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3

Summer crop management Tips

21

To feed a growing world, we need to change our food systems now

37

How to control ticks at farm level

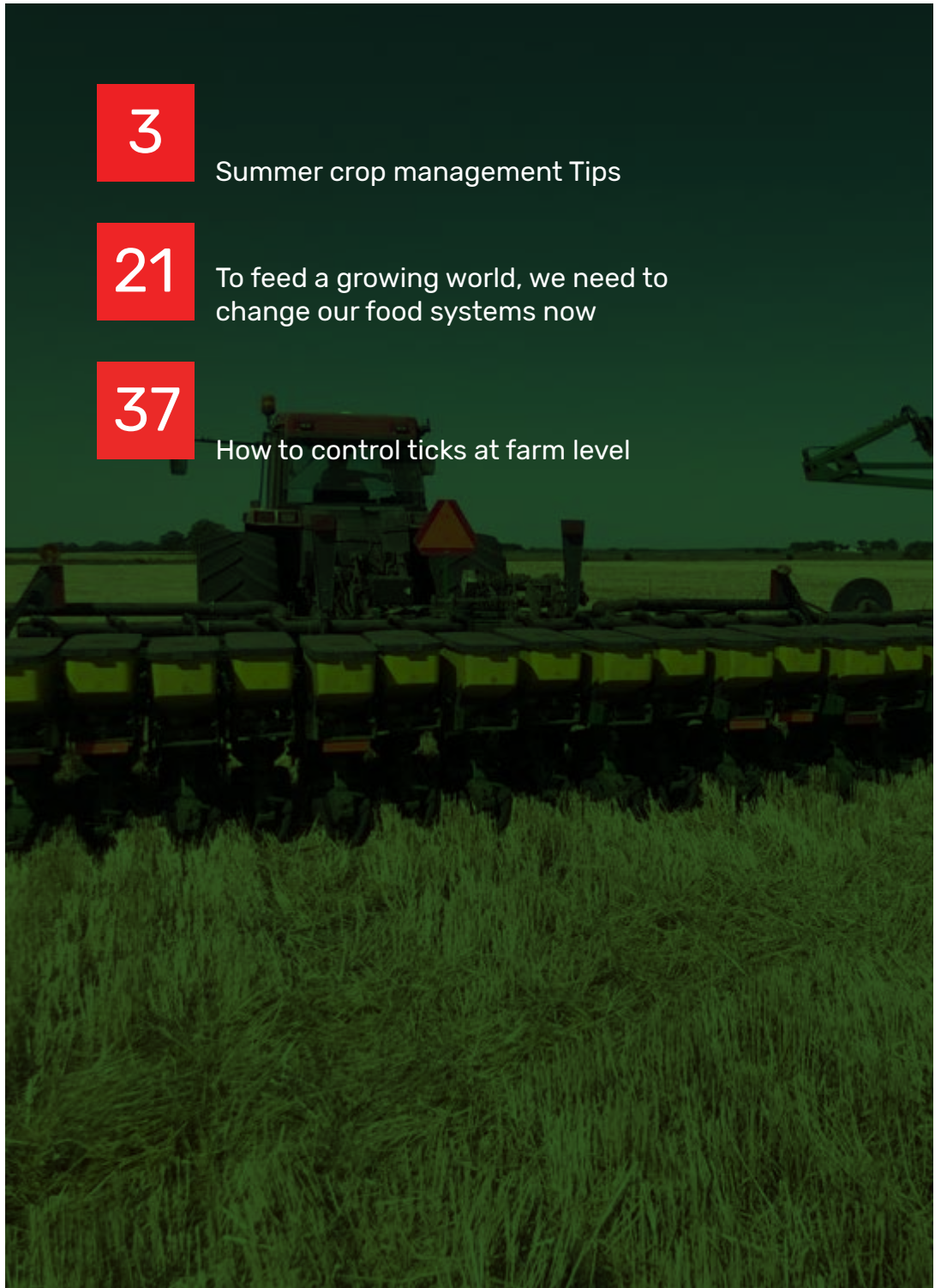


Table of contents

EDITOR'S NOTE AND CONTACTS	II
ABOUT THE PUBLISHER & CONTRIBUTORS	III
KNOWLEDGE INCLUSION – MOST IMPORTANT FORM OF INCLUSION	1
SUMMER CROP MANAGEMENT TIPS	3
'NO TILL FARMING WILL INCREASE YOUR PRODUCTIVITY'	5
HOW A VISIONARY IN RWANDA IS GROWING POTATOES IN THE AIR.....	7
A BEZOS-BACKED PLANT-BASED MILK MADE WITH AI, CABBAGE, AND PINEAPPLE IS NOW AVAILABLE AT WHOLE FOODS — SEE HOW IT'S MADE	9
HOW TO MANAGE RISK IN AGRICULTURE PART 2.....	12
UNPACKING THE NATIONAL DEVELOPMENT STRATEGY 1: 2021-2025 (NDS1)	14
SOIL FERTILITY MAP WILL BE LIFE CHANGING FOR AFRICAN FARMERS	17
INTERNATIONAL LAWYERS DRAFT PLAN TO CRIMINALISE ECOSYSTEM DESTRUCTION ..	18
ARE AFRICA'S AGEING DAMS DOOMED?	20

