China is a step closer to prevention of a disease that has spread across the country, wiping out more than a third of its hog production.

The vaccine was developed by the Harbin Veterinary Research Institute, part of the Chinese Academy of Agricultural Sciences (CAAS).

Clinical trials were carried out on 3,000 pigs from April to June at sites in the northeastern province of Heilongjiang, the central province of Henan and the far western region of Xinjiang, CAAS chief Tang Junhua was quoted as saying on a statement on the ministry’s website.

The vaccine was given to piglets and sows at 10 times and 100 times the proposed immunisation dose.

Tang said the experimental vaccine generated at least 80 per cent immune protection, depending on the dose.

Bu Zhigao, head of the Harbin institute, said that during the 20-week observation phase, the vaccinated pigs showed no clinical abnormalities or signs of disease.

The minister said the vaccine’s development was progressing smoothly.

“The vaccine … is expected to enter the expanded clinical and production trial stage,” it said.

The ministry did not identify the vaccine by type but the Harbin institute said in a paper in March that it had developed a live attenuated vaccine that was safe and effective against African swine fever in laboratory tests.

The ministry said the academy would accelerate the vaccine’s development and expand clinical trials in Heilongjiang, aiming to complete trials soon.

Specialists said that while the announcement was a good sign it was too early to say when the vaccine could be available.

“If 3,000 animals have proven effective, that’s already a very decent trial, but there are different stages of clinical trials and one needs to wait until these trials are completed to make a decision as to whether or not this medicine is good for use,” said Nikolaus Osterrieder, a professor of veterinary epidemiology at City University of Hong Kong.

“Until all the experiments are done, it’s difficult to predict when the vaccine can reach the market.”

Osterrieder said many groups around the world were working on African swine fever vaccines but the virus’s complexity meant the goal was difficult to achieve.

He also said it was a challenge to create one vaccine that would offer protection against the diverse strains of the virus.

A successful swine fever vaccine would not only benefit pig farmers but also help stabilise pork prices.

In 2018, China accounted for half of the world’s pigs, and the epidemic has killed nearly one-quarter of the world’s total.

One year after the disease was discovered in China, the country’s herd had shrunk by 40 per cent, Rabobank said in a report in 2019.

By September last year, the disease had inflicted 1 trillion yuan (US$144 billion) in economic losses, Li Defa, dean of the College of Animal Science and Technology at China Agricultural University in Beijing, said in 2019. That total did not factor in losses in the upstream and downstream of the industrial chain.

But there are signs of recovery.

The ministry said on Monday that in July, China’s pig herd grew 13.1 per cent, the first year-on-year increase since April 2018, pointing to a strong boost to supply as more hogs are ready for slaughter in five to six months.
DeLaval Speedline is a mid level pipeline milking system providing our customers with a farm efficient milking system, which is safe to use, delivering high quality milk production. Made up of high quality DeLaval components, the system is prepared for herd expansion and upgrading to take-off, milk metering and herd management. Speedline is a flexible milking system which can be installed on herringbone stalls in either a swing-over configuration or a one unit one stall solution, it can also be installed on flat barn stalls.

Benefits

- Increased efficiency
  The swing over solution where each milking unit is shared between two cows, positioned on opposite sides of the operator pit. This means the milking unit can milk more cows per hour, up to 8 cows per milking unit per hour is possible.

- Udder healthy:
  With Speedline the milking process and milk flow from the cluster to the milk line can easily be monitored by the operator. This means the operator has better control removing the cluster at just the right time, this reduces the risk of injury to the teat ends and helps to control mastitis and reduce SCC.

- Improved milk quality:
  The milk is transported from the cluster to the cooling tank directly without contact with the outside environment. This means cleaner milk and a reduced bacterial count.

- Easy to install and use:
  With a few components and easy to assemble installation the system can be up and running in two days ready for farm use.

Know your new DeLaval Speedline pipeline milking system

Options: MC11 or MC31 Clusters
This unique transparent solution is fast milking and its top unloading claw means the collector always stays empty so there is no danger of cross contamination between quarters. The Harmony cluster can handle milk from high flow cows ideal for a fast developing herd.

GR50 – Glass Receiver / SR50 – Stainless
This 50 litres Glass receiver extremely strong, it’s easy to visually monitor the cleanliness of the installation and the visual quality of the milk. The GR50 has the capacity to handle more milking units ideal for an expanding dairy herd.
With the Covid-19 pandemic taking its toll on most enterprises countrywide, a poultry keeper in Kakamega County has begun assisting other farmers by supplying them with chicks to help boost their businesses.

Mama Hadija Nganyi, a trained sociologist in Mumias, has for the past three months been supplying month-old improved kienyeji chicks to farmers who are keen to increase their production.

Mumias, an area better known for sugarcane as the main cash crop, but whose fortunes have dwindled in recent years, has seen many farmers diversify into other ventures.

Many have almost given up on the likelihood of the sugar industry being revived, having almost lost hope of ever getting paid for cane delivered to the ailing millers many years ago.

Speaking to the Seeds of Gold recently, Mama Hadija said she embarked on the chicks-hatching project after receiving support from well-wishers, both in and out of the county.

“I initiated the chicken project for the vulnerable people in the community, especially women, persons with disabilities and the youth to cushion them economically, particularly during these hard times of the Covid-19 pandemic,” she said.

She has so far distributed most of the targeted 8,000 chicks to recipients in various constituencies in Kakamega.

She has donated 3,000 chicks in Khwisero, Matungu, Mumias and Butere constituencies. This has been facilitated through contacts with various self-help groups and the local administration.

In the coming weeks, she is looking forward to taking more chicks to Navakholo, Malava, Lurambi, Shinyalu, ikolomani, Likuyani and Lugari constituencies.

One of the beneficiaries, Rehema Makokha of Mumias Central, lauded the initiative. “Life had been difficult for most of us but we are now encouraged by the new chicks offered by Hadija and her friends,” she said.

Rehema, who is associated with the Mumias Township C. Community Unit, said many people have benefited from the initiative.

Other beneficiaries include Jackline Vutita and Ruth Musanda, who are also looking forward to reaping big from the venture.

In Khwisero, one of the beneficiaries, Sakina Ombwenya is elated, saying she would pass on the message to her neighbours. Others beneficiaries include Mama Lilian, a widow from Namamali ward in Matungu constituency and Mama Carolyne of Marama South ward in Butere.

Hadija, a woman on a mission to empower rural folk, pointed out that through improved poultry farming, even the most vulnerable in the community can stand on their own feet.

She now has her sights on the establishment of a sacco. It is through this that she hopes to link the farmers to markets in Bungoma, Vihiga, Busia and Siaya.

In western Kenya, chicken is a delicacy that the communities attach a lot of value to. A visitor for whom a chicken is not slaughtered does not feel appreciated and honoured.

Hadija’s project promises to be game-changer in the region.
Figures released by the Food and Agriculture Organisation’s statistics department show that total egg production has grown from 61.7m tonnes in 2008 to 76.7m tonnes in 2018. China continues to lead the way, producing 466 billion eggs in 2018, which represents 34% of the global market.

China has been the world’s largest producer of eggs for the last 30 years and a study released in September 2018 (Egg Production in China – World Poultry Science Journal) found that rapid economic growth, improved supply chains and favourable prices were key reasons for the growth. China is followed by the EU, USA and India and these 4 produce almost 60% of the world’s eggs, while the next 6 largest producers take a further 16% of the market. This means that the top 10 egg producers account for more than 3⁄4 of the world’s egg production.

Consumption levels continue to show large variations between countries, according to Peter van Horne, economic analyst at the International Egg Commission. Van Horne said average consumption per person, based on dividing the world population in 2018 of 7.6bn people by the number of eggs produced, worked out at 161 eggs per person per year. “IEC data for the year 2018 illustrates the difference with high egg consumption in Mexico (368 eggs) and Japan (337 eggs) and a lower consumption in South Africa (130).”

