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AGRIFOCUS AFRICAN MARKETS

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Premium Agriculture News In Real Time

Now Is The Time To Relook Approaches To Addressing The Land Issue...

Zimbabwe: Stakeholders Welcome Evaluation Of Agric Production

African Free Trade Bloc Opens For Business, But Challenges Remain

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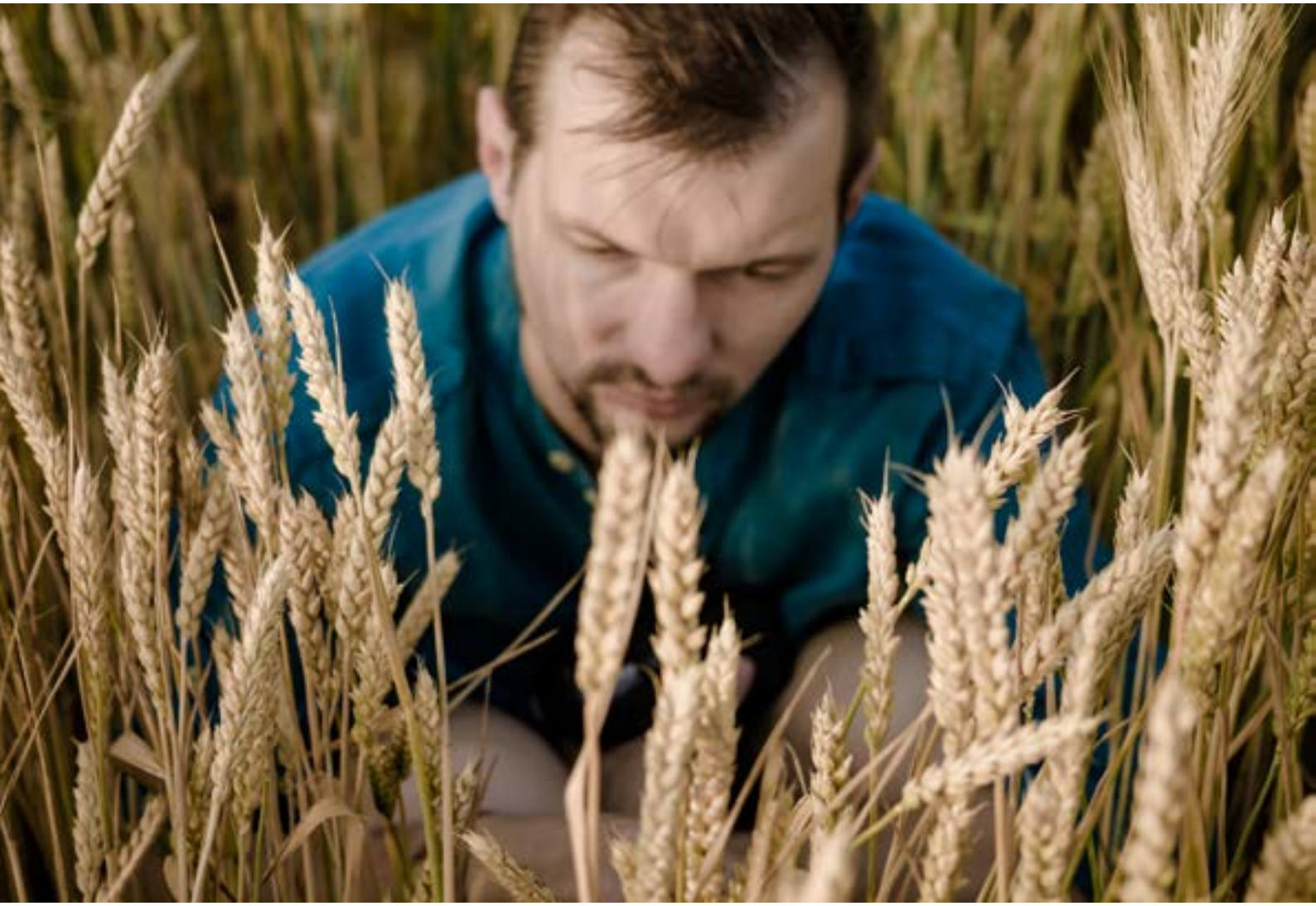


Get More Out Of Your Crops By Learning How To Increase Yields Effectively

Crop yields are an essential aspect of every farmer's day, impacting how profitable their farmland can be. Learning how to improve crop yields is key to successful farming, and access to new technologies and planting methods has given farmers an opportunity increase crop production – the key to maintaining the long term sustainability of their farm.

Crop yield rates have steadily increased over time, thanks to hardier hybrids and smarter planting practices. Technologies that allow farmers to best understand their soil, what kind of nutrients they may be lacking, and when to plant seeds have positively affected outcomes. To put it simply, planting has benefitted from the introduction of science and technology in farming.

Africa Agri Tech 2021 Date Change Announced

As 2020 comes to a close, it is evident that the current Covid restrictions would negatively impact on a February 2021 date for the second edition of Africa Agri Tech.

We have therefore revisited the date discussion and reserved the venue as follows:

Expo Dates:

Tuesday 22 – Thursday 24 June 2021

Venue:

Sun Arena, Time Square, Menlyn Maine, Pretoria

The three-day conference programme will focus primarily on profitability, the need to embrace technology and examining which technology to implement and economic impact. The event is also extending to embrace:

- Women in Agriculture
- Innovation Start-Ups
- Farming Training and education workshops

Flagship Summit To Support The Growth Of Digital Agriculture Start-Ups In Africa

The African Green Revolution Forum (AGRF) will take on the AgriHack project of the Technical Centre for Agricultural and Rural Cooperation (CTA).

NAIROBI, Kenya – African entrepreneurs in digital agriculture will have new opportunities to secure support and investment as the African Green Revolution Forum takes on the AgriHack Talent project.

Launched in 2014 by the Technical Centre for Agricultural and Rural Cooperation (CTA), and supported by partners including incubators, the start-up competition has seen winners raise more than €2.5 million, reaching at least a million farmers with their services. These have involved various technologies, from e-commerce platforms to artificial intelligence, and have facilitated market linkages, advisory services, financial services or supply chain management.

With CTA preparing to close at the end of this year, the entrepreneurship project, which includes the Pitch AgriHack competition, will be handed over to the African Green Revolution Forum (AGRF), the flagship annual summit for African agriculture.

The competition will form part of the Forum's ongoing efforts to inspire greater coordinated investment and support for digital entrepreneurship across the sector.

"Over the years, Pitch AgriHack has helped uncover, build the capacity and channel investment into some of the game-changing, youth-led innovations emerging in agriculture across Africa," Dr. Debisi Araba, managing director of the AGRF.

"I'm delighted that the AGRF can continue what CTA started, and encourage not only greater innovation but also more opportunities to scale up digitalisation across the continent with all the benefits this brings for food, nutrition and economic security."

The handover of the AgriHack project will officially take place during an online event on Tuesday, December 8, entitled Building alliances to scale-up youth digital agtech entrepreneurship in Africa, which will explore how public and private sector organisations can collaborate to better support agricultural entrepreneurs across Africa.

Previous winners of the competition have included animal vaccine app CowTribe, mAgri, a mobile phone application developed by Brastorne Enterprises in Botswana to provide farmers with access to information and marketplaces, and Ensibuuko, a Ugandan fintech that links farmers with financial services.

"Collaborating with the AgriHack Talent project of CTA has been an incredible journey and has been impactful, particularly to our growth strategy, exposing us to a valuable network and capacity building," said Naledi Magowe, cofounder of Brastorne Enterprises, a Pitch AgriHack 2016 winner.

"It is crucial for digital enterprises such as us to be empowered in the same way for maximum impact and transformation. We have reached 700,000 users now and have received feedback from the telecom operator we collaborate with that it is the highest revenue generating mobile agri-platform they have had on their network across the countries they are in."

In 2018 and 2019, half of the Pitch AgriHack finalists were women, illustrating how the competition has engaged young women in digital agtech in Africa. While winners have seen on average an increase of more than 115 per cent in the number of employees since they engaged with the initiative, the size of the staff of some of start-ups involved have quadrupled over the years.

Meanwhile, stakeholders in countries including Cote d'Ivoire and Zambia have hosted their own hackathons using the "AgriHack" label. The project has also collaborated with many organisations including the UN's FAO and African Development Bank to support the expansion of other youth-led activities with digital focus.

"I am very proud of the pioneering role played by the AgriHack project and that it has helped to profile CTA as a leading supporter of innovative agripreneurship. I thank our partners for their invaluable contribution and wish outstanding growth for the young entrepreneurs who have been involved," said Ken Lohento, who led the project at CTA.

The AGRF, which has hosted the Pitch AgriHack final and prize ceremony for three years, brings together 26 of the leading actors in African agriculture, including the African Union, CGIAR research network and the UN's International Fund for Agricultural Development (IFAD).

This year's summit, which took place virtually, generated $4.7 billion worth of investment opportunities.

Dr. Ibrahim Khadar, director at CTA, said: "As the pre-eminent forum for African agriculture and an ongoing supporter of the competition, the AGRF is the ideal venue for AgriHack.

"I look forward to seeing how the initiative evolves under new leadership to continue to support youth, foster African innovation and expand digitalisation in agriculture."

AFRICAN GREEN REVOLUTION FORUM

Upcoming Events and Exhibitions

Tue, 23 - Thu, 25 Feb 2021
Africa Agri Tech (AAT)
Pretoria

Wed, 07 - Fri, 09 Apr 2021
Agbiz Congress
Sun international

0Fri, 23 Apr - Sat, 01 May 2021
Bloem Show
Bloemfontein

Tue, 11 - Fri, 14 May 2021
NAMPO Harvest Day
Bothaville

Tue, 25 - Wed, 26 May 2021
International Conference on Agricultural and Biological Science (ICABS)
Kempton Park

Thu, 27 May 2021
Key Sectors - Mozambique Conference (MOZVEST Key Sectors)
Johannesburg

Fri, 28 May - Sun, 06 Jun 2021
Royal Show
Pietermaritzburg
Thu, 26 - Sun, 29 Aug 2021
the
The Cannabis Expo Durban (TCE Durban)
Durban

Sun, 21 - Fri, 26 Aug 2022
International Society for Microbial Ecology (ISME)
Cape Town

20 – 22 April 2021
The Kenyan Food Event
Nairobi, Kenya

14 -16 September 2021
Propak West Africa
Nigeria

9- 11 March 2021
Propak East Africa
Kenya

The Kenyan Food Event 2021

Launching 20 – 22 April 2021 at the Sarit Centre in Nairobi, Kenya, the Kenyan Food Event and its co-located Hospitality and Drink Events will bring together the East African industry members from across the B2B supply chain.

Informative and Inspiring, KFE is a unique trade event for those operating and working within the hotel, restaurant, pub, bar and hospitality industry. Held over three exciting days, this international event will offer participants the learning, business and networking opportunities to drive their business forward and grow.

Join over 2,500 fellow industry members and find more than 100 brands on display, business seminars, live food and drink demonstrations, culinary workshops, chef demonstrations, business matchmaking and so much more.

With the impact of the global COVID-19 pandemic, businesses of all sizes have had to reprioritise and rethink strategies. Now more than ever, it is imperative to come together as a community and learn from experiences across the industry, the Kenyan Food Event will do exactly that. With a comprehensive conference programme, enhanced digital options as well as the physical event itself, going above and beyond the legal safety requirements, the Kenyan Food Event 2021 will be an unmissable industry event.

Join us in 2021 in Nairobi, the economic epicentre of East Africa, the continent's fastest growing economy. The Kenyan Food Event will be completely FREE to attend, you can pre-register here.

For more information about the Kenyan Food, Hospitality or Drink Event:

Location: The Sarit Centre, Nairobi, Kenya

Dates: 20 – 22 April 2021

How Can Regular Crop Maintenance Provide Stable Yields?

Farming is a complex activity, one in which every segment impacts the crop production. To have a successful crop production, all segments need to be managed properly. Good soil preparation is half of the job, while the other half is good management of crop maintenance.

After soil preparation and planting are completed, there is still no break for the farmers. If they want to achieve a good and quality yield, they must constantly implement crop maintenance practices during the growing season.

Crop maintenance practices important for proper crop growth include:

- Weeding
- Soil cultivation
- Irrigation
- Mowing
- Insect pest and disease control
- Removal of standing water
- Pruning

Crop maintenance practices need to be done in a timely manner. When some practices will be implemented will, depend on crop growth stage, soil, crop, and weather conditions.

Weeding Removes Potential Threat to Crops

Weeding is a farm practice that involves the physical removal of weeds from the field. This practice can be performed manually or with the use of mechanization.

Manual Remove of Weeds from the field

Although manual weeding is more labor intensive, it is the preferred farm practice due to the minimal soil disturbance it creates and its decreased opportunity for soil erosion. Oppositely, mechanized weeding is less labor intensive. However, it's important to manage it carefully so as to prevent soil disturbance and the spreading of weed seeds.

Mechanized weeding is more appropriate for large farmland.

Soil Cultivation Improves Soil Performance

Soil cultivation is a farm management practice ***that breaks up and loosens the soil surface.*** The main purpose of soil cultivation is to create ***optimal soil structure***, which will improve **water retention, allow for better penetration of air, water, and nutrients**, and help with **weed control.**

Soil cultivation as a regular and important farm measure

Soil cultivation is a favorable soil maintenance practice that **helps retain water** and provides optimal soil structure and favorable crop conditions. Soil cultivation may also reduce the need for water irrigation.

Irrigation for Secure Plant Growth

Irrigation is a crop maintenance measure that is needed to provide normal crop growth when the water supply is limited. Maximizing plant potential, every farm production should set an irrigation system.

Irrigation is especially important when the crop is in sensitive growth phases such as germination, flowering, and fruit setting.

Depending on the crop type and climate, different irrigation methods are used:

- Drip irrigation
- Furrow irrigation
- Sprinkler irrigation
- Pivot irrigation
- Flood irrigation

Mowing Enhances Orchard Management

Mowing is a regular farm maintenance practice in orchards and vineyards. It includes mowing of the space between and inside rows. Mowing is the manual or machine removal of grass and invasive weeds. **It improves soil condition, reduces pest occurrence, and enhances crop growth**.