“Countries with a large population are quite different with an egg consumption in China at 255 eggs and in India at 76 eggs.”

He said there were also variation across the EU, where the average consumption per person was 210 in 2018.

Spanish consumers ate their way through 273 eggs

Danish residents consumed 248

Polish and Portuguese citizens ate just 145 and 146 eggs respectively during the year.
Matthias Hau has been appointed as Evonik’s regional president for the Europe, the Middle East and Africa (EMEA) region.

This goes hand-in-hand with the merger of the former Eastern Europe and the Middle East and Africa regions and the countries of Western Europe which will be consolidated into the Europe, Middle East and Africa (EMEA) Region.

The Evonik EMEA Region will consist of five regional clusters such as Central Eastern Europe, the Middle East and Africa, Russia, Turkey and Western Europe (without Germany).

Matthias Hau explained, “We are bundling our competencies and bringing together our expertise combined with the proximity to our markets and customers. Thus, we can tap even more into the potential of the EMEA region for the Evonik Group.”

Matthias Hau joined Evonik in 1982. Since then, he worked in different management functions and locations across the world including England, Australia, Singapore, Malaysia, India, and Germany. Prior to this appointment, he was responsible for the Eastern Europe Region and the functional unit Sites Western Europe.
NEPTUN BOOT HAS BEEN SUPPLYING A RANGE OF TOP QUALITY BOOTS TO THE AGRICULTURAL AND FOOD PROCESSING INDUSTRIES SINCE 1977.

The SABS approved unisex Shova PVC boots, new Strident Camo boots, Marina ladies knee length boots, and Clipper children’s calf length boots, are all hard working, hard wearing boots with excellent grip and sole support.

Neptun Boot is committed to delivering superior products, offering wearers comfort, support and protection wherever it is needed.

INDUSTRIES
AGRICULTURE FOOD PROCESSING GENERAL PURPOSE FORESTRY MINING SECURITY/SAFETY

www.neptunboot.co.za Instagram.com/neptunboot @neptunboot facebook.com/neptunboot.southafrica

For trade enquiries contact Allister Robertson: +27 73 053 6488 or marketing@neptunboot.co.za
Global animal health company trains Ethiopian farmers

As part of a plan to help Ethiopia meet its Livestock Master Plan, animal health experts from Ceva Santé Animale have completed the training of African farmers in the management of dairy cattle and more than 700 artificial insemination technicians within the country.

This is to help double the milk production in the country, which Ethiopia aims to double from its current production to five million crossbred cows, and help improve nutrition among the population. This was a pioneering effort of the Public-Private Partnership for Artificial Insemination Delivery (PAID) with partnership with Land O'Lakes Venture37, which also included improved training of public and private AI technicians.

Marie Ducrotoy (PhD), the senior program manager who led the pilot at Ceva, said: “The Ethiopian government has invested heavily in mass synchronization and artificial insemination, aiming for one million artificial inseminations delivered over five years across Ethiopia. In our pilot with Land O'Lakes Venture37, we demonstrated the advantages of a more complex hormone protocol with pregnancy rates reaching, in some cases, 72 per cent.”

“Improving public and private initiatives for artificial insemination delivery will be vital to reaching Ethiopia’s goal of doubling milk production, along with training artificial insemination technicians to tailor heat synchronisation protocols to each cow for optimized pregnancy rates and return on investment for both the farmer and government.”

Ceva Santé Animale was founded in 1999 and is known to take part in areas of pharmaceuticals and vaccines, and is the sixth largest animal health company operational in more than 100 countries.

Ethiopia continues to suffer from lack of poultry products and is forced to import from abroad. For instance, Ethiopian Airlines imports more than 3000 chickens daily from Dubai as it has not been able to find a local supplier capable of its growing needs, forcing it to spend much needed forex on outside sources.

In a finding published in The Conversation website in 2018, Ethiopia “produces about 4 billion liters of milk per year. Per capita consumption is very low, estimated at about 20 liters. The Food and Agriculture Organization (FAO) recommends that the per capita consumption of milk is about 200 liters, meaning 22 billion liters of milk is required. At the current production rate, there is an annual shortage of about 18 billion liters.”

Among the uniform-like pressing issues of local farmers, according to Debre Markos University are land degradation linked to over populated human settlement, overgrazing, deforestation and backward agricultural practices that are widely practiced across the country.

“Ethiopia produces about 4 billion liters of milk per year. Per capita consumption is very low, estimated at about 20 liters. The Food and Agriculture Organization (FAO) recommends that the per capita consumption of milk is about 200 liters, meaning 22 billion liters of milk is required. At the current production rate, there is an annual shortage of about 18 billion liters.”

Per capita consumption is very low, estimated at about 20 liters. The Food and Agriculture Organization (FAO) recommends that the per capita consumption of milk is about 200 liters, meaning 22 billion liters of milk is required. At the current production rate, there is an annual shortage of about 18 billion liters.”

Ethiopia continues to suffer from lack of poultry products and is forced to import from abroad. For instance, Ethiopian Airlines imports more than 3000 chickens daily from Dubai as it has not been able to find a local supplier capable of its growing needs, forcing it to spend much needed forex on outside sources.

In a finding published in The Conversation website in 2018, Ethiopia “produces about 4 billion liters of milk per year. Per capita consumption is very low, estimated at about 20 liters. The Food and Agriculture Organization (FAO) recommends that the per capita consumption of milk is about 200 liters, meaning 22 billion liters of milk is required. At the current production rate, there is an annual shortage of about 18 billion liters.”

Among the uniform-like pressing issues of local farmers, according to Debre Markos University are land degradation linked to over populated human settlement, overgrazing, deforestation and backward agricultural practices that are widely practiced across the country.
What’s needed to do a better job of pre-empting disease outbreaks

The concept of One Health is deceptively simple: it’s the recognition that human, animal and environmental health are all inherently linked.

Put into practice, it means approaching global health issues such as disease outbreaks and antibiotic resistance with the combined force of doctors, veterinarians, environmental scientists and civil society to tackle them more effectively across multiple fronts.

Taking on health issues from different angles simultaneously has the benefit of saving time, money and lives, rather than addressing a challenge in one area only to later find it emerge in another.

While this concept has proven particularly popular among veterinarians, the wider implementation of One Health practices has remained relatively low. For instance, our team reviewed more than 1,800 scientific articles on One Health published since I coined the term in 2003. Only seven papers describe an effort to measure the benefits of the approach.

Research coordinated by EcoHealth Alliance, a global environmental health organisation, set out to show how we can better anticipate disease outbreaks by joining forces. This can allow us to keep ahead of new public health threats and take preventative measures to protect people and animals.

Focus on Rift Valley Fever

We focused on Rift Valley Fever, a viral and zoonotic disease, as a test case to demonstrate the value of adopting a One Health approach, and found both scientific and resource efficiency advantages.

Passed from mosquitoes to animals and from animals to humans with no known treatment, Rift Valley Fever is one of the World Health Organisation’s eight priority diseases and has all the elements that could quickly turn it into a global public health emergency.

In humans, mild cases can cause flu like symptoms that last from four to seven days. Rift Valley Fever can also cause severe illness such as hemorrhagic fever with symptoms ranging from vomiting blood, passing blood in the faeces, or bleeding from the nose or gums. Almost half of the people who get this form of the disease die.

Rift Valley Fever causes severe illness in animals. Around 90% of lambs that get infected die. The abortion rate among pregnant ewes that get infected is almost 100%.

Recent outbreaks in Kenya, Rwanda and South Africa have put health authorities on high alert. Some authorities restricted the movement of livestock and even temporarily banned the sale of meat. And there is increasing concern that Rift Valley Fever could spread to Europe.