Drip irrigation in vegetable crop production

Mowing of inter row space in vineyard

Appropriate Insect Pest and Disease Control to Sustain the Yield

If not treated properly and on-time, plant pests can significantly reduce the crop yield and affect its quality. Therefore, regular crop maintenance needs to include insect pest and disease control. Crop losses can be reduced by using various organic and chemical crop protection measures such as:

- **Natural**; natural pest predators (ladybug, praying mantis)
- **Cultural**; tracking of weather, monitoring fields, and crops
- **Physical**; disinfection of the soil, seed, and seedlings
- **Mechanical**; pruning and removing of diseased plants from the field/orchard
- **Biological**; various beneficial fungi, bacteria, and parasitic wasps as pest predators
- **Chemical**; chemical based fungicides, insecticides, and herbicides

Wheat rust can significantly reduce the wheat yield

Removal of Standing Water Saves the Yield From the Beginning

Removal of standing water is a crop maintenance practice mainly used in cereal production. However, it can also be practiced in the production of arable and vegetable crops. This practice includes the removal of standing water from the field that accumulated during the winter period as the result of melting snow.

Excessive water creates depressions on the field surface and harms young plants. If crops stay in the water for more than 3 days, the entire **crop production can be destroyed.**

Standing water can be removed by using soil cultivators to level the field's surface and plows to create furrows around the field's edges.

Crop maintenance is a common farm practice among farmers. Only regular and proper crop maintenance can provide quality crops and stable yields.

As every human being needs regular maintenance of the body to maintain optimal health, the plant needs regular maintenance of all factors crucial for its proper development and growth as well.

Pruning Is a Must-Have Practice for Permanent Crops

Regarding the maintenance of permanent crops, **there is no alternative to pruning**. Pruning is a selective cutting away of a portion of a tree or a shrub practiced for the following purposes:

- Balancing tree or a shrub growth and the fruit production
- Improving pest and disease management
- Managing the size and the shape of a tree or a shrub.

There are four types of pruning, regarding the different crop requirements:

- Formative pruning
- Dormant pruning
- Green pruning
- Restorative pruning.

Water depression in soybean field

Crop maintenance is a common farm practice among farmers. Only regular and proper crop maintenance can provide quality crops and stable yields.

As every human being needs regular maintenance of the body to maintain optimal health, the plant needs regular maintenance of all factors crucial for its proper development and growth as well.

Pruning is a selective cutting away of a tree or a shrub

Orchard after pruning

Now Is The Time To Relook Approaches To Addressing The Land Issue, Shares Independent Transaction Advisors

Land reform: It is worthwhile to reflect on one of the biggest highlights of 2020 in land reform. Government's new plan to reallocate 700 000 hectares of underutilised state-owned land has been hailed as a quantum leap in the land reform programme. This move has also renewed interest in post-settlement solutions that can enable the success of land reform, driving effective utilisation to ensure productive use of land.

While this is a big milestone in the land reform programme, the initiative has been criticised for various reasons including threatening food security and spooking investors. Government has been criticised for its tardiness in speeding up the land redistribution programme and for not committing enough resources relative to the political rhetoric of redressing the wrongs of the past.

Independent transaction advisors work on the ground with the beneficiaries of the land reform programme to facilitate land reform transactions. Vumelana Advisory Fund is a non-profit organisation that helps beneficiaries of the land reform programme to make their land productive. Vumelana unpacks some of the current models, challenges, gaps, and a possible way forward as we forge ahead.

Based on their extensive experience working with beneficiary communities, Vumelana's transaction advisors, Geoff de Beer and Emile de Kock, provide their insights on the state of the land reform programme.

Current landscape

Debunking the general perception of the failure of the land reform programme, De Kock stresses that the success of the programme should be measured by how quickly it is concluded, and not by the success or failure of the various enterprise undertakings including agriculture and tourism projects.

"How quickly can the land reform programme be implemented and concluded, and not how the associated projects perform, should be the measure we use to gauge the success of the programme. How the enterprises are performing on transferred land is a totally different question – it becomes an agricultural and an economics question, not a land reform question. So, it would be irresponsible to combine these two and pretend that land reform is some kind of economic sub-sector," says De Kock.

He concedes that on both fronts – the speed of land reform implementation and the extent to which it has positively impacted the livelihoods of beneficiaries – the track record is disappointing.

De Kock attributes the slow pace of land reform programme to three factors: inadequate budget, resistance from interest groups and an absence of bureaucracy that is fit for purpose to implement and drive the process.

"There has never in the history of the new dispensation been a year where there was enough budget allocated to meet the land reform targets. It is not feasible to build a 5 000 kilometre stretch of tarred road with a budget allocation for three kilometres. Secondly, there is definitely a degree of resistance from interest groups within the political economy that does make it a little difficult. Thirdly, there has not been a reasonable amount of diligence applied in the bureaucracy of the mainstream land reform programme. "What I mean by that is that land reform is a bureaucratic process. So you have targets, and you have processes and procedures, and if you combine budget with processes and procedures in order to achieve targets, then you have a bureaucracy at work," he says.

Geoff de Beer adds that, "Often, beneficiaries of the land reform programme lack the requisite finance, skills and expertise to sustain the land and keep it productive. In most cases, the enterprises operating on properties – at the time of settling land claims are in a state of financial decline or have largely collapsed. This is no surprise, bearing in mind that even moderately sized enterprises are capital and skills intensive and operate in a highly competitive local, national and international environment."

Current models in land reform

De Beer explains that many communities have chosen to retain their ancestral land instead of taking a cash equivalent and have opted for a

wide variety of arrangements to offset the lack of capital and expertise, with varying degrees of success.

Broadly speaking, these models have included (amongst others) collectives, service level agreements (or management contracts), various lease-based agreements, share-equity schemes, farm-worker-share-equity schemes and joint ventures,

De Beer notes that, While these models seem potentially commercially sound at face value, experience has shown that each one of these options has its own inherent pitfalls and solutions need to be designed and implemented on a case specific basis. The careful 'up-front' identification and allocation of these key aspects of risk/reward in all of these 'partnerships' is essential."

He cautions that, "Failure to carefully and systematically design these 'partnerships' to identify, engage and agree on ways to mitigate or allocate such risks/responsibilities has led to the failure of many agricultural and tourism projects."

Way forward

De Beer says it is against this background that Vumelana developed the Community Private Partnership (CPP) model to provide much needed support to beneficiary communities to enable them to run commercially viable farms. CPPs present one of the most viable options where beneficiary communities and the private sector enter into a win-win partnership for the management of the land. A critical aspect of the Vumelana support programme has been the use of experienced transaction advisors to assist the Claimant communities in the up-front design and legal contracting for the CPPs.

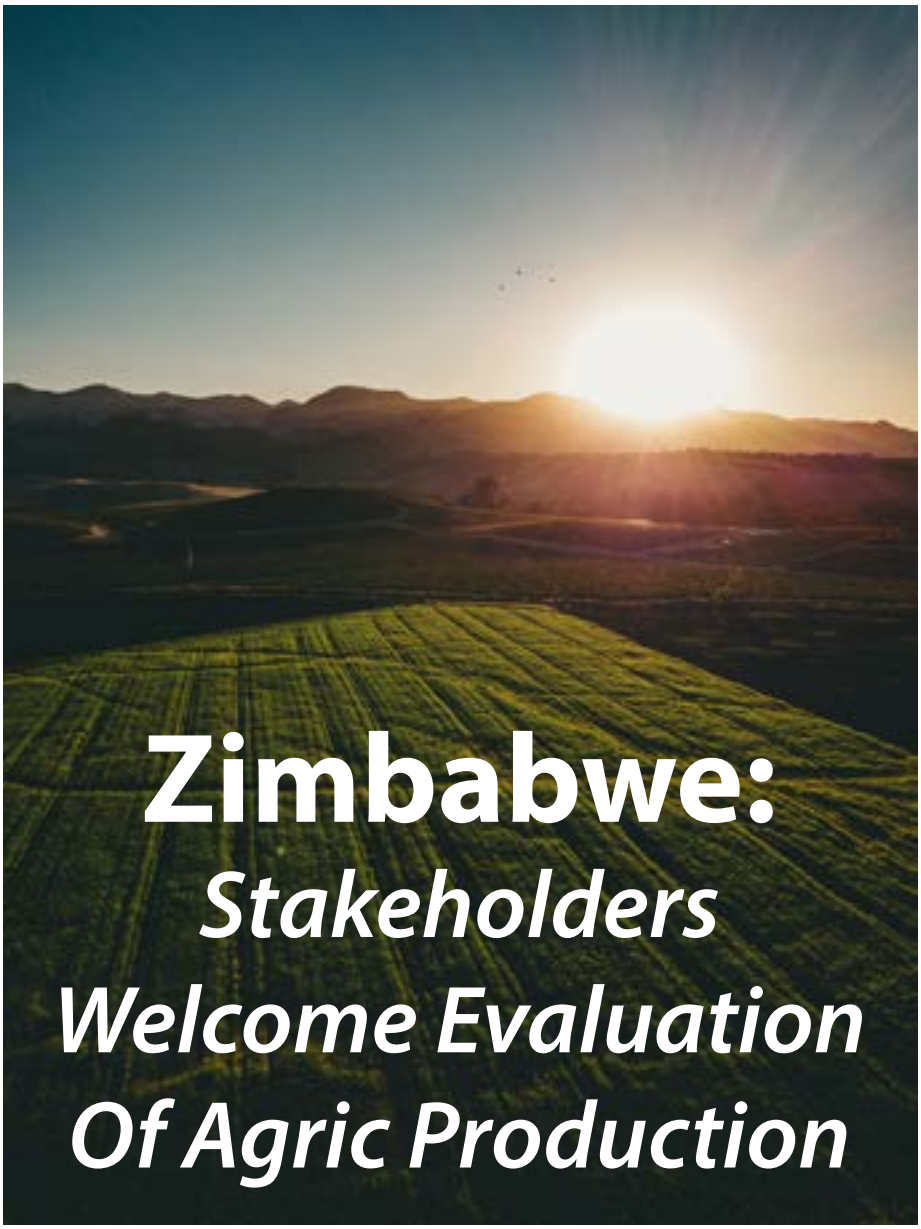
Vumelana has implemented the CPP model in a number of cases and it has proven to be a workable model. Case studies indicate that participation by the private sector via CPPs in the land reform programme has addressed the competency gaps for beneficiary communities by facilitating access to markets and finance, and has spurred investment in production and employment and led to skills transfer.

Support for CPI administration should be an integral part of supporting beneficiary communities. Communities are becoming owners of large capital investments, but they generally do not have the necessary governance and management structures and capabilities. As a result, they require professional services. Institutionalising community support should become an integral part of the post-land claims process to manage community expectations and aspirations," comments De Beer.

De Kock says the planned allocation of 700 000 hectares presents a great opportunity to implement the CPP model in some of the instances where communities apply for land. He says that experience has shown that the productive potential of the land, coupled with the cohesiveness of the community, are the two important factors that can attract potential investors.

"All that land tends to be already in use by smallholder livestock and fresh produce farmers, and therefore it is logical and beneficial that those people and families who had been arriving on the land for the past five decades or more should have the opportunity to formalise the tenure over that land through the new policy," says De Kock.

"There is a great amount of goodwill between traditional authorities and the commercial agricultural sector in the former homelands, which presents a significant opportunity for meaningful CPP ventures to be developed on those former commercial estates in state land areas. It would be necessary to develop transparent protocols for such partnerships to be concluded in a manner that is compliant with state policy. There are also large pieces of land with limited productive potential in the former homeland areas, including grazing land and smallholder cultivation plots," concludes De Kock.



Zimbabwe: *Stakeholders Welcome Evaluation Of Agric Production*

Agricultural economists have welcomed the step taken by the Lands, Agriculture, Water and Rural Resettlement Ministry to monitor production on farms and re-allocate abandoned farms and underused land to ensure all farms are in production.

Under the new policy, farmers resettled under the A1 and A2 schemes, the beneficiaries of land reform, must submit mandatory production returns to the Lands ministry by January 31 next year, failure of which will result in the farms being considered for reallocation to people on the waiting list.

The move is meant to transform A2 farmers into agricultural entrepreneurs and their farms to become enviable businesses by 2025 while A1 farmers will be transformed through Government production schemes to become viable and formal small to medium enterprises by 2025.

Information gathered by Lands officials will help the ministry to support provincial land committees in carrying out the new policy on land where multiple land ownership, abandoned farms, derelict farms and underused farms can be considered for reallocation. Farmers who fail to submit information shall be deemed to fall into those categories.

Productive farms exceeding the maximum farm size for their agro-ecological region shall be exempted from downsizing until further guidance.

Agriculture economist, Dr Midway Bhunu, said the proposed monitoring and evaluation system was welcome and was one of the critical steps towards commercialisation of farming. "This will solve the long standing challenge of underutilisation of productive land that has negatively impacted on the food, income and nutrition security of the country," he said.

Dr Bhunu said commercialised farming was widely considered as the most effective means of dealing with poverty in the developing world. "It is important that land gets into the right hands, and be put to good use so that we feed our nation and attain our breadbasket status again.

"This is the time now to attract private sector investments into our farming systems for various value chains. We recommend a well-coordinated approach on implementation of this noble idea where all players, development partners and private sector included join hands with the Government and develop our agriculture.

"We have great potential to revive many value chains that had collapsed, examples are coffee and flowers just to pick a few," he said.

Zimbabwe Farmers Union agriculture economist, Dr Prince Kuipa, said the move will help Government in policy formulation and planning. "The Lands Ministry will be able to know land underuse, types of crops being grown and also challenges being faced by farmers. The Ministry should also consider challenges being faced by farmers that affect production. Funding has been the major challenge affecting production on farms and it should be addressed so every farmer will be able to put land to use.

"Bankable 99-year leases should be prioritised so that farmers will be able to access funding to boost production," he said.

Youth in Agriculture Apex Council chief executive, Mrs Memory Nyakwima Chakwita, said the organisation was ready to "nature its young farmers who benefit from this exercise through provision of inputs and technical expertise".

Zimbabwe National Farmers Union vice president, Mr Edward Dune, encouraged relevant authorities and organisations to educate farmers on the transitional process. "There is also need to justify production trends. There could be other reasons why farmers could be failing to produce," he said.

Lands Minister Dr Anxious Masuka said in pursuit of Vision 2030 and the National Development Strategy 1, and through the Agriculture and Food Systems Transformation Strategy, his Ministry was seeking to transform the agriculture sector by making farming a business.

Government is determined to increase productivity on the farms to create a high productive chain of business-orientated farmers and turn agriculture into an US$8 billion sector by 2023.

Kenya Agriculture Funding From UN To Hit Sh1 Billion

Cabinet Secretary for Agriculture Peter Munya (left) and new FAO Country Representative in Kenya Ms Carla Elisa Luis Mucavi from Mozambique in his office on November 16, 2020. PHOTO | COURTESY

The United Nations will increase Kenya's agriculture funding to Sh1 billion to finance different sub sectors including the blue economy and rice industry in the Lake Basin Regional Economic Community (LBREC).