Rift Valley Fever is an ideal candidate for a One Health approach because of its complex overlapping human, animal and environmental elements.

Given there is as yet no cure for the virus, the better equipped we are to pre-empt outbreaks, the quicker we can mobilise to prevent them from spreading and putting animals and people at risk.

Our research found that by tracking a disease with a combined, One Health approach, we could get a bigger, more accurate picture of the way it was spreading. This would allow us a greater opportunity to take preventative measures to protect people and animals, and save lives.

Modelling disease interactions

To show how this could work, we built a computer model of the complex disease interactions in people, cattle and mosquitoes based on real-world data from our field project to demonstrate possible outcomes.

We then ran simulations to compare two approaches: a One Health surveillance system with joint human-animal sampling at the same time and place, and the more traditional approach of independent human and animal surveillance conducted separately.

Our simulations demonstrated that the One Health sampling approach could detect associations in disease transmission between animals and people that would have been missed in typical, non-integrated study designs.

Our research in the field also found that a One Health approach saved up to 35% in spending on staffing and resources when compared to conducting separate surveillance or studies.

We also found that engaging the private sector, such as ranchers, farmers and their associations, which are often left out of One Health efforts, dramatically improved the efficiency and impact of the work.

Engaging small-scale farmers was particularly important. But, in Kenya, where Rift Valley Fever was first detected, and throughout sub-Saharan Africa, convincing smallholder farmers to keep their flocks and herds vaccinated can be challenging if they do not see an imminent risk.

In many parts, outbreaks happen once every five to six years. So many farmers do not see the return on the cost of vaccinating animals annually as well as with every new lambing and calving season, which can be up to three times a year.

Ultimately, the only way for us to reduce the risk of Rift Valley Fever ever becoming a pandemic is to vaccinate livestock.

We can be better prepared to tackle diseases before they take hold and avoid the devastating consequences, but only if environmental scientists, veterinarians and doctors work together and with the public. This is no easy or inexpensive task but our findings indicate that the returns on investment are manifold, for all of us who share one health.
Evans Vanodine International
Manufacturing cleaning and hygiene chemicals since 1919

Evans Vanodine: Specialising in the manufacture of farm disinfectants, and food process cleaning and hygiene chemicals

Evans Vanodine is an international family business founded in 1919. Originally manufacturing soaps and disinfectants in the North West of UK, the business has expanded into a PLC which operates through over 300 distributors in the UK and exports to 78 countries worldwide. Evans now has 5 licensed manufacture units around the world; Jordan, Israel, Saudi Arabia, South Africa and Colombia.

Specialising in the manufacture of farm disinfectants, and food process cleaning and hygiene chemicals the Company rose to fame during a UK 1967 foot and mouth outbreak, when one of its formulations proved to be uniquely effective against the disease. This brand ‘FAM’ has remained as the UK’s number one for livestock disinfection ever since and the product is used as the reference disinfectant by Defra, the UK ministry of agriculture. Evans are also a global leader in the technology for dairy cow teat disinfectant for prevention of mastitis and dairy hygiene.

A whole range of specialist cleaning and hygiene products has evolved from the livestock range, and the company now offers high performance livestock disinfectants for all sectors of the industry - Swine, Poultry and Dairy. The disinfectant range are independently tested and proven to offer protection against all of the key pathogens and virus which affect the animal health industry worldwide.

In 2005 Evans were responsible for introducing the Biosystem 3000 on a global scale. The Biosystem 3000 is a standard operating procedure for cleaning and disinfection of livestock production facilities and is the basis for effective control of disease causing microorganisms on the farm. Evans Vanodine now exports globally and has strategic alliances with multinational companies.

All of the exported products are manufactured at the UK Preston factory in a state of the art production unit. The Company employs 135 staff and includes full research and development facilities for its products.

Evans Vanodine has GMP, ISO9001 and 14000 accreditation plus a UK veterinary medicines licence and a UKAS (United Kingdom Accreditation Service) certification for its laboratory facilities.

Evans products are manufactured under licence in South Africa by Bitek Feed Science based in Johannesburg for all markets in Sub-Saharan Africa.

Distributorships are available and Evans and Bitek will be happy to consider any applications.

For further information contact exports@evansvanodine.co.uk
www.evansvanodine.co.uk
GLOBAL HYGIENE SOLUTIONS

The UK’s leading manufacturer of dairy hygiene chemicals is pleased to be able to offer its products manufactured under licence in South Africa.

- All teat disinfectants have ACT 36 registrations.
- Circulation cleaners suitable for all water hardness.
- Prevent Milkstone formation before it starts.
- Control somatic cell counts and prevent bacterial contamination.
- Maximise the life of your milking equipment and liners.
- Improve hygiene in the parlour.

The COMPLETE PACKAGE from one supplier.

Also available:

**FAM 30**
Full spectrum virucidal farm disinfectant.

**SHIFT**
Pressure washing detergents and foam cleaners.

**HANDSAN**
Hand disinfectants.

The UK’s leading manufacturer of dairy hygiene chemicals is pleased to be able to offer its products manufactured under licence in South Africa.
5G speeds surpass wireline network speeds and offer latency of 1 millisecond or lower, which is advantageous for applications that require real-time feedback. 5G will facilitate an increase in the amount of data transmitted over wireless systems.

5G mobile networks are here and they will revolutionize the farming industry, which is adopting new innovations. Fifth-generation wireless or 5G is the latest version of cellular technology, engineered to significantly increase the speed and responsiveness of wireless networks. With 5G, data transmitted over wireless broadband connections can travel at multigigabit speeds. 5G speeds surpass wireline network speeds and offer latency of 1 millisecond or lower, which is advantageous for applications that require real-time feedback. 5G will facilitate an increase in the amount of data transmitted over wireless systems due to more accessible bandwidth and advanced antenna technology.

Utilizing 5G, farmers can monitor field conditions and be notified when crops need watering, pesticides, or fertilizer. Other uses in farming for 5G are the tracking of livestock, piloting agricultural drones and directing self-driving tractors. The result for agriculture is improved crop yields, better quality produce, and higher profits.

Agriculture is a multibillion-dollar industry, accounting for nearly 1% of GDP in the UK, 6% in the US and 12% in Australia.

The difference between the existing 4G and the newer 5G will make connectivity between devices a lot faster, while facilitating more devices to connect to a single cell tower. The farmers, who are already using 4G will embrace 5G. 4G operates at 100 Mbps, while 5G runs at 10Gbps, a huge difference.

The UN Food and Agriculture Organization claims that farmers will have to grow 70% more food in the next 30 years just to keep up with the world’s rising population. To meet this demand, farmers will have to employ the latest technology to grow more, using fewer workers.

Three years ago, RuralFirst became the first farming project (Hands-Free Hectare) to effectively plant, manage and harvest a crop without any human assistance in the field. The project is moving forward with 5G technology to increase productivity. Autonomous tractors sow the seeds, drones with sensors monitor the crops, and small robots take samples to calculate what fertilizers and pesticides need to be applied and where.

Agriculture is an industry, which is affected by small changes in temperature and moisture levels.

Crop issues are only discovered when the damage has already occurred. To avoid this, transformative 5G technology is used to monitor environmental conditions, and to track, feed, monitor livestock and even milk cows without human intervention. It is also used for ploughing, sowing, feeding, health monitoring and the harvesting of crops autonomously. 4G is being used now, but 5G’s high bandwidth supports a larger number of sensors, which communicate simultaneously with low latency, make it perfect for farms.

5G supports smart farming, which requires precise treatments to crops, instead of treating an entire field the same, farmers can give each row of plants precisely what it requires. 5G is critical to this, as it supports machine to machine communications. 5G speeds up the whole shebang, allowing machines to be controlled centrally and data to be sent in real time.