Food and Agriculture Organisation (FAO) Kenya representative Carla Mucavi said the funding will be increased from the current Sh700 million invested in seven fish and rice projects in the region.

She spoke when the agency and the Ministry of Agriculture launched aquaculture and rice projects in the LBREC to assist farmers affected by floods and Covid-19.

"Fundraising efforts are underway to increase funding to the region to Sh1 billion to finance various agriculture sub-sectors," said Ms Mucavi.

She said the projects target the youth and women, who bear the brunt of the disruption by adverse weather and loss of employment due to the health pandemic.

The LBREC bloc comprises Bungoma, Busia, Homa Bay, Kakamega, Kisii, Kisumu, Migori, Nyamira, Siaya, and Vihiga counties.

"Globally, aquaculture production has increased by 30 per cent every decade for the past 50 years. African production represents a meagre two percent of world production, which is dominated by Asia, with Kenya only representing four percent of the African market," said Agriculture Cabinet Secretary Peter Munya.

Mr Munya said there are opportunities for young people whose movement from the region in search for employment has been curtailed by the Covid-19 safety restrictions.

With the new investment, it is expected that Bunyala Irrigation Cooperative Society will surpass the current rice production on 2,100 acres of land with an annual value of Sh110 million.

The country's annual rice production at 160,600 tonnes falls short of national consumption at 1.05 million tonnes.

"We have a deficit of close to 986,000 tonnes that is largely met by imports from Pakistan and other countries," he added.

About 80 per cent of rice grown in Kenya is from government established irrigation schemes, while the remaining 20 per cent is produced under rain-fed conditions.

World Bank Grants $60 Million To Help Strengthen Resilience Of Agricultural Sector In Africa

The World Bank Board of Directors today approved a $60 million International Development Association (IDA)* grant to help African countries strengthen the resilience of their agricultural sectors to the threat posed by climate change. The grant fulfils the World Bank's commitment at the 2019 United Nations Climate Summit to increase its support to the CGIAR, a global partnership that unites international organizations engaged in research about food security, to help advance agricultural research efforts for the benefit of rural households that rely on agriculture as a major livelihood source, and to increase food security.

Through the new operation –Accelerating the Impact of CGIAR Climate Research for Africa project, AICCRA-the World Bank will support research and capacity-building activities carried out by the CGIAR centers and partner organizations, with the goal of enhancing access to climate information services and validated climate-smart agriculture technologies in Africa. By gaining better access to climate advisories linked to information about effective response measures, farmers and livestock keepers will be able to better anticipate climate-related events and take preventative actions that can help to safeguard productive activities and avoid catastrophic losses.

Mobilizing science and innovation for the benefit of agricultural development is consistent with the commitments made during the Africa Food Security Leadership Dialogue (AFSLD), a multi-partner initiative formed in 2019 to deal with the problem of hunger and vulnerability to climate change on the African continent. The new project responds to the AFSLD call for joint action against hunger in the face of climate change, at a time when the COVID-19 pandemic has further increased the vulnerability of millions of households.

AICCRA activities will be concentrated in six countries -Senegal, Ghana, Mali, Ethiopia, Kenya, and Zambia- but its benefits will be realized region-wide: "Knowledge generation and technology transfer are deserving of IDA regional support, because the benefits flow across national boundaries and therefore are unlikely to be supported adequately by individual governments acting alone," says Ms. Deborah Wetzel, World Bank Director of Regional Integration for Sub-Saharan Africa, the Middle East, and Northern Africa. "CGIAR plays a unique catalytic role in strengthening global, regional and local capacity to combat the effects of climate change, in Africa and throughout the world".

AICCRA will be administered by the International Center for Tropical Agriculture, the lead center for the CGIAR Program on Climate Change, Agriculture, and Food Security (CCAFS).

AFRICA: *How To Overcome Water Challenges In Agriculture*

The State of Food and Agriculture (SOFA) 2020 takes a new look at water shortages and scarcity in the world

More than three billion people live in agricultural areas with high to very high levels of water shortages and scarcity, and almost half of them face severe constraints. Furthermore, available freshwater resources per person have declined by more than 20 percent over the past two decades globally, underscoring the importance of producing more with less, especially in the agriculture sector, the world's largest user of water.

Improved water management, supported by effective governance and strong institutions – including secure water tenure and rights, underpinned by sound water accounting and auditing – will be essential to ensure global food security and nutrition, and contribute to the Sustainable Development Goals (SDGs), according to The State of Food and Agriculture (SOFA) 2020 – a flagship report published today by the Food and Agriculture Organization of the United Nations.

"With this report, FAO is sending a strong message: water shortages and scarcity in agriculture must be addressed immediately and boldly if our pledge to achieve the SDGs is to be taken seriously," FAO Director-General QU Dongyu emphasized in the foreword of the report.

Paths for action range from investing in water-harvesting and conservation in rainfed areas to rehabilitating and modernizing sustainable irrigation systems in irrigated areas. These must be combined with best agronomic practices, such as adopting drought-tolerant crop varieties, and improved water management tools – including effective water pricing and allocation tools, such as water rights and quotas – to ensure equitable and sustainable access. Water accounting and auditing must be, however, the starting point for any effective management strategy.

Achieving the internationally agreed SDG pledges, including the Zero Hunger target (SDG 2), "is still achievable," the SOFA emphasizes – but only by ensuring more productive and sustainable use of freshwater and rainwater in agriculture, which accounts for more than 70 percent of global water withdrawals.

FAO's SOFA report in 1993 also focused on water issues, and today it is striking how the findings presented then remain valid and relevant today. While the previous report focused on irrigation, the new edition broadens its scope to cover water-related challenges in rainfed agriculture, which represents more than 80 percent of land under cultivation and 60 percent of global crop production.

Mapping the moisture

FAO is the custodian of SDG Indicator 6.4.2, which measures the pressure of human activities on natural freshwater resources, and SOFA offers the first spatially disaggregated representation of how things stand today – which, when meshed with historical drought frequency data, allows for a more holistic assessment of water constraints in food production.

About 1.2 billion people – 44 percent of them in rural areas and the remainder in small urban centers in the countryside – live in places where severe water shortages and scarcity challenge agriculture. Around 40 percent of them live in Eastern and South-eastern Asia, and a slightly higher share in Southern Asia. Central Asia and Northern Africa and Western Asia are also severely affected – about one of every five people live in agricultural areas with very high water shortages and scarcity, compared to less than 4 percent in Europe, Latin America and the Caribbean, Northern America and Oceania.

About 5 percent of people living in sub-Saharan Africa live in similar conditions, meaning that about 50 million people live in areas where se-

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AFRICA: *How To Overcome Water Challenges In Agriculture*

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vere drought has catastrophic impacts on cropland and pastureland once every three years.

About 11 percent of the world's rainfed cropland, or 128 million hectares, face frequent drought, as does about 14 percent of pastureland, or 656 million hectares. Meanwhile, more than 60 percent (or 171 million hectares) of irrigated cropland is highly water stressed. 11 countries, all in Northern Africa and Asia, face both challenges, making it urgent and necessary to adopt sound water accounting, clear allocation, modern technologies and to shift to less thirsty crops.

Mathematics of water

"The inherent characteristics of water make it difficult to manage," the SOFA report notes.

"Water should be recognized as an economic good that has a value and a price," it says, noting that customary practices leading it to be treated as a free commodity often create market failures. A price that reflects the true value of water, by contrast, sends a clear signal to users to use water wisely. At the same time, policy and governance support to ensure efficient, equitable and sustainable access for all is essential.

"Water management plans need to be problem-focused and dynamic," the report recommends. SOFA notes that the rural poor can benefit substantially from irrigation and endorses its cautious expansion. Between 2010 and 2050, harvested irrigated areas are projected to grow in most regions of the world and to more than double in sub-Saharan Africa, potentially benefiting hundreds of millions of rural people.

The report notes that, in some cases, small-scale and farmer-led irrigation systems can be more efficient than large-scale projects. That's a promising path for sub-Saharan Africa, where surface and underground water resources are comparatively undeveloped and only 3 percent of cropland is equipped for irrigation – and where expanding small-scale irrigation can be profitable and benefit millions of rural people. However, many factors impede adoption, including lack of secure water tenure and access to finance and credit. In Asia, declining large-scale state-funded surface irrigation have led to farmers tapping directly into groundwater, placing excessive pressure on the resource. Addressing these issues will require investing in modernizing old irrigation schemes, as well as effective policies.

Full-fledged water markets involving the sale of water rights are relatively rare. However, when water accounting and auditing is well performed, water tenure and rights are well established, and the active participation of beneficiaries and managing institutions is promoted, regulated water markets can induce efficient and equitable allocation of water, while promoting its conservation.

Did you know?

- The average amount of freshwater per person in 2017 was about 43 000 m3 in Oceania, while barely reaching 1 000 m3 in Northern Africa and Western Asia.
- Total water withdrawals per capita are highest in Central Asia, reaching almost 2 000 m3 per person in 2017, compared to less than 130 m3 in sub-Saharan Africa.
- In least developed countries, 74 percent of rural people do not have access to safe drinking water.
- 91 countries have national plans for rural drinking water, but only nine have allocated sufficient funding to implement them.
- Around 41 percent of current global irrigation occurs at the expense of environmental flow requirements, which are essential to sustain ecosystems that provide life-supporting functions.
- Biofuels require 70 to 400 times more water than do the fossil fuels they replace.
- Major forests in areas such as the Amazon, Congo and Yangtze river basins are important sources of water vapour for areas downwind and are, therefore, crucial to rainfed agriculture.

African Free Trade Bloc Opens For Business, But Challenges Remain

By Joe Bavier

** Trade under AfCFTA bloc begins Jan. 1*
** Launch delayed six months due to pandemic*
** Implementation of free trade deal to take years*

JOHANNESBURG, Jan 1 (Reuters) – African countries began officially trading under a new continent-wide free trade area on Friday, after months of delays caused by the global coronavirus pandemic.

But experts view the New Year's Day launch as largely symbolic with full implementation of the deal expected to take years.

The African Continental Free Trade Area (AfCFTA) aims to bring together 1.3 billion people in a $3.4 trillion economic bloc that will be the largest free trade area since the establishment of the World Trade Organization.

Backers say it will boost trade among African neighbours while allowing the continent to develop its own value chains. The World Bank estimates it could lift tens of millions out of poverty by 2035.

But obstacles – ranging from ubiquitous red tape and poor infrastructure to the entrenched protectionism of some of its members – must be overcome if the bloc is to reach its full potential.

Trade under the AfCFTA was meant to be launched on July 1 but was pushed back after COVID-19 made in-person negotiations impossible.

However, the pandemic also gave the process added impetus, said Silver Ojakol, chief of staff at the AfCFTA's secretariat.

"We saw the impact on our economies of the disruption of imports due to the pandemic," he said. "So there's actually been an increase in political will to boost intra-African integration."

Every African country except Eritrea has signed on to the AfCFTA framework agreement, and 34 have ratified it. But observers such as W. Gyude Moore – a former Liberian minister who is now a senior fellow at the Center for Global Development – say the real work begins now.

"I would be surprised if they can have everything set up within 24 months," he told Reuters. "For long-term success, I think we'll need to look at how long it took Europe. This is a multi-decade process."

'WE MUST START SOMEWHERE'

Historic challenges including Africa's poor road and rail links, political unrest, excessive border bureaucracy and petty corruption will not disappear overnight.

And an annex to the deal outlining the rules of origin – an essential step for determining which products can be subject to tariffs and duties – has not been completed yet.

Meanwhile, 41 of the zone's 54 member states have submitted tariff reduction schedules.

Members must phase out 90% of tariff lines – over five years for more advanced economies or 10 years for less developed nations. Another 7% considered sensitive will get more time, while 3% will be allowed to be placed on an exclusion list.

Finalising those schedules and communicating them to businesses must be done quickly, said Ziad Hamoui of Borderless Alliance, a group that campaigns for easier cross-border trade.

But efforts to implement the deal will also likely face resistance from countries' domestic interest groups. Fears of losing out to more competitive neighbours initially made some countries, including West African giant Nigeria, sceptical of the pan-African project.

Still, proponents of the zone are confident that initial steps towards its implementation will already allow member states to double intra-African trade by 2025.

"Economic integration is not an event. It's a process," said the AfCFTA secretariat's Ojakol. "We must start somewhere."

Africa: How Sub-Saharan Africa Can Rethink Its Approach To Agriculture

By Michael Aliber and Wandile Sihlobo

In response to the economic devastation caused by the coronavirus pandemic, most sub-Saharan governments are developing economic recovery plans. These will require some different thinking, particularly when it comes to agriculture. Wandile Sihlobo, the chief economist of the Agricultural Business Chamber of South Africa, explains to Michael Aliber, a professor of agricultural economics at the University of Fort Hare, what that new thinking might look like.

You have argued that governments should use the post-COVID environment to think differently about agriculture. What should be done differently?

African governments should have a fresh look at agriculture. This involves embracing technology (information technology, mechanical and biotechnology) and also private sector partnerships. There also needs to be confidence in the citizenry to manage their land parcels. This will involve the granting of title deeds or tradable long-term leases in various African countries. And in the case of better seeds, the evidence from South Africa is there for many countries to observe and learn.

The economic recovery from the pandemic therefore presents an opportunity for governments to explore available technologies that could help in the registration of land rights. These include global positioning systems, mapping and blockchain technologies.

This will help solve disputes and also with the tradability of land rights. This process can be piloted on agricultural land. The proper recording and confirmation of land rights will encourage individual entrepreneurs to invest in their farmland and thereby trigger the commercialisation and growth of the agricultural sector.

There are also examples of technologies that various countries could use to document land. Examples include the use of drones in India, and aerial photography in Rwanda. This would help change the troubling statistic that roughly 90% of rural land in Africa is not formally documented.

How would you envisage overcoming the concern that ambitious rights formalisation and documentation strategies tend to extinguish secondary rights, often held by women?

The overall intention is to ensure formalisation of land rights, with the objective of attracting investments in the agricultural sector and unlocking its potential.

Africa has, indeed, a history of disadvantaging women on land matters. Any strategy for the formalisation of land rights will have to be well thought out and transparent. The aim should be to ensure that there isn't bias towards men and politically connected individuals as has been observed in land reform cases in South Africa.

Are you perhaps placing too much faith in technology?

To date, South Africa is the only country in sub-Saharan Africa that has embraced biotechnology. This is primarily because it's the only country in the region that has adopted the use of genetically engineered cotton, maize and soybean seeds. Other countries that have done so include the US, Brazil and Argentina. In these countries, the use of the genetically engineered seeds has seen lower insecticide use, more environmentally friendly tillage practices and improvements in crop yields.

How productive is sub-Saharan African agriculture relative to other regions of the world? What can be done to improve yields?

There is compelling evidence of the increase in yields within the sub-Saharan Africa region. Consider South Africa. It produces about 16% of sub-Saharan Africa maize, according to the International Grains Council. But it uses a relatively small area of land – an average of 2.5 million hectares since 2010. In contrast, countries such as Nigeria planted 6.5 million hectares in the same production season but only harvested 11 million tonnes of maize. Nigeria's output equates to 15% of the sub-Saharan region's maize production.

South Africa began planting genetically engineered maize seeds in the 2001/02 season. Before its introduction, average maize yields were around 2.4 tonnes per hectare. That has now increased to an average of 5.9 tonnes per hectare as of the 2019/20 production season.

Meanwhile, the sub-Saharan Africa region's maize yields remain negligible, averaging below 2.0 tonnes per hectare.

While yields are also influenced by improved germplasm (enabled by non-GM biotechnology) and improved low- and no-till production methods (facilitated through herbicide tolerant GM technology), other benefits include labour savings, reduced insecticide use, and improved weed and pest control. These labour-saving benefits, also for small-scale livelihood farmers, were also observed in a research study in the KwaZulu Natal province of South Africa.

Other countries like Kenya and Nigeria are increasingly field-testing genetically engineered crops. They should accelerate the process, and when it meets their scientific standards, should embark on commercialisation as part of the recovery from the economic slump caused by the pandemic.

Each country will have its domestic regulatory process which safeguards consumers and farmers. But these need not be too prohibitive to the extent that they disadvantage farmers. A case in point is Zimbabwe, where the importation of genetically engineered maize has recently been permitted but planting by domestic farmers is prohibited.

But high yield – that is the amount produced per unit area – typically means high input costs, which is one reason why small-scale farmers' uptake of these technologies is limited. Also, won't the emergence of larger and more commercially oriented and technologically capable African farmers result in agriculture absorbing less and less labour?

Africa's smallholder farmers will generally struggle to access some technologies because of the associated costs. But if the goal is to ensure that the African continent can compete globally with the likes of the US, Brazil and Argentina, among others, then the focus should be on commercialisation of farmers and encourage the economies of scale on the continent. There have to be trade-offs. These include job losses in certain subsectors such as grains as farmers would be adopting more technologies.

But there are potential gains in other subsectors such as horticulture. If supported and developed to scale, these could create large numbers of jobs. Again, a case in point is South Africa, where there were job losses in field crops but horticulture created many jobs.

The key is to ensure job mobility so that people can progressively move to higher paying jobs in agro-processing and other subsectors.

In sum, this is not to mean we should move away from smallholder farming per se. We need a mixed farming system. Where conditions allow, commercialisation at large scale should be encouraged. This is precisely the case in Brazil, where there is a mixed farming system.

Mou Signed To Boost Fruit Exports From Sa To China

Xiaohu Xu, Vice President of the CCCFNA/ Justin Chadwick, Chairman of Fruit SA and Vangile Titi-Msumza, Vice-Chair of Fruit SA.

Fruit exports from South Africa and China are set to get a boost with the recent signing of a memorandum of understanding (MoU) between the two countries.

Last year, South Africa exported over 2.8 million tonnes of fresh fruit to overseas markets. However, only a small percentage of these exports went to China. With a population of around 1.38 billion and the demand for fresh fruit expected to continue growing over the next few years, China offers a major opportunity for further market expansion. As a result, the local industry aims to increase its exports to China over the next five years and in this way contribute towards increased jobs in the sector.

The MoU, which was signed between Xiaohu Xu, Vice President of the China Chamber of Commerce of Import & Export of Foodstuffs & Native Produce (CFNA) and Justin Chadwick, Chairman of the Board of Fruit South Africa (Fruit SA) will contribute towards this objective, as it will serve to promote greater cooperation and statistical information exchange between the countries' fresh fruit industries.

To this end, Fruit SA and CCCFNA will:

- Support trade visits between South Africa and China for the representatives of each association.
- Cooperate in the areas of technology exchange.
- Promote information exchange on matters of relevance such as statistics of fruit exports and imports between the two countries, changes in regulatory legislation, and customs procedures.
- Support each other's publicity and promotional activities, where appropriate.

The two associations will also nominate a working group to review the effective execution of commitments in the MoU, which is effective from the date of its signing.

The group will comprise at least one representative from each association and will monitor the implementation of projects and address any issues that may arise from the agreement.

New Citrus Export Levy Sees R1bn Invested Into Sector

This is a pre-requisite for gaining, retaining and optimising market access, which is a key priority for the industry over the short, medium and long-term.

The Citrus Growers' Association of Southern Africa (CGA) has welcomed the gazetting of the new statutory export citrus levy by the Minister of Agriculture, Land Reform and Rural Development Thoko Didiza.

The new levy will be funded by around 1,250 citrus growers over the next four years (from 2021 to 2024) and will ensure both the long-term competitiveness of the citrus industry as well as the sustainable growth of black-citrus enterprises within the sector.

A key funding area is ensuring greater transformation within the industry. 20% of the new levy will be allocated to the development of black citrus growers and their meaningful and lasting participation in the sector.

This funding will be invested in the CGA's recently finalised four-year Transformation Plan (2021-2024), which will be implemented through the CGA-Grower Development Company and the Citrus Academy.

The plan will focus on the following key areas:

- The provision of enterprise and supplier development programmes to black growers;
- The provision of skills development programmes to black growers;
- The roll-out of socio-economic development programmes in rural communities; and
- Ensuring the sustainable growth of black-owned enterprises; as well as
- Greater representation of black growers in industry leadership positions.

With the citrus industry expected to increase its exports by over 500 000 tons over the next three to five years, investment in research and development is critical in order to ensure the sector remains competitive in overseas markets. For this reason, 60% of the new levy will be allocated to Citrus Research International (CRI) to provide research and technical services to growers.

This is a pre-requisite for gaining, retaining and optimising market access, which is a key priority for the industry over the short, medium and long-term.

Enhancing phytosanitary assistance

One of the main blockages preventing increased market access is the stringent phytosanitary requirements effected by some countries. The new citrus levy will assist the CRI in enhancing the phytosanitary assistance it offers growers, including providing counterfoils for unjustified regulatory disruptions and changing regulations.

The remaining 20% of the new levy will be allocated to a number of other programmes including working with government and other stakeholders to improve national transport infrastructure and logistics capacity, including the country's rail and port operations.

With the majority of citrus growers having voted in favour of the levy increase, we are pleased that Minister Didiza has given the green light for the implementation of the new levy from January 2021.

The industry is expecting another record-breaking export season in 2020, despite the challenges faced by the Covid-19 pandemic and national lockdown. We are confident that the new levy will enable the industry to grow its market share even further and as a result, create even more jobs and bring in increased revenue for the country's economy over the next four years.

Morocco's Ocp Moves Forward With Initiative To Restore Soils In Africa

By: Safaa Kasraoui

Rabat – Morocco's state-owned phosphate and fertilizer group OCP is moving forward with its "Restore Africa Soils" platform to allow African researchers to communicate expertise on soil mapping.

The OCP issued a press release to announce that it established the platform in May to ensure the exchange of mechanisms between African researchers and the company's partners regarding soil mapping.

The program seeks to allow stakeholders to share their experience in the field, including sampling and laboratory analysis.

The project also enables the "continuity of training on reasoned fertilization on geographic information systems" and on the quality control of fertilizers and intends to supply a Data Bank devoted to African soils.

For OCP, the project ensures a "real sharing of experience and 'best practices' on the subject."

OCP organized the first meeting on the project on October 8, convening representatives from the Togolese Institute for Agronomic Research (ITRA). The meeting served as an opportunity for ITRA to share with the participants its experience relating to the implementation of the soil fertility map project.

In addition to ITRA, attendees from the Food and Agriculture Organization (FAO), among others, also participated in the webinar.

OCP will hold its second meeting on December 3, covering the implementation of the "fertility card project" in Burkina Faso.

"It will once again be an opportunity for stakeholders to exchange views and share their knowledge and expertise on the subject," OCP said.

OCP launched the project in collaboration with the Mohammed VI Polytechnic University (UM6P). The project also benefits from the support of the Tekalign Mamo Center for Research on Soils and Fertilizers in Africa (CESFRA).

The project is part of the OCP's actions in Africa to promote the creation of strategic decision-support tools in terms of agricultural policies.

OCP's project includes capacity building for agriculture officials in partner countries, upgrading soil analysis laboratories, and assessing the state of soil fertility in areas covered by the project.

The foundation also supports African farmers through the development of fertilization recommendations.

Nearly 3.5 million hectares are concerned by soil mapping work in sub-Saharan Africa, with more than 220 managers trained.

The OCP also announced that 17 fixed and mobile laboratories have been equipped with a view to the emergence of sustainable and resilient agriculture in Africa.

Sugar Sector Eyes Master Plan To Protect Its Turf From Big Imports

The South African sugar industry is looking to the recently signed Sugarcane Master Plan to stabilise the sector in 2021.

DURBAN – THE SOUTH African sugar industry is looking to the recently signed Sugarcane Master Plan to stabilise the sector in 2021 after a flood of sugar imports devastated it

South African Sugar Association (Sasa) executive director Trix Trikam said last week, "We are particularly concerned about high volumes of sugar imports from Eswatini. India and Brazil have continued to be the main non-African countries importing sugar into South Africa. These issues are being addressed through the recently signed Sugarcane Value Chain Master Plan to 2030."

Sasa said, however, the current sugar tariff remained inadequate and needed to be addressed properly. "We are involved in ongoing engagements with government and relevant entities to address the issue," said Trikam

South Africa last month signed the plan, which was delayed by eight months because of Covid-19, with industrial users and retailers agreeing to a minimum offtake of sugar for three years, with roughly 80 percent of consumption coming from local farms and millers in the first 12 months, which would be hiked to 95 percent by 2023.

Last week the SA Canegrowers' Association launched its Home Sweet Home campaign, aimed at encouraging South Africans consumers to buy local sugar products in order to help safeguard the one million livelihoods the industry supports.

Rex Talmage, the chairperson of the SA Canegrowers' Association, said in a statement that weak trade protection has seen a major increase in cheap sugar imports flooding South Africa from Brazil and the United Arab Emirates as well as the Southern African Customs Union (Sacu).

"For every ton of imported sugar that floods our shores, our local South African industry loses R4 000. These cheap, low quality imports have caused the local industry to lose just over R2.2 billion in the last year alone," he said.

Talmage said that a record level of sugar (715 000 tons) was expected to pour in from Eswatini this year.

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Sugar Sector Eyes Master Plan To Protect Its Turf From Big Imports

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"It is important to note that Eswatini sugar enters South Africa free of any import tariff, meaning billions more stand to be lost during the 2020/2021 season," he said.

Talmage said the local industry has been forced to export domestic surplus onto a "dumped" or over-supplied world market at a significant loss, which had left South African growers with an eroded RV price (the price which growers are paid for their sugarcane). This was devastating as at times the revenue was lower than the cost of producing a crop, he said.

This was said to have put the future of the South African sugarcane industry under serious threat, including the futures of 21 000 black small-scale growers, 65 000 farmworkers as well as the 270 000 indirect jobs and the one million livelihoods the industry supports.

The Association of South African Sugar Importers (Asasi) chairperson Chris Engelbrecht said the sugar industry was suffering from many issues, including draught, management, poor sustainability, cheap imports for a few months, most of local sugar fields not being in the right climate, the industry not being efficient and corruption in the industry.

Asasi said in the past five years, the local sugar industry had suffered a drought and made wrong commitments on export quotas and could not meet local demand.

Engelbrecht said this had triggered an unjustified local price increase of almost 20 percent in one year.

He said that then an incorrect zero duty was gazetted for a few months, causing big international suppliers to jump in and flood the South African market.

"The sudden oversupply and the snowball effect afterwards were devastating for the whole industry including the long-term importers. It took more than two years for the market to correct itself. In the last year imports were at a minimum."

Engelbrecht said Asasi does not agree with the proposed Master Plan as they thought that it was not realistic.

"It's one sided and trying to protect a market that is impossible to save with such low efficiency and with such a high artificial local price. However, Asasi will support the buy local idea as far as possible," Engelbrecht said.

"But the SA sugar industry needs to be able to compete on the world market. Stop saying the world market is subsidised as it is not, and it is not the excuse for low yields, under production and extremely high costs."

Bmg's Agricultural Services To Zambian Farmers Enhance Efficiencies For Increased Productivity And Greater Profitability

BMG's service to Zambia's agriculture sector focuses on the importance of the investment in quality equipment and components for high efficiencies and optimum productivity across all farming disciplines.

"Through dedicated BMG branches in Lusaka and Kitwe and with distributors in Mkushi, Mazabuka and Choma, the company is able to offer the Zambian agri-sector quick access to quality components, which are supported by the team's technical sales team in country.

"Through BMG's Boer Slim/Smart Farming concept, the company's agricultural experts based in RSA work closely with farmers throughout Southern Africa, to help them cope with constantly changing trends in agricultural machinery," says Brendan Kitcat, BMG's Bran

Agriculture linkage, PTO's, chain and gearboxes
"BMG offers farming sustainability solutions that focus on effective food production, the correct use of suitable equipment for the specific task and the efficient application of advanced technologies. The company's extensive range of engineering com

Gearboxes
An important focus is on the selection, installation and operation of advanced electromechanical systems – including Motoline solar inverters and electronic variable speed drives (VSDs), which are designed to improve efficiencies, reduce energy consumption and minimise maintenance requirements.

BMG's Motoline solar inverters for water pumps offer dependable use in agricultural irrigation and water feed systems, for rural domestic and municipal water supply, as well as for ponds and dams.

All solar powered systems require a solar inverter to convert direct current (DC) generated by solar panels or other alternative sources, into alternating current (AC) for use in industrial, commercial and residential applications.

BMG's Motoline P19000-S Solar series inverters for photovoltaic (PV) water pumps have integrated Maximum Power Point Tracking (MPPT) algorithms, which support accurate tracking of the PV output, to ensure the best possible power output is achieved.

Agriculture ironware
Notable features of these solar inverters include dry-run protection, tank water level control and a dual AC and DC supply mode. This series supports AC input connectivity, in addition to the DC input from a PV system, allowing the AC input to feed the drive when the PV supply is limited. A clear LED display indicates the real-time situation and system parameters and the RS485 remote control system enhances the flexibility of the system.

BMG, which is an authorised DrivePro® service partner of Danfoss, has supplied Danfoss VSDs to farmers looking to accelerate and expand crop production, but who are restricted by power supply limitations.

Positive feedback from farmers is with this energy-efficient system, there are no voltage dips when the process is started up and wear and tear on mechanical components is reduced. Production is less labour intensive, which reduces his shift costs.