For smart farming to be successful, 5G-connected farm machinery is a necessity. Increased computing power and data collection are the driving forces behind the use of artificial intelligence. But it is
necessary to get the data where it is needed for analysis. Employing 5G on farm machinery and sensors will increase the amount of data available so that AI can do what it’s good at, such as spotting patterns that allow yields to be improved, as an example, giving early warnings of disease.

Autonomous drones are equipped with a weed scanner and crop sprayer. They scan the crops using AI to identify weeds. Adding deep learning techniques to a drone’s camera memory helps identify concentrated areas of weeds. The drone then applies herbicides where they are needed. In addition, crops can be picked earlier or later using the analysis of the color or size of the crops.

Today’s drone cameras can tell the difference between crops and weeds. The Vodafone 5G-powered system from Blue River, which is owned by John Deere, uses high-resolution cameras that photograph 20 images per second. AI allows the system to recognize the variance between crops and weeds.

Photo: John Deere

With 5G, we will see increased innovation in the agricultural sector. Farmers need to locate and monitor costly livestock. This is extremely valuable to the cows’ health, and food intake, which is communicated back to the farmer in case they have to give aid to a particular animal. Using geolocation services, the cost of locating livestock can be reduced. This is especially important during calving season. The ‘Moocall’ sensor is a tail-mounted sensor by Vodafone that alerts the farmer when a calf is about to be born. Since its introduction in 2017, more than 250,000 calves have been born safely using this sensor.

In dry, arid areas, saving water is critical. Soil probes are buried about four feet under an irrigation line, which collect and send back data about the soil so that a farmer can track soil moisture, water patterns and salinity. The readings are analyzed by the farmer, who can then accurately manage irrigation cycles and soil nutrition. These probes can reduce water consumption by 40% with the help of 5G.

Because 5G’s frequency is higher, its range is shorter, requiring additional cell towers to cover an existing network coverage area. Hiber launched the world’s first ever IoT satellite network, called Hiberband, which was designed for remote areas and developing countries.

The Hiberband network transfers data from modems and antennas on the ground directly to the nanosatellites and then back to the user.

Photo: Hiber IoT satellite

Smart farming isn’t just a technical innovation, it is absolutely necessary to help to feed an ever-increasing population; but with the existing infrastructure, it won’t be possible.

5G networks will need to increase the quality of service, and utilize emerging technologies such as network slicing at the core network. Radio/access level carriers must also work to decrease device cost, energy usage and increase dependability, coverage and spectrum proficiency.

Farmers are beginning to put into service IoT-enabled technologies. With 5G speeds and bandwidth, more agriculture uses are emerging, taking IoT to new heights. From helping with irrigation, to helping fight crop diseases, the number of possible applications of IoT technologies in agriculture are almost unlimited.
When entrepreneurs in Asia Pacific think of what tech company to start, they are most often drawn to high tech fields, such as ride-hailing, fin-tech, and many other sectors that are suffixed with “tech”. Entrepreneurs, in short, want to disrupt traditional, consumer-facing industries with the latest innovations. While creating new solutions for consumers is important, there are many less visible industries in the region that are also ripe for innovation.

One such example is agriculture. We seldom think of how the food on our table gets there, much less how it was farmed, harvested, and delivered, but agriculture is also experiencing a seismic shift through tech-enablement. The so-called agri-tech is growing in Asia Pacific both among startups dedicated to the space as well as horizontal companies that target the sector in some way.

It’s important to highlight the companies and founders working in agri-tech, as a means of encouraging other talented entrepreneurs in Asia Pacific to consider doing the same. With a global food shortage threatening the region in as little as 10 years, agri-tech may be one of the few fields where entrepreneurs can create as much social impact as they do business revenue. Food security and sustainable agriculture are among the sustainable development goals of the UN for 2030.

Here are four tech companies from Asia Pacific that can give you an idea of how entrepreneurs can innovate in agriculture.

**Agrostar (India)**

Most farmers across the region have not had a formal education in agriculture, relying instead on knowledge from the community. Agrostar aims to fill this gap. The company has created a mobile app that provides farmers with best practices related to farming, customized to whatever particular crops they grow. This kind of market education helps farmers in India improve their yields, and in turn, their income. Agrostar also has a marketplace where farmers can purchase industry materials such as seeds and farm equipment. The marketplace is notable because of how farmers can contact the company. If they are interested, all they need to do is phone in a missed call to a hotline, and a company representative will phone them back. Such consideration for the circumstances of farmers, who may not have prepaid phone load, should be a model for all entrepreneurs who want to enter this space. Even in agri-tech, you must think user-first.

**i-Grow (Indonesia)**

Since many people will not be inherently interested in supporting farmers no matter how much education they receive, i-Grow approaches them from another angle: money. Through the i-Grow app, individuals can invest in the crops of individual farmers, solving a pain point for two sides of the marketplace. Individual investors, who want to diversify their investments, can get a return of 9 to 13 per cent in as little as six months. Farmers, for their part, gain the capital they need to grow their farming operations and business.
i-Grow investors get to view the growth of their crops through their mobile app. The success of i-Grow points to a key fact: Even entrepreneurs who have a dramatically different domain expertise from agriculture, such as finance, can make an impact in the field if they approach it with their own unique lens.

**Pundi X (Singapore)**

In partnership with Indonesian company HARA, Pundi X will deploy its blockchain-based point-of-sale systems to unbanked farmers across the world, beginning with an initial deployment in Indonesia. The Pundi XPOS will extend financial inclusion to the unbanked farmers, who can use it to accept transactions in cryptocurrency as well as process other incentives.

Pundi X, of course, is not an agri-tech company, but a pure technology company with its XPOS devices and its blockchain-based phone, the XPhone. It just goes to show that companies in entirely different verticals can still find ways to apply their core technology as an agri-tech solution. All entrepreneurs need is the willingness to collaborate with key partners like HARA, who, in this case, will be using the roll-out to collect valuable data on farmers. How can other entrepreneurs similarly leverage their products to solve one of the thousands of many pain points of farmers?

**Farm Citizens App (the Philippines)**

Founded by Jo Soliman, a serial entrepreneur and also a trader who famously lowered prices of rice beneath market rates to make it more accessible to Filipinos, Farm Citizens is an end-to-end solution for farmers in the Philippines that includes the ability to register their products and sell directly to consumers. One of the more innovative features is the ability for farmers to take a photo of diseased crops, upload it to the app, and have experts respond within 24 hours on how to address the blight. It’s a new category: on-demand crop assistance.

What’s notable about Farm Citizens is that Soliman partnered with the department of agriculture to bring it to more farmers. Since agriculture is an important resource for a nation’s citizens, there will often be forward-thinking government agencies and non-profit organizations willing to help entrepreneurs who launch solutions in this space. But first, you must have the vision to imagine a solution as unique as on-demand crop assistance. Are you ready to step out of your shoes and into those of the humble farmer who harvests our food?
Coronavirus - Africa: Fisheries management works, so it’s time to apply it more broadly

FAO’s State of the World’s Fisheries and Aquaculture 2020 tracks growing fish production and consumption, and highlights the promise of sustainability actions

Worldwide per capita fish consumption has reached a new record of 20.5 kilograms per year and is poised to increase further in the decade ahead, underscoring its critical role in global food and nutrition security. Sustainable aquaculture development and effective fisheries management are critical to maintain these trends, according to a new report from the Food and Agriculture Organization of the United Nations.

Total fish production is set to increase to 204 million tonnes in 2030, up 15 percent from 2018, with aquaculture’s share growing from its current 46.46 percent according to the State of the World Fisheries and Aquaculture (SOFIA). That growth is around half the increase recorded in the previous decade, and translates into an Annual per capita fish food consumption is forecast to reach 21.5 kilograms by 2030.

“Fish and fisheries products are recognized not only as some of the healthiest foods on the planet but also as some of the less impactful on the natural environment,” says FAO Director-General QU Dongyu, emphasizing that they must play a more central role in food security and nutrition strategies at all levels.