BMG has also assisted farmers who needed to reduce the cost of irrigation per hectare. After the installation of VSDs on pump sets, the power supply is used more efficiently, resulting in improved crop production and expansion of the farmers' supply to include other prod

Wheel slogger for heavy equipment
Danfoss VLT AQUA Drive FC 202 VSDs – which offer saving additional energy savings compared with traditional VSD controls – have been designed for water and wastewater applications, including irrigation. A notable feature of this system includes a soft start/stop facility, which prevents water hammer on starting and stopping the pumps, thus reducing the possibility of burst pipes. Wear and tear on couplings, pumps and pipes is also reduced.

These VSDs are available from BMG in IP55 enclosures, which do not require dedicated panels. This eliminates the need for additional cooling and ventilation, normally required to extract heat during operation.

BMG's high-quality replacement agricultural components are engineered to improve productivity in the farming sector, to operate efficiently for extended periods, with minimal maintenance requirements and to reduce costs in the long term.

Recently-launched agricultural components include slogging hammers and wheel sloggers, which are used to loosen and tighten bolts and nuts quickly and easily; BTC gearboxes, specifically designed for packhouses and robust Tsubaki RS100HT chain for balers, with a 25% higher maximum tensile strength, improved anti-shock performance and greater fatigue strength, when compared to other chain.

Dual direction multi-purpose gearboxes, PTO clutches and components and specially designed heavy-duty coulter bearings are also new to the range.

Immediate availability of a comprehensive range of quality branded products, technical support and a total solutions service, sets the company apart in Zambia's agricultural community.

The Zambian operation has partnered with Aqua Aura – T-L Centre Pivot agents in Mkushi -to supply consignment stock in the region.

BMG provides solutions to all key players in Zambia's agricultural sector, including local manufacturers of equipment and implements, as well as agricultural re-sellers and the farmer.

Tractors Can Change Farming In Good Ways And Bad: *Lessons From Four African Countries*

Agricultural mechanisation can reduce work burden, increase prosperity and enhance diets. Shutterstock

Agricultural mechanisation is on the rise in Africa, replacing hand hoes and animal traction across the continent. While around 80-90% of all farmers still rely on manual labour or draught animals, this is changing, driven by falling machinery prices and rising rural wages. During the last couple of years, tractor sales grew by around 10% annually.

A look at the history of today's mechanised countries shows that a widespread replacement of manual labour with mechanical power can have large socioeconomic and environmental implications.

In our latest study, we explored how mechanisation could change the face of African farming and rural areas. It's important to ensure that mechanisation can be accompanied by policies that harness its potential and minimise potential negative effects.

To understand the effects of mechanisation, we collected data in 87 villages in Benin, Nigeria, Mali and Kenya. These villages were chosen as examples because they've already experience mechanisation. We conducted 129 focus group discussions with 1,330 rural residents. They identified various ways that mechanisation affected farming, rural life and nature.

The insights from the 87 villages revealed the great transformative power of agricultural mechanisation. Mechanisation can reduce work burden, raise prosperity and enhance diets. But there are also challenges such as soil erosion, deforestation and women's access to tractor services.

Identifying these challenges provides an opportunity to prevent them from arising, through agricultural research and appropriate policy action.

Consequences of using tractors

Our study focused on the use of tractors for land preparation as this was the most commonly mechanised activity across the case study countries. Preparing land is labour-intensive and is usually the first activity to be mechanised. Participants were asked to mention positive changes directly related to mechanisa-

tion. They then identified subsequent changes. What they told us formed a picture of a chain of impacts.

Overall, we found that mechanisation has more far-reaching agronomic, environmental and socioeconomic consequences than commonly assumed.

On the upside, it frees men, women and children from heavy agricultural work. This gives them time to do other things, like running non-agricultural businesses or going to school.

Mechanisation also helps to overcome labour bottlenecks, a well-recognised constraint to rain-fed agriculture. This allows people to cultivate more land, as 61% of the respondents reported. In Mali, one farmer said:

Many farmers have land that they can't farm, it is let as fallow. With the tractor, the land is farmed and produces volumes of crops beyond the consumption capacity of the household.

Using a tractor also improves the timeliness of agriculture. Farm activities can be completed at the optimal time, which raises yields. This was noted by 72% of all respondents. The overall increase in agricultural production contributes to enhancing food security and reducing poverty.

On the other hand, 58% of the respondents noted that mechanisation can undermine long-term soil fertility, in particular when the disc plough is used. They said the use of heavy tractors can trigger soil erosion and compaction. In Benin, one farmer reported:

Tractor increases soil compaction given the weight… This is followed by the problems of flooding and erosion, which considerably reduce fertility and consequently the yield.

Another concern is deforestation. Cultivating more land can mean losing trees on a large scale. Even clearing trees from fields so that tractors can operate there reduces biodiversity and makes the soil more susceptible to rain and wind erosion. In Mali, one farmer reported:

Trees are destroyed to enable the tractor to work comfortably. This exposes the land.

Some effects are highly context-specific, such as employment effects. In Benin, where mechanisation was associated with area expansion, this greatly raised the demand for labour to carry out the non-mechanised parts of farming. Here, no unemployment effects were reported, confirming a pattern from countries such as Zambia.

In Nigeria, where fewer farmers expanded land sizes, 48% reported job losses. Employment effects can be non-direct as well. Many rural residents reported that the rising prosperity of farmers due to mechanisation leads to positive spill-overs to non-farmers such as blacksmiths, carpenters and hairdressers.

As with most new technologies, mechanisation has benefits for some but not for others. While other studies have found that smallholder farmers have less access to mechanisation, this was only mentioned by 15% of the respondents. But mechanisation is less accessible for women compared to men. This was reported in all countries but it varied: 71% of women in Mali shared this perception but only 5% of women in Benin.

Managing the consequences

Most negative effects are not inherent to farm mechanisation and can be addressed with complementary agronomic practices and adequate policies. Soil erosion can be reduced with conservation agriculture, which protects soils by replacing heavy disc ploughs with less soil-disturbing rippers or direct seeders and continuous soil covers.

Deforestation can be minimised with careful land-use planning, for example, by protecting land that is particularly valuable for climate change mitigation, biodiversity, and wildlife.

Entry points to ensure that women benefit from mechanisation may comprise campaigns showing women role models using tractors, supporting women's mechanisation groups and developing knowledge and skills.

With the right policies, countries can harness the potential of mechanisation and manage challenges. This can ensure that mechanisation contributes to an African agricultural transformation that is sustainable from a social, economic, and environmental perspective.

About Food Sorting Machines

Sorting is a process of separation of various materials based on specific criteria such as color, size, texture, and others. Food sorting machine is equipment used by food processing companies for sorting or segregating food products such as dry and packaged food items, fruits and vegetables, dairy products, fats and oil, fish and seafood, meat, and others. Food processing companies use sorting machines to maximize the yield and reduce the wastage. Food products are segregated on the basis of various parameters such as shapes, size, color, image, and weight. The sorting helps in identifying and removing food contaminants and foreign materials (FMs) from food products. Various FMs that can be removed by sorting includes metals, stones, insects, glass, and others. Based on the product type, the food sorting machines can be categorized as automated food sorting machines and mechanical food sorting machines. Based on technology, the automated food sorting machines can be further categorized as laser sorters, camera sorters, and x-ray sorters.

The market is divided into the following segments based on geography:

- Americas
- APAC
- EMEA

Global Food Sorting Machines Market 2017-2021, has been prepared based on an in-depth market analysis with inputs from industry experts. The report covers the market landscape and its growth prospects over the coming years. The report also includes a discussion of the key vendors operating in this market.

Key vendors

- Buhler
- GREEFA
- Key Technology
- TOMRA

Other prominent vendors

- Anhui Color Sort Technology
- Aweta
- BBC Technologies
- Brovind - GBV Impianti
- CFT
- Cimbria
- F.lli MARCHISIO & C
- HEFEI MEYER OPTOELECTRONIC TECHNOLOGY
- Multiscan Technologies
- Multisource Manufacturing
- NIKKO
- Orange Sorting Machines
- PPM TECHNOLOGIES
- Raytec Vision
- REEMOON TECHNOLOGY HOLDINGS
- SATAKE
- SCHULE
- Sesotec

Market driver

- Need to enhance food safety
- For a full, detailed list, view our report Online
- Market challenge
- Volatile prices of raw material
- For a full, detailed list, view our report Online

Market trend

- Mergers and acquisition by food sorting machines manufacturers
- For a full, detailed list, view our report Online

Key questions asked

- What will the market size be in 2021 and what will the growth rate be?
- What are the key market trends?
- What is driving this market?
- What are the challenges to market growth?
- Who are the key vendors in this market space?

The digital sensor age is here

Danfoss has engineered solutions that allow the world to use resources in smarter ways—driving the sustainable transformation of tomorrow, since 1933. Danfoss produces more than 250,000 products in 70 factories across 25 countries every day, developing and refining solutions in response to our customers' needs.

With the adoption of a ever-growing digital world, Danfoss Industrial Automation has repositioned itself as Danfoss Sensing Solutions, representing the union of application-driven sensor technologies and unparalleled commitment to helping customers navigate their journey into the digital frontier.

"Global mega trends increase the need for sensing." We see OEMs, wholesalers, and installers adapting to it and facing fundamental choices. They're asking questions like 'What is the right path for us?' and 'Who will help us make the right decisions as we move along?'. Our new name reflects our commitment to embracing that future and is our way of saying: We are your partner in navigating your journey across the digital sensor frontier—today and tomorrow," says Bert Labots, Vice President at Danfoss.

Paired with the name change, Danfoss customers will benefit from a broader product range, such as pressue transmitters, temperature sensors and position sensors, more and increasingly diverse sensor technologies, and unrivalled support and services for sensor ecosystems, as well as swift and simple customization.

"As a leading global player, we know that adapting to the rapidly changing digital landscape requires a competent partner. Danfoss Sensing Solutions provides industry-leading know-how and advanced sensor technologies to navigate the way forward for our customers and partners. A crucial part of this journey is to extend our offering within digital sensor connectivity for wired and wireless sensor solutions. Another differentiator is diagnostics and smart sensors that allow for instant programmability and remote technical support on the sensor side," explains Labots.

Danfoss Sensor Solutions is a global player offering a wide product portfolio within pressure and temperature sensors, and position sensors, to a wide range of industries, such as mobile hydraulics, marine and offshore, water pumps, wind power, industrial hydraulics, industrial air compressors and more.

Ict The Solution For Youth In Agriculture

Agriculture has been categorized as the largest economic sector in most African countries, offering opportunities for poverty alleviation for youth, yet there is still a low percentage of youth involvement in the sector.

This has been attributed to several factors. One major reason for poor youth participation in agriculture, according to research carried out in Tanzania, is low returns linked to a lack of access to agricultural market information.

An IFAD-sponsored study explores how policy makers can promote information and communication technology (ICT) to make agricultural market information accessible to youth in rural Tanzania as producers need to locate potential buyers and identify where people are willing to pay higher prices for their produce.

According to Reasech Conducted by the International Institute of Tropical Agricultural (IITA) -implemented under the CARE project, revealed that access to agricultural market information through mobile phones–ICT, can raise returns and make agriculture attractive to more youth in rural Tanzania.

According to Sassi Akinyi areasecher under the IITA ,the adoption of ICT by the youth in the Agriculture Sector will help reduce unemployment and promote rural development. The study, which is part of several others carried out by young researchers under the CARE project in 10 countries across Africa, has revealed factors that negatively affect women's intention to use ICT, especially to access market information.

Sassi states that using mobile phones to post havests offers of farm produce for sale and accessing bid prices in different markets can help farmers in rural Tanzania make more profitable and sales.

The study also showed that cultural stereotypes negatively affect mobile phone use among women, an area that policy makers can consider when promoting ICT among young farmers.

While many government's in Africa are working on various agriculture interventions for youth, the study has recommended the need to prioritize gender issues and other determinants of intention to promote the use of ICT in agriculture.

While the CARE study has revealed that using mobile phones for finding agriculture market information was higher among female farmers than males in rural Tanzania, several factors influenced the adoption, such as an increased access to valuable market information and ease of use.

The mobile phone affords rural farmers access to a large amount of agricultural information to improve their farming activities and, eventually, their livelihoods. It also provides the possibility of linking other parts of the country or the world to resources to help their farming practices.

According to Sassi, for widespread adoption of mobile phones to occur among young Tanzanian farmers, policy makers need to create enabling conditions, which include network service access as well as orientation on the economic benefits of adopting it.

Marel Manufactures 3,000,000Th Poultry Shackle

Hugo van den Elshout, who's responsible for the shackle production at Marel Dongen for already 33 years, is proudly showing the 3,000,000th shackle.

In December 2020, Marel's manufacturing site in Dongen released its 3,000,000th poultry processing shackle since production began in 1987. A shackle may seem a simple metal hook, but in fact, it is a truly essential component in the poultry industry.

A shackle in an overhead conveyor is like a freight car on a railroad, responsible for the safe transportation of products from one point to another. It's a cleverly designed construction, fit to hold the legs of all thinkable chicken species and sizes around the world.

For Marel – Stork at the time –, Hugo van den Elshout took up the job to construct the shackles in 1987. Back then, the production was mostly done manually on an anvil, like in a blacksmith shop. That process has evolved significantly in the last three decades. Today, advanced machinery, including a hydraulic press, a bending machine and a welding robot, is used to produce shackles.

Facts and figures

Marel started the specialized production of shackles in Dongen back in 1987. The milestone of the first million pieces was reached in 1998. In 2011, the 2,000,000th shackle was produced. On average, about 90,000 pieces per year leave the factory, some 350 shackles on a daily basis. In top seasons, this number can increase up to 550 shackles a day. For the production of 3 million shackles, it took some 1,950,000 kilos of material; this is about the weight of 1,950 Suzuki Swift cars. When stretched out, all of the used material would extend from Dongen (the Netherlands) to Malaga (Spain), which is more than 3855 kilometers.

Personificaction

Today, with 33 years of experience, Hugo van den Elshout is still Marel's own unwavering "Captain Hook", making sure that every shackle leaving the factory is of highest quality and in pristine condition. In this respect, Hugo is the personification of Marel's reliability and consistency.

Kenya Joins South Africa And Zambia In Digitising Seed Certification And Plant Variety Protection

KEPHIS' automation of the seed certification and plant variety protection processes is part of its long-term ICT strategy.

Kenya has officially launched the automated Seed Certification and Plant Variety Protection (SCPVP) System. With this, the country becomes the third in Africa, after South Africa and Zambia, to digitise its seed certification and plant variety protection processes.