The Director-General also pointed to SOFIA’s reporting of growing evidence that while effective fisheries management results in robust or rebuilding of fish stocks, failure to implement these measures threaten their contributions to food security and livelihoods. The underlying reasons for sustainability failures are complex and need tailored solutions.

Some 34.2 percent of fish stocks are now fished at biologically unsustainable levels, according to SOFIA’s benchmark analysis. That overall measure is too high, and is not globally improving, although it’s welcome to know that 78.7 percent of all fish landed come from biologically sustainable stocks.

Furthermore, sustainability trends for many major species are improving. Catches of all kinds of tuna reached their highest level, about 7.9 million tonnes in 2018, and two thirds of these stocks are now fished at biologically sustainable levels, a sharp increase of 10 percentage points in just two years, testament to intensive fisheries management in a sector marked by a high-value commodity and by significant overcapacity among some fleets.

“The improvement, the fruit of contributions from many stakeholders, attest to the importance of active management to reach and maintain biological sustainability, and serves to underscore how urgently we must replicate such approaches in fisheries and regions where management systems are in poor shape,” said Manuel Barange, Director of the FAO Fisheries and Aquaculture Department. “Not surprisingly, we notice that sustainability is particularly difficult in places where hunger, poverty and conflict exist, but there is no alternative to sustainable solutions.”

COVID-19

While SOFIA is based on information before COVID-19, the baseline information it provides is already helping FAO respond with technical solutions and targeted interventions for fisheries and agriculture, which the Director-General noted is one

Significant dietary values of fish galvanize the importance of aquaculture development, especially in Africa, and of harness strategies to help it intensify production sustainably
of the sectors most impacted by the pandemic.

Global fishing activity may have declined by around 6.5 percent as a result of restrictions and labor shortages due to the health emergency, according to an addendum to SOFIA published by FAO.

The disruption of international transport has impacted particularly on aquaculture production for export, while greatly reduced tourism and restaurant closures have dramatically impacted distribution channels for many fish types, although retail sales have remained stable or increased for frozen, canned, marinated and smoked fish with a longer shelf life. In parts of the Mediterranean and the Black Sea, more than 90 percent of small-scale fishers have been forced to stop due to an inability to sell their catches, often exacerbated by falling prices.

Input markets, migrant labor issues and risks linked to crowded fresh markets all impact fisheries output and consumption, with informal supply chains under greater stress due to the absence of contractual relationships and established cold chains. FAO has been primarily focused on supporting, restarting and strengthening the sector’s supply chains and livelihoods, with priority attention for the most vulnerable groups and regions.

**Trends in global fish supply**

The SOFIA report has tonnages of fishing data organized by species, regions and whether they are captured wild or farmed.

Global fish production is estimated to have reached about 179 million tonnes in 2018, with a total first sale value estimated at $401 billion. Aquaculture products accounted for 46 percent of total production and 52 percent of fish for human consumption. China is by far the largest producer, buoyed by its highly-developed aquaculture industry, which has produced more farmed aquatic food than the rest of the world combined since 1991.

Aquaculture’s expansion will continue, although at a slower rate, and farmed fish will contribute to a growing share of consumption and trade over the next decade, according to SOFIA. Aquaculture output is expected to grow by 48 percent in Africa, contributing to mitigate an expected population-driven reduction in per capita fish consumption on the continent.

Anchoveta was the top species for marine capture, buoyed by a strong production rebound in Peru and Chile, while Alaska pollock and skipjack tuna were next. Inland capture fisheries - a significant source of food in many food-limited countries - reached the highest level ever reported, at 12 million tonnes.

Fish consumption accounts for one sixth of the global population’s intake of animal proteins, and more than half in countries such as Bangladesh, Cambodia, the Gambia, Ghana, Indonesia, Sierra Leone, Sri Lanka and several small island developing States (SIDS).

The significant dietary values of fish galvanize the importance of aquaculture development, especially in Africa, and of harness strategies to help it intensity production sustainably using innovative techniques in the areas of feeds, genetic selection, biosecurity and business developments, FAO’s Director-General emphasizes, noting that FAO’s Hand-in-Hand initiative is “an ideal framework for efforts that combine fisheries and aquaculture trends and challenges in the context of blue growth.”

The FAO report has a section on sustainability initiatives to mark the 25th anniversary of the Code of Conduct for Responsible Fisheries, and also notes that FAO and a host of partners are collaborating on the Illuminating Hidden Harvests project, a global study that will be released in late 2020 and aims to support policies in favor of productive, sustainable and equitable small-scale fisheries, which can and do provide essential nutrition to billions and livelihoods and jobs for the vast majority of the 120 million people who depend on capture fisheries.

**Key numbers from The State of World Fisheries and Aquaculture 2020**

- Total global fish production in 2018: 179 million tonnes
- Share of that from marine capture fisheries: 84.4 million tonnes
- From freshwater capture fisheries: 12.0 million tonnes, a record
- From aquaculture: 82.1 million tonnes, a new high
- Amount of production consumed by humans as food: 156 million tonnes
- First-sale value of all fisheries and aquaculture production in 2018: $401 billion
- Share of that from aquaculture: $250 billion
- Number of people employed in the primary sector of fisheries and aquaculture: 59.5 million, of whom 14% are women
- Region with the most fishers and fish farmers: Asia (85% of the total)
- Number of fishing vessels on the planet: 4.56 million
- Largest fleet by region: Asia (3.1 million vessels, or 68% of the global fleet)
- Share of motorized vessels less than 12 meters in length: 82%
- Percent of global fish production that enters international trade: 38%
- Value of fish production exports: $164 billion
- World’s largest fish producer and exporter: China
- Net fish exporting regions: Oceania, Latin America and Caribbean, developing countries in Asia
- Africa is a net importer in volume terms but a net exporter in value terms.
- Most unsustainable fisheries: Mediterranean and Black Sea (62.5% overfished stocks), the Southeast Pacific (54.5%), Southwest Atlantic (53.3%)
- Riversheds supporting the most inland capture fishery production: Mekong, Nile, Ayeyarwady, Yangtze
Perfects Belly Cleaning

Swedish filleting machine producer SEAC, which has already shown that small is no problem as its machines are capable of handling exceptionally small fish, has turned its attention to ensuring the belly cavities of processed fish are fully cleaned.

“Yield and capacity have for decades been the most important in this field of processing pelagic fish but in recent years the question of how to get rid of parasites and worms inside the belly cavity of the fish has become more important,” said SEAC’s Ulf Groenqvist.

SEAC, with more than 40 years of experience in H&G+T and filleting machines, started to re-develop some existing systems – the SEAC FPM-400 for smaller fish (15-40/50 pieces per kilo) and SEAC FPM-470 for larger fish (2/3-15/20 pieces per kilo).

The company’s engineers have run tests at processing plants in Russia and China, as well as at SEAC’s own workshops on the Swedish island of Öland, and now Ulf Groenqvist’s team are ready with their machines modified for belly cleaning, with options for both a system based on an older belly-cleaning method, and a completely new system – which is the option chosen for the first order for these systems.

“The first two complete automatic BC lines have been sold to one of the biggest canneries in the world and been delivered to two of their factories in Vietnam. Unfortunately, due to Covid-19 situation, the lines have yet not been installed but hopefully they will be during September-November 2020,” he said.

“Whatever plans a processor has for processing sardines or mackerel, SEAC is able to assist, with either manually fed or automated processing lines, as have been supplied to the customer in Vietnam,” he said.

“In October SEAC plans to present this innovative system at PROPAK 2020 in Bangkok and at the China Seafood Show in Qingdao – depending on the Covid-19 situation.”

SEAC FPM-400
The South African Deep-Sea Trawling Industry Association (SADSTIA) has elected Sea Harvest chief executive, Felix Ratheb, as chair of the Association.