The seed sub-sector contributes significantly to Kenya's economic growth and development. Agriculture is a major employer and providing the farming community with certified seed for production is critical. In the last four years, the Kenya Plant Health Inspectorate Service (KEPHIS) has certified more than 213,000 tonnes of seeds.

However, while the certification process is very well defined, both in practice and the law, the activities have largely been coordinated manually. This has brought about a number of challenges, including long and costly business processes, duplication of records and inefficient traceability and monitoring of certified seed.

Also, the plant variety protection process has had its fair share of challenges owing to manual processes. They include inability to track seed-lots of certified seeds from production to the market; difficulty in producing accurate and adequate statistics and other market data on certified seeds in the country; duplication of data and effort; and the inability of farmers and other stakeholders to verify data.

Therefore, in 2018, KEPHIS entered into a partnership with TradeMark East Africa (TMEA) to address these challenges through automation of the seed certification and plant variety protection processes. The system has been piloted since May 2020, with 118 seed merchants, 534 seed growers and 164 seed sellers across the country taking part. The system is now ready and the following benefits are anticipated:

Increased compliance levels among seed stakeholders, given that the automated system will validate information submitted by traders, thus leading to increased transactions.

Improved efficiency in the delivery of certificates and reports to seed companies and breeders, thus facilitating trade.

Improved retrieval of data and statistics on certified seed due to centralised management of information and transactions.

Improved efficiency in the export and import processes due to decrease in the number of systems interactions.

Improved revenue from seed certification and plant variety protection activities.

At least 15 percent reduction in the costs related to transactions, that is, direct (statutory costs) and indirect (borne by the trader) costs.

Seed certification facilitates the supply of high quality seed to farmers; seeds that are true to identity, high in purity and germination capacity and free from pests and diseases. This is achieved through field inspections of seed crops during active growth stage, processing inspection, sampling and testing at KEPHIS laboratories.

Certified seed must meet the minimum quality standards as stipulated in the Seeds and Plant Varieties Act (Cap 326 of the Laws of Kenya).

All seed companies must be registered with KEPHIS. The companies are required to appoint agents and stockists with the knowledge, ability and facilities to maintain quality and viability of seeds supplied for sale.

KEPHIS' automation of the seed certification and plant variety protection processes is part of its long-term ICT strategy.

The other automated processes are the Electronic Certification System (ECS) and the Import Certification System (ICS), used for export and import of plants and plant materials respectively.

KEPHIS is also at the advanced stages of developing the E-Phyto, which enables the electronic transmission of the phytosanitary certificates (also known as plant passports), used to export plants and plant material. It reduces fraud, forgeries and delays in clearance at destination markets.

The E-Phyto has been adopted at the global level for safe trade facilitation, and Kenya was among the eight countries worldwide to adopt the system. In this way, KEPHIS has facilitated business and promoted plant trade for Kenya.

Learn How To Best Prepare A Vegetable Garden

What's more rewarding than watching the birdfeeder in your backyard or even attracting a handsome little hummingbird with sugar-water nectar? (Not going to lie, both of those are pretty rewarding…) Reaping the seeds that you sow yourself. Yes, I'm talking about gardening.

In my personal experience, there are two types of people: People who garden and people who are convinced they can't garden. But really, you can start learning at any time. It may seem difficult — after all, you're growing things, like from scratch, out of the dirt! — but with a little bit of TLC, you can do it. Whether you choose the lazy gardener's route, grow your own veggie garden in upcycled bottles, or stick to the old-fashioned way of gardening, you can totally prepare a vegetable garden — one that grows and even thrives.

Ready to get started on preparing your vegetable garden? Keep reading!

Are vegetable gardens worth it?

Can you believe this is one of the top questions people ask about vegetable gardens? "Is it worth it?" Here's our answer: Plant your own seeds, water your seedlings every day, transfer them to a greenhouse, pick your veggies, use them to cook dinner, and tell us: Was it worth it?

Consider this: During the coronavirus pandemic, gardening has seen a dramatic spike. A trend has even started of people calling the gardens they've started during the COVID-19 outbreak their "COVID Victory Gardens." And for good reason! Actually, reasons — plural. First of all, the COVID outbreak resulted in many grocery stores receiving limited resources and with a garden, you can simply make your own food resource and grow your own. Secondly, the act of gardening is therapeutic.

In fact, it's backed by science. According to CNN, being in nature in any capacity — whether it's taking a walk in a park, a hike through the woods, or even just living near nature — can calm intensified states of mind and slow down blood pressure, stress hormones, and your heart rate. But the same article points out that gardening specifically offers something even deeper, which is why it's often referred to as "horticultural therapy."

It makes sense, right? Just as taking care of a pet can inspire feelings of value and purpose, acting as a caretaker to plants can improve mood, quicken recovery time for patients receiving medical care, and can reduce stress.

All of that on top of your freshly grown vegetables! So, is making a vegetable garden "worth" it? You weigh the benefits!

How to prepare a vegetable garden bed:

While some people might think you can just skip right to buying the seeds, there is actually a bit of preparation that goes into getting a garden bed ready for vegetable planting. The most important part of prepping your vegetable garden bed is getting the soil ready.

You will need to start with a high-quality soil. Believe it or not, not all soil (or dirt) is created equally, especially when it comes to gardening. In order to grow, vegetables need to be planted in high-quality soil that is going to give them the nutrients they need to thrive. For this reason, skip the topsoil — it's some of the most cheaply priced and cheaply made soil. Instead, find a soil that has a lot of organic matter and nutrients. If possible, opt for organic soil.

If you have an existing garden plot, you are probably ready to prep your soil. Don't have a designated garden yet? Skip down to the next section for tips on starting your vegetable garden from scratch.

Prep your soil by removing all grass and weeds. When you pull weeds and grasses, make sure to get them by the root, or else they will just grow back again. Next, add edging to your garden as a boundary; it prevents weed and grass from getting in and as long as it's wedged into the ground well, keeps weeds and grass from growing underneath it, too. Edging could be anything from a black plastic bumper to bricks or concrete bricks. Next, you want to build the best garden soil possible. This starts with a great base: in other words, hopefully a high quality soil. But high quality soil on its own isn't enough. You'll also need to add organic soil amendments. If you have clay soil, you'll want to add compost — a natural fertilizer composed of decaying organic matter. If you have a lower quality soil, you might need to add even more compost. Compost is a fertilizer, but you might also want to opt for adding a second layer of fertilizer, an organic fertilizer specifically designed to treat vegetable gardens. Plant food

Learn How To Best Prepare A Vegetable Garden

and organic worm castings work well, too.

Thought we were done? Not quite! Tilling the soil is totally optional, but it might be a step you want to consider. Tilling is a type of agricultural preparation that ultimately cultivates the soil, as in, it mixes the soil amendments you added in the last step with the garden soil that was already present and breaks things up, making it easier for roots to grow deep in the soil.

The last step is adding a layer of mulch. (There's a reason every garden in your neighborhood reeks every spring; people are prepping their gardens for the warmer weather!) Compost and other organic soil amendments really should not take the place of mulch; mulch fights off weeds and retains the perfect amount of moisture in the soil. With mulch, you'll find yourself watering your garden less and your plants growing bigger and stronger over time.

With all that preparation completed, your garden is now ready for planting seeds.

How to prepare a vegetable garden from scratch:

If you need to plan your garden plot, start by mapping your garden out on paper. You'll want to take care to account for how much space and materials you will need.

When mapping out your vegetable garden, plan to group alike vegetation together: green vegetables in one area, herbs in another, root vegetables in another. Often, the same kinds of plants require the same kind of care. If one root vegetable requires X amount of sunlight and X amount of watering, it's a safe bet that another root vegetable requires that, too. Speaking of sunlight, that's something to consider when choosing the location of your vegetable garden. According to SF Gate, veggie gardens in the Northern Hemisphere should face south for the most sun exposure throughout the day. If that's not possible, face your garden toward the west.

You might also want to use raised beds. Raised beds make it easier to group like-minded vegetation, as with raised beds, you can designate specific types of seeds to each distinguished bed. Bonus? Raised beds typically have better drainage.

Also consider adding trellises to your vegetable garden. Trellises are not only aesthetically pleasing, but they serve an important function when nearby growing vegetables. Veggies such as cucumbers, peas, pole beans, squash, sweet potatoes, and tomatoes are what's considered "vining" veggies, meaning that their vines will grow up the trellis, causing the veggies themselves to climb up the trellis on the vine.

Now that your vegetable garden beds are all set, refer back to the previous section for preparation of soil.

Can vegetable gardens grow in shade?

It's a tricky question. While, yes, some vegetables tend to thrive in shade — particularly vegetables with big leaves and roots — a vegetable garden really should face southward (in the Northern Hemisphere, SFGate reports). Facing your vegetable garden southward ensures that your veggies receive the most exposure to sunlight throughout the day, but if facing south is not an option, you can face it toward the west.

Whatever you do, avoid facing your vegetable garden toward the north. When facing north, your vegetable garden will receive the least amount of sunlight of all the directions. While the shade might help some vegetables — like cabbage, lettuce, spinach, beets, leeks, potatoes, and turnips — grow, overall, a vegetable garden needs a decent amount of sunlight.

Can vegetable gardens be grown in pots?

If the whole outdoor-garden-plot thing isn't for you, many vegetables can be grown in pots. Luckily, vegetables aren't too picky about the containers they grow in. (You can even grow veggies in upcycled wine bottles for the world's smallest garden!)

While it's probably best to avoid containers made of terracotta (the material itself retains water) and treated wood (the chemicals could leach into the plants' roots) according to Better Homes and Garden, the main requirement for picking containers for your vegetable garden is that they're big enough. Once you have a large enough pot, you're good to start planting.

Are worms good for vegetable gardens?

Earthworms can be very beneficial for vegetable gardens, according to SF Gate. The presence of worms in your veggie garden could increase air flow for the soil, increase nutrients, and promote the growth of "good" bacteria. (Yes, there's such a thing as good bacteria in a garden!).

The Eco Friendly Ocean Guide:
Ways To Sustain Oceans And Sealife

By Gabrielle Whitney

Introduction

The ocean is by far one of the most important that we have here on earth. These massive expanses of water cover a whopping 71% of the earth. They contain some key species and ecosystems that keep our planet going. Every creature and thing on earth relies on the ocean to survive.

Sadly, the ocean is in danger as a result of things such as climate change, over fishing and pollution. It may seem daunting, but one action, one person has the power to make small steps towards changing the world and saving our ocean. As long as we all do our part for ocean sustainability, we will be on our way to a healthier ocean and planet.

Here are some of the key things that you need to know about ocean sustainability and how you can help.

There are so many reasons why the ocean is important to our day to day lives. Just to begin with, the ocean actually creates over half of the world's oxygen. This oxygen is created by a little plant called phytoplankton. This little plankton behaves in a similar manner to our trees. It absorbs the carbon dioxide, and then it releases oxygen. These little creatures are some of the smallest marine life on the planet, but they are so very vital to keeping us alive.

Furthermore, the ocean covers a large part of the earth's surface. This means that it's vital for regulating the climate, as the ocean is what moves the heat from the equator into the poles. This has a huge impact on our weather and climate in general. Without our ocean to help regulate the temperature, certain areas are susceptible to experiencing extreme weather, and this means that there will be some areas that simply are not habitable. The ocean is also able to regulate droughts and rain.

The ocean is home to many different creatures, and in fact, a lot of different creatures depend on the ocean. We don't even know about all of them yet, that's how vast the ocean is! Every single creature in the ocean plays a big role in the ecosystem.

The ocean is also a huge food source for human beings and other animals alike. In fact, the ocean is one of the main sources of protein on the planet, accounting for around 15.7% of the animal protein that people eat around the world. Not only that, but the ocean is also responsible for algae and sea planets, which are often used for cooking things such as sushi, dulse and sea grapes.

In a slightly less dire situation, we also simply enjoy the ocean. To begin with, the ocean is close to many of the best holiday destinations. When we are by the ocean, we can swim, sail, surf or simply just relax next to the sparkling ocean. Things like cruises also couldn't happen without having the ocean! Hanging out by the ocean is a great way to connect with other people outside of the emphasis on technology.

Another thing that you may not know is that the ocean actually has many therapeutic properties. Certain medications come from underwater originally. Seeing, smelling or feeling water often makes us happier and more peaceful. Being near the ocean has actually been proven to directly affect our moods.

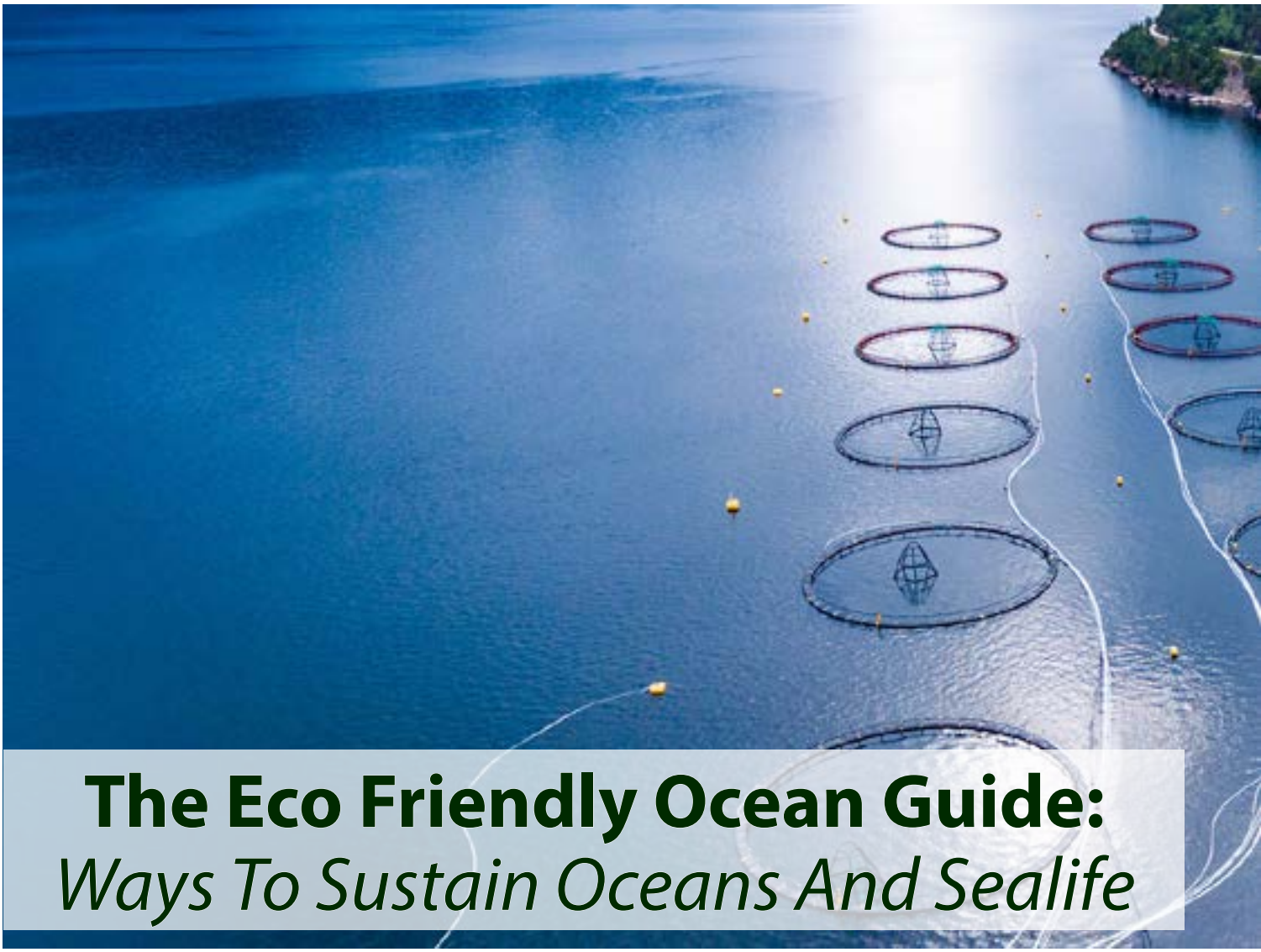
Finally, the ocean is responsible for a lot of jobs. In fact, many careers are related to activities in the sea. The sea is responsible for jobs such as sailors, fishermen, biotechnology, shipbuilding and repair, offshore gas and oil and transport in general.