Ratheb takes over from his Sea Harvest colleague, Terence Brown, who chaired the Association for the past three years.

Ratheb has more than 17 years of experience in the fishing industry. He joined Sea Harvest as a commercial manager in 2003, was promoted to group sales & marketing director in 2006, and group CEO in 2013. He has represented Sea Harvest at SADSTIA since 2013 and served as a trustee on the board of the Marine Stewardship Council from 2016 to 2019. He is also a board member and treasurer of the largest whitefish conference in the world, the Groundfish Forum, which is headquartered in Canada.

“I am excited to take up the chairmanship of SADSTIA,” said Ratheb. “The hake deep-sea trawl fishery is a South African success story – it is sustainable, highly transformed and makes a massive socio-economic contribution, especially in the coastal provinces. I am eager to represent the fishery and the interests of our members.”

SADSTIA is one of the most influential organisations in the local fishing industry owing to the fact that its 32 members generate approximately half of the value of South Africa’s fishery production. These companies catch, process, and export a range of value-added hake products and also supply a competitive local market with fresh and frozen hake. Together, SADSTIA members directly employ an estimated 7,225 employees, while an additional 6,000 indirect jobs are created by the economic activity that the fishery generates.

Ratheb explains that the hake trawl fishery is currently being re-assessed for a fourth time by the Marine Stewardship Council, the world’s leading certification and eco-labeling program for sustainable, wild-caught fish. The fishery was first certified as sustainable by the MSC in 2004. Although the MSC standard that is being applied is more rigorous than the standard that has been applied over the past 16 years, SADSTIA is optimistic the fishery will be re-certified for a further five-year period early in 2021.

Other priorities for SADSTIA over the coming year will be working collaboratively with the Department of Forestry, Fisheries and the Environment to manage the Covid-19 pandemic and its effects on the fishery, with the goal of preserving jobs.

“This pandemic will have affected every one of our members, and company balance sheets will have been severely weakened. The industry needs to survive this because it is a large employer providing quality jobs in coastal towns, and it is a significant exporter,” said Ratheb.

Innocent Dwayi, employee and stakeholder relations manager at I&J, remains in the position of SADSTIA vice-chairman. He is also vice-chairman of the umbrella fisheries association FishSA.

Other members of the SADSTIA Executive Committee are Madoda Khumalo, strategic services executive at Sea Harvest, who chairs the SADSTIA Scientific Committee; Don Lucas, chief executive of Combined Fishing Enterprises; Jayesh Jaga, executive director responsible for the hake operations within Blue Continent Products (Oceana Group); and Terence Brown, operations director at Sea Harvest.

Johann Augustyn continues in his position as secretary of SADSTIA, taking responsibility for the day-to-day running of the Association. He is assisted by Fisokuhle Mbatha, SADSTIA research assistant.

SADSTIA was founded in 1974, originally with three members. It has played a central role in the growth and development of the hake deep-sea trawl fishery and the South African fishing industry in general.
In Mozambique, water project boosts yields as farmers grapple with climate extremes

Felícida Machava, 60, likes to recount the story about how, one year, she filled a small truck with maize from her harvest.

Machava is a member of Green Revolution, a farmers’ association that participated in the Sustainable Land and Water Resources Management Project (SLWRMP). The 20 members of Green Revolution farmers’ association in Guia, 12 of whom are women, rotated 12 irrigation kits among themselves so that each day three farmers had the use of them on small plots.

The project distributed a total of 56 irrigation kits across the five participating districts.

According to Machava, “In 2017, I was able to focus strongly on the production of green beans, which allowed me to buy an additional plot of land for approximately $83 and start to build a new home – which I hope to complete with the earnings of the next agricultural season.”

For farmer Rute Bila, the project has allowed her to access a reliable source of water from a river near her farmland. Bila has increased production from her fields and is now able to pay school fees for her nephews. Speaking of her business plans, she says, “I bought a goat, which I paid approximately $38 for, and I hope to expand into a flock of goats that I can sell.”

She’s not the only one. “My goal is to someday supply to the big manufacturing companies in the area,” said Guezanes Maluleque, a 53-year-old farmer in the village of Mapai Rio. He heads up two households but finds it advantageous to pay four laborers to work some of his 30 hectares, freeing up members of his family to cultivate their own plots of land.

Under SLWRMP, Maluleque received 150 cashew and 60 mango trees and in his first crop produced 30...
kilos that he was able to sell to a travelling salesman for $1 a kilo.

The project distributed a total of 56 irrigation kits across the five participating districts, which directly benefitted 3,600 people, more than 80% of them women. The target beneficiaries of the irrigation kits were trained in how to use them properly.

With the nearest river at least 20 km away for many of the farmers, the project also built 21 small earth dams to water cattle and to meet villagers’ needs. Three more dams were built than had been originally planned for, more than doubling to almost 30,000 the number of people who gained improved access to water. More than 50,000 head of cattle are watered at these dams, over three times the number the dams were expected to serve.

According to analysis by the World Bank Development Impact Evaluation Research Group of the seven-year project, irrigation kits increased farmers’ productivity threefold. And the knock-on benefits extend beyond livelihoods. “I’ve had a change in nutrition as now I am able to produce vegetables such as lettuce and onions,” said Alberto Mutasse.

Lessons learned from the project mean it can be replicated and scaled up in other districts. Best practice from its implementation has already been incorporated into the Bank’s Drought Recovery & Agriculture Resilience Project. In addition, Mozambique government staffers have been trained in how to roll out and manage climate adaptation strategies.

Total funding for SLWRMP, which wrapped up in December 2019, was an estimated $21.5 million; $4.9 million was provided by the Bank Group’s African Development Fund. Climate Investment Funds extended $15.9 million in financing and the Government of Mozambique $0.5 million.
Why irrigation is key to feeding Africa south of the Sahara's growing population

BY CLAUDIA RINGLER

Can Africa south of the Sahara feed itself? This is a question that has been asked for decades, but no satisfying answer has yet been found—and is unlikely to be found in the near to medium-term future. Why?

The region is adding more than 1 billion people over the next 30 years, in just over a single generation. Most of the added population will reside in urban areas and demand more access to dairy and meat products, as well as to cereals, vegetables and fruits, fats, oils and sugars than did the previous generation, which resided largely in rural areas.

This projected increase is juxtaposed with continued low agricultural productivity compared to the rest of the world. Cereal yields in 2016 (centered 5-year average across 2015-2017) averaged 1.5 tons per hectare in Africa south of the Sahara, compared with 7.2 tons in North America, 4.8 tons in South America and 4.1 tons across Asia. While recent growth in Africa has been remarkable, at 1.8 percent per year, at this rate it would still take the region 55 years to achieve today’s Asian average cereal yield. The region also faces the largest inter-annual variability in precipitation, while climate change is already affecting onset and volumes of precipitation.

Combined with civil strife and unrest in various parts of the region, food insecurity has been climbing over the last several years. The number of undernourished people in Africa south of the Sahara rose from 181 million in 2010 to almost 222 million in 2016, according to the latest UN reports on Food Security and Nutrition—an increase of 23 percent in six years. Current projections show the number may have increased to more than 236 million by 2017.

This adverse trend is wiping out much of the progress that has been made over the last decade.

So it is not surprising that a 2016 study found that for countries in the region to maintain current food self-sufficiency levels of around 80 percent, they would need to “radically” accelerate rates of yield improvement—or massively expand land areas (with associated greenhouse gas emissions and biodiversity loss), or increasingly resort to food import dependency.

A new IFPRI study published in Water International focuses on the potential of irrigation in providing food security for the Africa south of the Sahara’s growing population. The study used an integrated biophysical and economic modelling approach to assess quantitatively the irrigation development potential in Africa and linked the prospective investment with changes in food security and food import dependency. The study focused on drylands, which cover 70 percent of the region’s cropland and are home to half its population—and are also where hunger and malnutrition are most prevalent and crop production most fragile.