How Does Our Daily Life Impact Ocean Conservation?

The planet is comprised of over 7 billion people, so it's only natural that we have a large impact on the ocean. We are having a lot of positive impacts on the ocean, but unfortunately a lot of negative ones too. Our constant burning of fossil fuels can result in ocean acidification.

In addition to this, the ice in the sea has been melting at a more consistent rate over the years that have gone past as a result of climate change. This is great for humans because it means that boats can travel through the arctic more easily, but it's not great for the animals and in the ocean. No sea ice is damaging for certain arctic animals such as polar bears and the walrus.

The increased amount of boats also means that there's a higher risk of noise pollution. This can interrupt communication between animals, and can cause physical damage to their hearing. This is actually pretty dangerous, though it may not initially seem like a huge deal.



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Furthermore, greenhouse gas emissions can increase how acidic the ocean water is, which can impact on the growth of certain plants and animal species in the water.

Another key problem comes down to overfishing of species. Some fisheries choose to gather marine life for food in very drastic ways, including mass scale fishing operations. As a result of this, some larger fish species have reduced in population over the years, and this can interrupt ocean food chains. As you may imagine, this causes havoc in marine ecosystems.

Ocean pollution can have a huge impact on marine life too. Things like trash can kill many marine creatures, and oil spills can be toxic to fish and other marine species. This has wiped out massive amounts of fish through the ages.

How Ocean Conservation and Sustainable Living Are Linked

By changing our habits and how we behave, we can have a big impact on our planet. Ocean Conservation is all about protecting our oceans from any further damage and helping to keep them healthy. Living sustainably means that you aren't using unnecessary resources, or making more environmentally friendly choices where you are able to. This can come down to choosing products that use recyclable packaging, for example, rather than plastic. It could be reducing your food waste, or it could be taking the bus or train instead of driving to reduce the number of fossil fuels used.

Sustainable living, then, is closely linked to conserving the ocean. As we've already discussed, things like using fossil fuels can have a bit impact on the climate and as a result, on the ocean. By living in a considerate way on land, we protect our fellow creatures that live in the sea, we preserve the ocean resources so that they can be enjoyed and experienced for many years to come.

Ocean Conservation is, in a way, an extension of this. Ocean conservation could be making sure that you check the label on your sea items to check that they have come from sustainable fishing. You could do small things like volunteering to help with a beach cleanup – the possibilities are truly endless.

Eco Friendly Habits that Prevent Ocean Degradation

It's possible to make the ocean a happier place if we all work on creating more eco friendly habits. Even changing just some of your habits can help to preserve the ocean in the future. Of course, there are a lot of things that you can do to help to save the ocean from degradation. Here are a few of the things that you can do to live more sustainably and protect our planet.

Reduce Your Carbon Footprint

Reducing your carbon footprint is a great way to help to save our oceans. You can do it in a number of different ways, too. To start with, you've probably heard all about the 3 R's before, but if not – we're here to remind you! Making sure that you reduce, reuse and recycle can help to manage waste in a sustainable way. Actually though, there are 5 R's that you should remember, with the final two components being refuse and rot.

When we say refuse, what we mean is that you should stay away from any single use plastic, or any paper products. This means opting for products that have reusable packaging. This means that there are less things to go to landfill, which ultimately means less waste.

Reduce essentially means to buy less of what you were originally planning to purchase. This requires some awareness of the things that you actually need and are going to use, rather than just buying things in bulk that you aren't going to use.

When it comes to reusing, things can get a little more fun. When you are reusing an item, you're trying to find a way to avoid throwing an item away and giving it another use. For example, you could reuse a plastic bottle as a vase – you could even decorate it (with sustainable things, of course!). Why get rid of that slightly worn down TV cabinet when instead you could upcycle it to make it look brand new? This is pretty handy for people that are trying to save money too, as all you need is a new lick of paint to make things look fresh and new in an instant.

The next component is rot. To enact this part, you could invest in a compost system where you can put any scraps of food, or you could also try to find a food scrap drop off center near to you.

Finally, recycle! If you have no way of refusing, reducing or reusing an item, then make sure that you recycle the item properly into the appropriate recycling bin. You may need to do some research on your state's recycling laws.

You can also use more sustainable travel options, such as cycling to or walking to work instead of getting the car. This can also help you to stay active. If you are unable to cycle to work, try taking public transportation instead.

You should also make sure that you manage your utilities in a sustainable way, such as turning off any appliances when you aren't using them, using lower thermostat settings and using sustainable fluorescent lightbulbs in your home. You could also change the way that you consume energy, for example using green energy such as solar and wind instead.

Sustainable Water Use

Water is precious, and you should try to avoid using more of it than you actually need! Not only that, but you should save a few dollars every year because you aren't using as much water. Conserving the water we get from the ocean is as simple as a few small habits.

To begin with, make sure that you turn off your tap whenever you aren't using it. There's no need to keep the water running when you are doing things such as shaving or brushing your teeth. In fact, keeping the water running for tasks such as these can waste around 4 to 5 gallons of water on average. Instead of doing this, maybe you can just plug the sink when you are shaving and remember to turn the water off until you are ready to have a wash.

You should make sure that you are sensibly using your water in general. For example, soak your dishes in the warm water rather than just scraping them off under running water. When you are using your dishwasher or doing the laundry, only do so when the machines are full. There's no need to use these items if the machine is only half full. Besides, you will also get better value for money! You can also try to spend a little less time in the shower, or fill the bath up to half way instead of completely full.

When you're out in your garden, try to make sure that your sprinklers and hose are watering the actual lawn, rather than your house or the sidewalk to make sure you're getting the best use out of it. You may also wish to use more energy efficient devices that help you to save waters. For example, a low flow shower head if you like to partake in a long shower. You may also

The Eco Friendly Ocean Guide:
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wish to get a low flush toilet which users less water in a flush but they still work just as well.

Limit Your Use of Single Use Plastic

Reducing the amount of single use plastics that you use from your life is a great way to start living a more sustainable life. The ocean is full of plastic, and it's a real problem. Thousands of animals die every year because of discarded plastic, whether that's because they have ingested the plastics or because they have gotten tangled up in them.

One simple thing that you can do is switch from single use plastic bags to reusable plastic bags. You can find sandwich bags that have zip locks, and you can simply wash them and reuse them again and again. This is ideal for use in a sack lunch or for work.

Instead of getting a bottle of water in a plastic container from the vending machine, you can save the planet and your wallet by simply investing in a reusable water bottle. In fact, there are many of great options on the market that can keep your drinks cool or hot. You could probably keep one out in the sun for hours and your drink will still be ice cool.

Speaking of drinks, stay away from those plastic straws when sipping on that ice cool lemonade! If you're a big fan of straws, there are some fantastic glass straws, or straws made out of stainless steel that you can reuse. A lot of food places will also use things such as plastic cutlery and containers for takeaways, so if possible you should try to bring your own cutlery if you know you will be eating out somewhere tand they don't have sustainable materials for their cutlery.

Instead of grabbing a plastic bag from your local grocery store, you can instead bring your own bag. Many stores will have large bags that you can use to carry your groceries in that you are able to reuse wherever you want to, both inside of the store and in other places too. Primarily, you should avoid using the plastic bags if you are able to.

Buy Ocean Friendly Products

When you're buying a product, always take a moment to check whether that product has been designed to be ocean friendly. Some products may contain harmful ingredients that are not good for marine life or the ocean eco system, such as certain sunscreens.

Things such as microplastics from various items such as body wash, clothes and toothpaste can make their way into the ocean through your wastewater. Sadly it simply isn't possible to recover them becaus they are small, so check whether these items contain microplastics.

Pay attention to the different ingredients included in a product. Any company can advertise that their product is marine or eco friendly, but looking further into the ingredients they use may tell a different story. Check to see if the product has any certain certifications or labels that will tell you whether it's marine friendly.

Some ingredients in things such as luxury products are made out of species such as tortoiseshell or coral that are in danger of extinction, so it's important to be extra vigilant when shopping. Avoid any cosmetics that may contain shark squalene, souvenir conch shells, and nautiluses and other animals. Stay away from any hair accessories made out of tortoishells or cosmetics that contain traces of teeth and fins.

One thing that you should stay away from in particular is products that contain microbeads. These things can negatively affect many marine creatures. You can stay away from any products containing polythelene or polypropylene on the labels as these usually contain microbeads.

Keep the Coral Reef in Mind

Whether you live close to the sea or not, you have a responsibility to take care of our coral

reefs. Taking care of the coral reefs doesn't have to be difficult!

Make sure that when you are visiting coral reefs that you are responsible and safe when you are snorkeling and diving. Ensure that you don't touch any reefs when you are diving, and make sure that you don't anchor your boat on the reef. By contacting the reef you may end up damaging the coral animals, and an anchor may kill them. If you are able to, park your boat using a sandy bottom or use moorings if you are able to.

You should also try to use a reef friendly sunscreen. There are some ingredients in sunscreen that can harm corals, so make sure that you educate yourself on the safer choices for coral. Avoid sunscreens that use oxybenzone and octinoxate as their main ingredients, as they can be toxic to corals. Try to instead opt for sunscreens with non-nano zinc oxide as the active ingredient.

You can also make sure that when you are taking care of your lawn that you choose to use green products for pesticides and fertilizers that aren't going to harm the marine life and coral reefs.

Consider Your Travel Methods

When you are next planning on traveling, make sure that you book through a travel company that is committed to protecting the wildlife of the ocean, and make sure that they employ guides that know all of the best practices and rules to keep our planet safe. Make sure that when you are traveling you are also respectful of the marine life and environment.

Be a Responsible Pet Owner

You may not realize it, but your actions as a pet owner can have a huge impact on the ocean. For instance, cat litter can be rather harmful to the life under the ocean. As a result of this, it's important that you don't just flush it down the toilet, because it can get into the ocean with the rest of your wastewater.

In addition to this, when you are trying to buy pet food, have a look at the labels to make sure that the ingredients are safe for the environment.

It extends from just furry pets too! If you have a fish tank in your home, make sure that you don't buy any wild caught saltwater fish. It's also important that you don't release a fish that isn't native to the area into the ocean. It can mess with the marine eco system in that area.

Things You Can Do to Help Ocean Conservation

In addition to changing our actions in every day life, there are also things that we can do to directly help to save the ocean.

Sustainable Consumption of Sea Life

Understanding how to consume sea life in a sustainable way is the first step to making sure

that we protect the creatures out in the ocean. That often starts with sustainable fishing and selecting products from fishermen that practice sustainable fishing.

So, what is sustainable fishing? Sustainable fishing is designed to ensure that there will be plenty of ocean wildlife still remaining in the future. Sustainable fishing has a number of advantages. The most obvious advantage is that sustainable fishing helps to protect marine life by preventing over fishing. Sustainable fishing has particular methods to ensure that no animals are harmed, and there is no waste with it either. It also creates less waste.

Sustainable fishing consists of essentially asking yourself a number of questions when fishing to make sure that no marine life is harmed in the long term. If you are going fishing, clarify whether there are actually enough fish left in that ocean area. It's important that the fish in the area are not taken in abundance to ensure that the fish population remains healthy.

Choosing the correct fishing method is also important too. There are a number of sustainable fishing practices. For example, hook and lining, where you catch a fish on a pole, is a sustainable practice as it means that fishermen are able to release bycatch quickly, creating less waste. Other methods include harpooning, trolling, traps, purse seining and longlining.

When fishing, you should make sure that you use tackle without lead as lead can cause some health issues for the wildlife if it gets swallowed. In fact, it can also kill certain birds. You should also practice catch and release fishing if you are able to. When you are fishing, also make sure that you are using all of what you catch. If you eat what you end up catching, you can turn some of the remaining parts that are not edible into compost to keep your lawn fed.

Safe Fish List

When you are buying seafood products, you should also make sure that any fish are on the Safe Fish List. There are thousands of fish that are safe and sustainable to eat. In order to find out if it's on the safe fish list, look out for a MCS or MSC label which will tell you as much. Some examples of fish on the safe fish list include tuna, cod, haddock, prawns and mackerel. Some fish to avoid are Peruvian anchovies, Bream and cockles.

Dispose of Litter Near Beaches

The more people that go to the beach, the more potential litter there will be. This means that trash can take up the beach and make its way into our precious oceans. This can be easily avoided by simply picking up your litter and putting it into a trash can instead of onto the floor. It takes very little time to do and it's certainly worth a couple of minutes of your time at most.

If you can, you should also try to encourage friends and family members to follow in your footsteps to ensure that no litter gets into the ocean. In fact, if they see you putting your littler in the trash can they may be more likely to do the same, reducing the amount of litter cluttering up our ocean.

If possible, make sure that you also recycle any litter that you have. Try to clean up any litter that you see too, as that can make a massive difference. You'll often find that if other people see you trying to make a difference that they will too. It could even be a good bonding experience!

In addition to all of these things, it's also important to make sure that if you smoke you are disposing of your cigarette butts correctly. You may not think this to be the case, but cigarettes

are harmful to the ocean. Cigarette filters contain thousands of little chemical ingredients. These ingredients are very harmful to marine and freshwater fish. By correctly disposing of your cigarette instead of throwing it on the floor, you are helping to save the ocean.