The study identifies sustainable and profitable irrigated area growth of 3 percent per year across the region, with fastest growth occurring in Central Africa, balancing slower growth in Eastern Africa. Across dryland regions, the study shows, the potential for irrigation expansion is largest in West Africa, which accounts for about 50 percent of the irrigation potential in dryland areas in Africa south of the Sahara. This is followed by East and Southern Africa, each with more than 20 percent of total potential. The potential in Central Africa is smallest because this sub-region has limited dryland areas. For individual countries, the potential is largest in Nigeria, followed by Tanzania, Kenya, and Malawi. Across the region’s dryland areas, up to 14 million hectares could sustainably
and profitably be converted into irrigated areas.

For all irrigation expansion scenarios in African drylands, net cereal imports to the region decline, with decreases reaching as much as 68 percent, or 90 million tons, from a baseline net import volume of 133 million metric tons in 2050. The dramatic production increases achieved under the accelerated irrigation scenarios can thus drastically reverse the region’s growing net food import dependency ratio. Specifically, targeted investments in irrigation in the dryland areas can effectively reduce growing food import dependency from 54 percent under a business-as-usual scenario to levels below today’s. The resulting national economic growth and rural income gains could also substantially reduce the region’s population at risk of hunger above and beyond the reductions from increased access due to lower food prices from accelerated growth.

Achieving these impressive results for food production and food self-sufficiency will require declines in irrigation technology costs, greater availability and accessibility to complementary rural infrastructure such as roads, storage and credit; and access to complementary agricultural inputs in dryland areas. The recent Malabo Montpellier report on Water-Wise Irrigation sums up the way forward:

1. Elevate irrigation to a top policy priority;
2. Develop “smart regulations” to avoid degradation and pollution from irrigation development;
3. Continually innovate with irrigation technologies;
4. Invest in support infrastructure; and
5. Explore innovative partnership and financing models to support development and growth of the sector.

If Africa south of the Sahara is to feed its growing population over the coming decades, sustainable drylands irrigation will be essential. The time to make irrigation both a national and regional priority is now.

Claudia Ringler is Deputy Director of IFPRI’s Environment and Production Technology Division (EPTD) and co-leader of the CGIAR Research Program on Water, Land and Ecosystems (WLE) Flagship Program on Variability, Risks and Competing Uses. This post first appeared in African Leadership Magazine. Support for this work was provided by OECD and WLE.
By 2025, the planet will have a population of over 8.1 billion people. If we were to imagine that number in an easily consumable unit such as donuts, we would have enough donuts to form a chain so long that it would wrap around Earth’s equator 20 times. Unfortunately, that same number of donuts would only keep everyone on the planet satiated for about one hour.

The harsh reality is that if earth’s population continues to soar, our agricultural practices are going to need to make significant advances in order to support everyone. It’s not all doom and gloom though. There is one industry working this challenge head-on: agritech.

For three years in a row First Round’s State of Startups Survey has reported that founders list virtual and augmented reality as the most overhyped startup industry and agritech the most underhyped. Google trends data also supports this. In recent years the searches for virtual reality have been so high that those made for agritech look like small potatoes.

Despite the lack of attention, it gets, the work being performed within the agritech industry is incredibly innovative and highly impactful. New startups are finding ways to increase the shelf life of proteins, create farms in cities, and use artificial intelligence to save the amount of water and energy used in food production.

So, if agritech is so critical, why does no one care?

The technology is not ‘sexy.’ Most agritech companies are based around solving a problem, not about making a headline, which is often a significantly less attractive proposition for VCs. After all, the vast majority of VCs are created with the primary goal of making money rather than accomplishing a social drive or mission. Generally, VCs would rather invest in flashier companies that interact with consumers directly in their day-to-day lives.

However, it’s not just VCs that are leaving agritech in the lurch; the broader consumer world just doesn’t seem to have an interest. Wearable technology that helps people track their fitness? Cool. Sensors attached to cows that help farmers track their health? Not so much.

The truth is that the future of farming relies on a lot of the same technology that has become massively popular in recent years: drones, bots, smart technology, data-driven efforts. The key difference between the application of the technology in farm fields versus in the home, however, is the distance from the nearest consumer. While these technologies will ultimately have an impact on everyone’s lives, the average person won’t necessarily interact with them at all, which makes it tricky for people to care about them.

Agriculture is often viewed as old-school and unchanging. While the agricultural industry has actually undergone a great many innovations throughout history, these changes have multiplied the distance between most individuals and where their food comes from. Consider that 200 years ago, 90 percent of Americans lived on farms while today less than 2 percent of the U.S. population produces food. With this separation of the consumer from the source, an inflexible supply chain has been established which makes change difficult.

These views of the agricultural industry have created a perception among most people that there is little to improve about modern agriculture. In fact, the opposite is quite true - there are many ways the industry could be improved, all of which will ultimately end up impacting the consumer. To name a few:

- Agriculture contributes about a third of all greenhouse gases;
- A large amount of fresh food is destroyed globally each year;
- Climate change will impact how crops are produced in many parts of the world; and
- Obesity is ultimately impacted by the practices of our agricultural industry.

We are ignoring the only industry we can’t live without.

We are ignoring the only industry we can’t live without.
Agriculture doesn’t operate like a standard B2B or B2C industry.

The target audience for agritech is often small farms - which means that the go-to-market strategy is much different than for a consumer goods company like Warby Parker. The standard tenets of branding and advertising just don’t hold. Relationships and proving your worth are much more valuable in the agricultural community.

This typically makes most agritech investments a harder pitch from the get-go; it’s simply easier to sell someone on the idea of how Uber is going to impact their day-to-day than on how increased corn yields from a new agribot are going to affect them.

Growth in agritech can be slow at first.

At the end of the day, it comes down to the fact that plants grow slowly, and livestock grows even slower. This makes experimentation with new agritech a fairly lengthy practice. You can’t just launch an app and start getting new users the next day. Time must elapse to measure the efficacy of new agritech in the real world.

This means that iterations on technology and improvements can take many growing seasons, even years, to fully work out. Although the impact of these technologies can be huge, the truth is that the current tech industry is so obsessed with rapid growth and improvement they often aren’t willing to consider an industry that may be considered slower growing.

So, what are we going to do about it?

Agritech has a perception problem that is hurting its future in the world at large, but it doesn’t have to. There are actions startups, VCs, and consumers can take to shed some light on such a critical and innovative industry.

New agritech startups need to increase awareness to help consumers realize that the future of our food is something we should all care about. One agritech startup

that is excelling is Freight Farms, a company that makes hyper-efficient farms that are entirely contained within a standard shipping container.

Freight Farms has done a great job at the branding game with their distinct green and white shipping containers with the words “This is a Farm” emblazoned on the side. Freight farms puts its containers in busy urban areas like parks and street corners, and atop buildings to gather public attention. Another successful firm in the agritech-sector is Ida, which tracks the health and behavior of cows using artificial intelligence.

A great deal of the onus of this lies on VCs to publicly laud these successes but also on startups to leverage their successes. It is notable that while the amount of funding given to agritech startups has grown slowly and steadily since 2006, public awareness of agritech has remained low. This is in large part due to the fact that, while these early agritech startups have seen success, they have largely been backed by a small group of agritech-centered VCs, such as Anterra Capital.

It’s not just VCs that can help these startups. The broader consumer world can do more to help guide these organizations towards success. Consumers should demand more information about how and where their food is grown. We should all push for more sustainable practices and explore avenues to reduce the distance between ourselves and our food.

What if every school had a Freight Farm where students could not only learn how to produce their own food but how to use cutting edge technology? By leveling the playing field for startups, these programs ensure that it’s not just the sexy ideas that stay alive.