Join a Beach Clean Up

Sometimes people just don't remember to put their trash away, or are simply too lazy. To rectify this issue, there is a way to do your part to save the ocean while also bonding with others. Participating in a beach or a river cleanup can be hugely beneficial to making sure that our oceans are kept nice and clean. You may wish to just go to a beach and collect the waste on your own or with your loved ones. Otherwise, you may also wish to support an organization with its cleanup. There are some massive cleanup events out there that are definitely worth supporting.

So, what happens in a beach cleanup and what do you need to know? Well, to start with, it's definitely worth investing in a decent pair of gardening gloves. These will help to make sure that your hands don't get too dirty. The organizer may provide you with these but you may feel more comfortable with a pair of your own. You may also wish to bring a bag with you, containing waterproof clothing, drinks, snacks and some reef safe sun lotion. Be prepared for it to take some time, though they generally last between one to two hours.

When you are at the cleanup, there are also some guidelines to consider. First of all, make sure that you keep an eye on the tide. If it's an event set up by an organization the tide will likely have been checked anyway, but if you've arranged it yourself then this is something you will need to monitor. Be careful when walking, especially on slippery rocks or muddy areas. Be wary of any glass, needles or syringes you may encounter. You should also make sure that you bring a first aid kit with you in case of any accidents, at least if you are organizing the event yourself.

If you enjoy going diving, you can also help to get rid of any waste that's under the ocean's surface. You could even arrange a group meetup to do this.

Take Measures to Prevent Oil Spills

If you are driving your own boat or know a friend or family member that is, you should also make sure that you take measures to prevent any oil spills. Oil spillages usually tend to happen during refueling and bilge discharge.

Proper maintenance of your watercraft is essential for ensuring that you prevent oil spills. Make sure that you tighten any bolts on the engine in order to stop oil leaks, as bolts can sometimes shake loose when the engine is running. Also make sure that you replace any damaged hydraulic lines and fittings before they get to a point where they fail. Sometimes lines can disintegrate gradually from exposure to the sun and heat, so it's important to make sure that you check on them on a regular basis.

In addition to this, make sure that you get a drip pan or an oil tray for your engine. Something simple will suffice for this, such as a paint tray.

When you are fueling up, try to avoid any overflows when you are refueling. You can do this by having an awareness of your tank's capacity, and make sure that you have enough room to expand on the fuel. You should also make sure that you turn your bilge pump off when you are fueling your vessel, then turn it back on once you are finished. To catch any drips, use something absorbent.

If you do end up spilling some oil, make sure that you manage any spills in the correct manner. You should try to contain them and then clean them up using some absorbent pads. You should let your coastguard know about it in addition to your state spill response office. You need to let the fuel dock staff know that it has happened too so that it can be dealt with appropriately.

Support Marine Conservation Organizations

Spreading the word about the great organizations dedicated to changing the future of our oceans can be a great way to help out. Simply speaking out can be enough, whether this is over social media or in an event. You should tell your friends and family about your favorite organizations. Redirect people to documentaries or information produced by these organizations.

Many of these organizations rely on the donations of environmentally conscious individuals like you in order to keep them running. Even a tiny donation can make a big difference, especially if thousands of people just like you are making donations. Charity fundraisers and other events can also be very helpful.

Brush Up on Your Ocean Knowledge

Knowledge is power, and that's certainly the case when it comes to conserving the ocean. The more information that you know about the ocean the more change you will be able to incite. We live in an age of information, so there are a bunch of different ways that you can educate yourself on marine life and the ocean. You can check out documentaries and wildlife conservation websites, books, art exhibits, museums and so much more. If you teach, there are also resources online to help you to spread the word to your students or anyone else that's interested in knowing more about the ocean.

Some other things that you can do to help include volunteering to teach people about marine conservation. There are plenty of courses out there to teach you more about it. In fact, you may even wish to pursue a career in the field. Even just raising awareness can make a massive difference in changing the world for the better.

We still don't know everything there is to know about the ocean, so it's important that our ocean is alive and healthy so that we can learn more about it.

Summary

As people that live on and enjoy the earth's wonders, we have a duty to protect it. Not only for ourselves today, but also for future generations, and for the other creatures that surround us. It may seem like such a huge feat to make a difference, but it doesn't have to be rocket science. As we've already covered, the ocean is responsible for such a large part of our day to day lives, it's imperative that we protect it.

You can start by taking small actions, like changing the way that you use your utilities, using fewer single use plastics where you are able to, and generally using less of the already limited resources.

On a larger, more direct scale, you can also help with direct ocean saving efforts. This can be by doing things such as buying sea products that have been sustainably sourced, avoiding any endangered species, organizing a beach cleanup or simply just supporting an ocean saving organization.

With the right knowledge and a large joint effort, we are all capable of making our planet a better place for tomorrow. One habit or action truly can make all the difference.

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Listings

Agricultural Consultancies
- ICS France
- Valtra Inc. - Africa

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

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

Animal Health Products
- BioPoint
- Socorex Isba SA

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

Automatic Chain Feeders
- Big Dutchman International GmbH

Bagging plant
- Bentall Rowlands Storage Systems Ltd.

Bale Handling Equipment
- Nogueira/Pan Trade Services Ltd.

Biofuel/Biodiesel
- Bentall Rowlands Storage Systems Ltd.

Briquetting Plants
- Alvan Blanch Development Ltd.

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

Cages & Batteries
- Big Dutchman International GmbH

Cassava Processing Equipment
- Alvan Blanch Development Ltd.

Centre Pivot Equipment
- Valmont Irrigation

Cocoa Production
- Alvan Blanch Development Ltd.

Coffee Processing, Handling & Storage
- Swingtec GmbH

Computers & IT Equipment
- Big Dutchman International GmbH

Conveyors and Elevators
- Awila Anlagenbau GmbH

- Big Dutchman International GmbH
- KEPLER WEBER
- Lubing Maschinenfabrik
- Gmbh & Co. KG

Coolers - Environmental
- Big Dutchman International GmbH

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

Cotton Handling & Storage
- Swingtec GmbH

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

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

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

Cultivators
- Baldan/Pan Trade Services Ltd.
- LEMKEN GmbH & Co. KG
- Poettinger

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

Disinfectants
- Intraco Ltd. n.v

Drills
- Maschio Gaspardo S.p.A

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

Dryers
- Alvan Blanch Development Ltd.

Egg Collection
- Big Dutchman International GmbH

Egg Layer Breeding Stocks
- Lohmann Tierzucht GmbH

Egg Layer Parent Breeders - Brown
- Lohmann Tierzucht GmbH

Egg Layer Parent Breeders - White
- Lohmann Tierzucht GmbH

Egg Layers
- Lohmann Tierzucht GmbH

Exhibitions and Conferences
- Fairtrade GmbH & Co. KG

Extruders for Food, Feed
- Alvan Blanch Development Ltd.

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

Feed Concentrates
- Intraco Ltd. n.v

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

Feed Ingredients
- Coprex
- Intraco Ltd. n.v

Feed Premixes
- Coprex
- Intraco Ltd. n.v

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

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

Feeding Systems
- Big Dutchman International GmbH

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

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

Fish Farming
- Socorex Isba SA

Fish Feeds - General
- Alvan Blanch Development Ltd.

Fogging Machines
- Big Dutchman International GmbH
- Swingtec GmbH

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

Food Processing Equipment
- F.H. Schule Muehlenbau GmbH

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

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

Fruit Processing
- Alvan Blanch Development Ltd.

Generating Sets
- Briggs & Stratton AG

Genetic Research
- Lohmann Tierzucht GmbH

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

Grain - Handling, Cleaning & Processing
- Alvan Blanch Development Ltd.

- Awila Anlagenbau GmbH
- Bentall Rowlands Storage Systems Ltd.
- Chief Industries UK Ltd.
- F.H. Schule Muehlenbau GmbH
- KEPLER WEBER
- Privé SA

Grains, Grain Projects & Edible Oils
- Bentall Rowlands Storage Systems Ltd.

Grasscutting Machines - Forage
- Bomford
- Nogueira/Pan Trade Services Ltd.
- Poettinger

Grasscutting Machines - Lawn
- Briggs & Stratton AG

Groundnut Handling Equipment
- Alvan Blanch Development Ltd.

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

Harvesting Equipment
- Alvan Blanch Development Ltd.
- Bentall Rowlands Storage Systems Ltd.
- Deutz-Fahr
- John Deere (Pty) Ltd.
- New Holland Agriculture
- Nogueira/Pan Trade Services Ltd.
- Bomford

Horticultural Equipment & Machinery
- Guarany Ind. Com. Ltd.
- ICS France
- Micron Group
- Swingtec GmbH

Horticultural Fertilisers
- Hebei Monband Water Soluble
- Fertilizer Co. Ltd.

Integrated Pest Management
- Omex Agrifluids Ltd.
- Swingtec GmbH

Irrigation & Drainage Systems
- Valmont Irrigation

Irrigation Equipment
- Eurodrip SA
- ICS France
- Valmont Irrigation

Maize Shellers
- Alvan Blanch Development Ltd.
- Bomford
- Nogueira/Pan Trade Services Ltd.

Manure Composters & Dryers
- PICHON

Material Handling
- Bentall Rowlands Storage Systems Ltd.
- PICHON

Material Handling - Bulk
- Bentall Rowlands Storage Systems Ltd.

Medicators
- Big Dutchman International GmbH

Micronutrients
- Omex Agrifluids Ltd.

Milk Replacers
- Coprex

Milling & Mixing
- Alvan Blanch Development Ltd.
- Big Dutchman International GmbH

Mills
- Alvan Blanch Development Ltd.
- Big Dutchman International GmbH
- Privé SA

Mills - Grain
- Bentall Rowlands Storage Systems Ltd.
- F.H. Schule Muehlenbau GmbH
- Nogueira/Pan Trade Services Ltd.
- Privé SA
- Silos Cordoba S.L.

Mills - Hammer
- Awila Anlagenbau GmbH
- Nogueira/Pan Trade Services Ltd.

Monitoring Equipment
- Valmont Irrigation

Oil Extraction Equipment
- Alvan Blanch Development Ltd.

Packaging Machinery
- Fairtrade GmbH & Co. KG

Palletizers
- Big Dutchman International GmbH

Pelleting
- Alvan Blanch Development Ltd.
- Awila Anlagenbau GmbH

Pig Equipment
- Big Dutchman International GmbH
- Lubing Maschinenfabrik
- Gmbh & Co. KG
- Symaga SA

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

Pig Flooring
- Big Dutchman International GmbH

Pig Health Products
- OLMIX
- Socorex Isba SA

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

Plant Protection Chemicals

- Omex Agrifluids Ltd.

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

Plastic Flooring, Poultry
- Big Dutchman International GmbH

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

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

Poultry Consultancy Services
- BioPoint

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

Poultry Equipment/Handling
- Bentall Rowlands Storage Systems Ltd.

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

Poultry Health Products
- BioPoint
- OLMIX

Poultry Housing
- Big Dutchman International GmbH
- Silos Cordoba S.L.
- Symaga SA

Public Health
- Guarany Ind. Com. Ltd.
- Swingtec GmbH

Pumps
- Briggs & Stratton AG

Rice Parboilers
- F.H. Schule Muehlenbau GmbHSAME
- Rice Processing & Milling Equipment
- Alvan Blanch Development Ltd.
- Bentall Rowlands Storage Systems Ltd.
- F.H. Schule Muehlenbau GmbH

Rice Threshers
- Nogueira/Pan Trade Services Ltd.

Roll-out Nests
- Big Dutchman International GmbH

Seed
- ICS France

Seed Cleaning Equipment
- Alvan Blanch Development Ltd.

Seed Planting Equipment
- Baldan/Pan Trade Services Ltd.
- LEMKEN GmbH & Co. KG

Silos
- Alvan Blanch Development Ltd.
- Awila Anlagenbau GmbH

- Bentall Rowlands Storage Systems Ltd.
- Big Dutchman International GmbH
- Chief Industries UK Ltd.
- KEPLER WEBER
- Privé SA
- Silos Cordoba S.L.
- Symaga SA
- The GSI Group South Africa (Pty) Ltd.

Slurry Disposal
- PICHON

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

Spare Parts for Fork Lift Trucks
Vellag Ltd.

Sprayers
- GOIZPER GROUP
- Guarany Ind. Com. Ltd.
- Jacto
- LEMKEN GmbH & Co. KG
- Maschio Gaspardo S.p.A

Sprayers - Crop
- GOIZPER GROUP
- Guarany Ind. Com. Ltd.
- Jacto
- Micron Group

Spraying Nozzles & Components
- GOIZPER GROUP
- Guarany Ind. Com. Ltd.
- Jacto
- Micron Group

Stored Products Protection
- Swingtec GmbH

Sugar Cane Equipment
- Case IH

Sugar Cubing Machinery
- Valtra Inc. - Africa

Threshing Machines
- Nogueira/Pan Trade Services Ltd.

Tillage
- LEMKEN GmbH & Co. KG
- Maschio Gaspardo S.p.A

Trace Elements
- Hebei Monband Water Soluble
- Fertilizer Co. Ltd.
- OLMIX
- Omex Agrifluids Ltd.

Tractors
- Case IH
- Deutz-Fahr
- John Deere (Pty) Ltd.
- New Holland Agriculture
- SAME
- Valtra Inc. - Africa
- Vellag Ltd.

Tractors - Spare Parts/Attachments
- Case IH
- Deutz-Fahr
- New Holland Agriculture
- SAME
- Vellag Ltd.

Trade Shows
- Fairtrade GmbH & Co. KG

Traders in Agricultural Equipment, General
- Vellag Ltd.

Turnkey Operations
- Bentall Rowlands Storage Systems Ltd.

Turnkey Operations
- Agricultural/Industrial Schemes
- Bentall Rowlands Storage Systems Ltd.
- Valmont Irrigation

ULV Spraying Equipment
- GOIZPER GROUP
- Guarany Ind. Com. Ltd.
- Swingtec GmbH

Vacuum Cleaners
- PICHON

Ventilating Equipment
- Big Dutchman International GmbH

Veterinary Products/Equipment - General
- Socorex Isba SA

Waste Disposal Equipment
- Big Dutchman International GmbH

Weed Control
- GOIZPER GROUP

Weighers - Animal
- Big Dutchman International GmbH
- Griffith Elder & Co. Ltd.

Weighers - Grain
- Griffith Elder & Co. Ltd.

Weighing - Sack Filling
- Alvan Blanch Development Ltd.
- Griffith Elder & Co. Ltd.

Weighing Equipment
- Big Dutchman International GmbH
- Griffith Elder & Co. Ltd

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