Agritech startups are imagining a great, bright future for our planet’s food supply, and it’s time for the rest of the world to get on board. Apart from the environmental, socioeconomic, and health-related dangers of not investing in agritech, we also risk missing out on some of the most important and innovative technology of our time.
Urban Farming: Is It Financially & Spatially Feasible?

The term ‘urban farming’ paints a picture of city dwellers attempting to grow their own food in their backyard vegetable gardens, investing large amounts of money, time and water in their new projects, only to discover that store-bought produce is often of a higher quality, cheaper and require little to no effort in comparison.

Urban farming: Is it financially and spatially feasible?

Technically, urban farming refers to the practice of growing food in urban areas to generate profit, but does it make financial and spatial sense?

Considerations in urban areas

The urban farmer has some key issues to consider with regards to land, water, soil, infrastructure, and marketing opportunities. Land is often the limiting factor.

What distinguishes urban farming from traditional farming practices, is that the idea of urban farming is often sold on a lesser need for land. Different types of land can be used, such as residential yards, urban spaces such as rooftops or parking lots, space on institutional land and vacant lots. Small portions of land tend to be more affordable and accessible but tend to limit the scalability of the enterprise.

While this may be feasible for a small family practicing subsistence farming, the production of large, marketable quantities of produce inevitably requires more space. Large open spaces in urban areas are both scarce and expensive and most farming businesses do not justify the cost of acquiring large portions of land.

Urban farming can be done using a range of different processes, of which SPIN (small plot intensive) and hydroponic systems have become the most popular.

SPIN farming

Small plot intensive farming makes use of underutilised pieces of land in an urban area, to plant and harvest fresh produce with the intention of generating profit. This process makes use of soil as the planting medium and accommodates a range of fruits and vegetables. Soil and water quality are important production factors for the SPIN farmer.

SPIN farmers invest in improving the quality and fertility of the soil present on their land. SPIN farming depends on land and although there are some success stories of SPIN farms feeding families and small communities, these farms are generally not suited to becoming...
Hydroponics

In contrast to SPIN farming, hydroponics is a system in which crops are grown in sand, gravel or liquid using water-soluble nutrients and not soil. This is a closed system and excess nutrients can be collected and reused. As hydroponic systems do not make use of soil, good water quality is essential.

Hydroponic systems are typically inside some form of structure and often in vertical layers commonly known as vertical farming. Leafy greens, bell peppers and cucumbers are common hydroponic crops.

Hydroponic systems are known for their efficient water use. In addition, the ability to farm multiple layers on the same surface area, allows hydroponic farmers to harvest higher volumes on the same space compared to a SPIN farmer. Hydroponics, however, have a higher start-up cost than SPIN farms, but are easier to scale and generally more efficient.

Both systems require fixed investments, thus complicating both scaling and relocating the enterprise. Urban farmers face higher susceptibility to theft and vandalism, so careful attention must be given to security measures.

Easy market access

The main advantage of urban farming is potential market access. Urban farms are located in closer proximity to the consumer, significantly decreasing travel costs and often cutting out the middleman. Consumers are becoming increasingly aware of intangible product attributes such as carbon and water footprints, organic and environmentally friendly practices, locally produced and handpicked products.

In some urban areas, consumers that value these intangible product attributes, are more concentrated. Urban farmers have the opportunity of entering niche markets with their produce. In higher income urban areas, restaurants and supermarkets tend to promote local and environmentally friendly produce and sell it at a premium.

Some of the marketing models that have been explored by urban farmers include farm-gate purchases, subscription, delivery, wholesale, and retail. They are therefore able to adapt to the specific needs of niche markets. Urban farmers need to secure markets effectively and must be able to maintain production volumes to meet the demand. Farmers are highly dependent on building and maintaining relationships with consumers in their area.

Land size

While urban farming is often praised for using small portions of land, it seems there are different meanings attached to the term. ‘Urban farming’ can be successful in converting extra yard space into modified vegetable gardens. In the Cape Flats alone, there are more than 6,000 of these ‘urban farms’. These families use small portions of land for subsistence farming and are able to trade the surplus at the market or with other community members.

There are many successful subsistence farmers making use of these systems in other urban areas. Some SPIN farms in North America have been reporting sales of $50,000 per annum on a mere 0.4ha (4,000m2).

These systems are all referred to as successful urban farming. However, the technical definition for urban farming is the production of food in urban areas to generate profit; in other words, it is a business. Going by this strict definition, it becomes increasingly more challenging to be a successful urban farmer.

Land remains the limiting factor. SPIN farming enterprises, in particular, struggle to justify the cost of land. This is clearly demonstrated in Table 1. Hydroponics show promising potential in the urban production of fresh produce based on its efficient use of water, space, and energy.

Urban farming: Is it financially and spatially feasible?

The cost and availability of land vary greatly among South African urban areas. In areas where marketing opportunities are most concentrated, land is scarcer and meeting demand becomes more challenging. Start-up and operational costs will vary significantly based on the location of the farm can be very high, requiring large volumes and/or higher sales prices to be financially sustainable in the long run.

Food for thought

Urban farming has been growing in popularity, whatever the definition. Although “urban farming” as it is loosely referred to has proven to be beneficial and successful in the non-profitable addressing of social issues and even in the backyards of some urban agricultural enthusiasts, experts do not see it becoming a booming business model taking over the traditional fresh produce market in South Africa anytime soon.
<table>
<thead>
<tr>
<th>ADVERTISER’S INDEX</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAWPA</td>
<td>2</td>
</tr>
<tr>
<td>COVERIS</td>
<td>7</td>
</tr>
<tr>
<td>CASE IH</td>
<td>15</td>
</tr>
<tr>
<td>DELEVAL</td>
<td>21</td>
</tr>
<tr>
<td>HENDRIX GENETICS</td>
<td>24</td>
</tr>
<tr>
<td>NEPTUNE BOOTS</td>
<td>25</td>
</tr>
<tr>
<td>EVANS VANODINE</td>
<td>29</td>
</tr>
<tr>
<td>UNITED FERTILIZER COMPANY</td>
<td>46</td>
</tr>
<tr>
<td>TOMRA FOOD</td>
<td>47</td>
</tr>
<tr>
<td>ATG TIRES</td>
<td>48</td>
</tr>
</tbody>
</table>

WE DISTRIBUTE
HIGH QUALITY FERTILIZERS
IN AFRICA

Learn more at www.ufertilizers.com
info@ufertilizers.com

STRAIGHT FERTILIZERS
Urea prilled
Ammonium Nitrate
CAN granular
MOP granular
MOP standard

COMPOUND FERTILIZERS
10:20:20+65
12:17:17+15
12:12:12+45
0:20:30+25
22:12:12+25
27:15:15+25
21:10:10+25

WATER-SOLUBLE FERTILIZERS
Calcium Nitrate Concentrated
Potassium Nitrate
Monoammonium Phosphate
Urea micro pellets
NPK Fertilizer
NPK drip irrigation
TOMRA Sorting Solutions is a leading provider of sensor-based food sorting machines and food processing technology for the fresh and processed food industries. Developing state-of-the-art technologies, optimizing customers’ production flow and helping to deliver consistent high quality food have been TOMRA’s strengths for more than 40 years.

WWW.TOMRA.COM/FOOD

FOOD@TOMRA.COM
Alliance is the world’s leading brand in agriculture tires, specifically designed for a wide variety of machines. Robust design to deliver strong performance in tough conditions, a wide range and being the preferred choice of leading OE manufacturers make Alliance tires the smart choice for farmers.

WIDE RANGE OF SPECIALITY TIRES FOR

Over 60 designs and 800 SKUs

Popular Agri Designs

- FarmPRO 846
- FarmPRO Radial (846 & 842)
- 885 & 882
- FarmPRO 327
- 320
- 328 and more

Contact:
contact@atgtire.com, +91 22395 79600 ext. 629