TO FEED A GROWING WORLD, WE NEED TO CHANGE OUR FOOD SYSTEMS NOW..... 21

WHY SMALL FARMS ARE KEY TO THE FUTURE OF FOOD – AND HOW WE CAN SUPPORT THEM..... 25

YOUNG AGRI-ENTREPRENEUR SHINES IN RURAL ZIMBABWE.....27

FINDING STRENGTHS IN LOCAL FOOD MARKETS AMID THE PANDEMIC..... 30

WHY VACCINES MIGHT NOT BE ABLE TO ELIMINATE COVID-19 32

WORLD AGRICULTURAL MARKETS FACE RANGE OF UNCERTAINTIES DUE TO THE COVID-19 PANDEMIC- REPORT 34

HOW TO CONTROL TICKS AT FARM LEVEL37

WIFE, HUSBAND TEAM UP TO SERVE THEIR COMMUNITY WITH HEALTH SERVICES, INFORMATION 39

JOBURG RESIDENTS HELP FEED THE HUNGRY WITH PAVEMENT VEGETABLE GARDENS 41

Editor's note and contacts

"Consistent with the collective aspirations and determination of the people of Zimbabwe to achieve an Empowered and Prosperous Upper Middle-Income Society by 2030, the Second Republic launched Vision 2030 to chart a new transformative and inclusive development agenda.

It is the pursuit of this vision which will deliver broad based transformation, new wealth creation and expanding horizons of economic opportunities for all Zimbabweans, with no one left behind.

"Pursuant to this, Government developed the Transitional Stabilisation Programme (TSP) to guide the reform process during the period 2018 to 2020.

Although we faced some challenges along the way, significant progress was made in the implementation of the TSP across its various pillars.

The next steps towards attaining the objectives of Vision 2030 will be guided by the interventions that the Second Republic is going to undertake through the National Development Strategy 1: 2021-2025 (NDS1), as we march towards achieving an upper middle-income society by 2030.

The NDS1 is our first 5-year Medium Term Plan aimed at realising the country's Vision 2030, while simultaneously addressing the global aspirations of the Sustainable Development Goals

(SDGs) and Africa Agenda 2063. The NDS1 is premised on four critical guiding principles."

I extracted this long quote from the National Development Strategy 1 foreword as I seek to draw your attention to the document that is expected to guide Zimbabwe economic development until 2025.

Maricho Magazine will be publishing sections of the NDS1 every month with a view to sharing this valuable information with our stakeholders. We will be analysing and monitoring targets under NDS1.

We encourage robust conversations on the NDS1 and invite you to send us your experiences, analyses and other contributions around this discourse.

In this first edition of the year, as we always do, carry content that we believe will help your business grow through well researched information.

Happy New Year.
Please stay safe,
#MaskUp #CoronalsReal

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Knowledge inclusion - most important form of inclusion

By Charles Dhewa

Digital inclusion, financial inclusion, gender inclusion and several other forms of inclusion have received too much attention over the past few years. What has been ignored is the mother of all inclusions – knowledge inclusion. All forms of inclusion are meaningless when knowledge existing within ordinary people and communities is excluded. What is worsening this dilemma in Africa is the fact that governments continue to confuse knowledge management with higher and tertiary education yet these are completely different processes although they sometimes overlap.

To the extent it tries to maximize capabilities of the academically gifted, the imported formal education system of which higher and tertiary education is a component, excludes the majority. On the other hand, knowledge management recognizes all forms of knowledge wherever they exist and that includes knowledge generated by communities as well as ordinary people as they strive to make a difference.

Knowledge management is conscious of the fact that African communities are good at providing a platform for people to recognize, preserve, and build on their many intangible cultural assets. While external knowledge systems imported through formal education do not have clear pathways for tapping into the knowledge held by retired knowledge workers, communities are adept at utilizing elders and retired knowledge workers in respectful ways.

Development will not be achieved without intentional knowledge inclusion

As we start 2021, African countries should revisit their knowledge agendas rather than continue with external research agendas that have been making it difficult for Africa to upscale and deepen its knowledge systems toward achieving inclusive development. For all countries in the world, natural endowments were the foundation of economic development. People started

by understanding how they could add value to natural resources for the purposes of economic development. Western countries had all the time to experiment and develop knowledge for exploiting their natural resources. These countries did not just depend on formal education but harnessed inclusive knowledge which they packaged for exploiting and turning natural resources into tradable commodities.

This is what is lacking in Africa. Western countries started trading their own knowledge through formal education which was extended to Africa, the main focus being to get manpower which could convert African resources into tradable commodities for the benefit of the West.

To the extent formal education was used to extract African resources, physical slavery has given way to intellectual slave trade. There is no doubt that the West has used formal education to access African knowledge. Vehicles and machines produced using natural resources from Africa are coming back to Africa as finished products instead of the machines and vehicles being manufactured in Africa.

The West went further and converted part of its knowledge into academia but hid the formula for producing tangible tradable commodities. This was part of extending Western knowledge to exploit African natural resources because Africans have not been smart enough to process their indigenous knowledge into tradable products using their natural resources.

No wonder most natural resources from Africa are being processed using external knowledge. As African countries process their natural resources using imported knowledge, whose agenda are they serving?

What is the science behind producing seed varieties in the laboratory and what is the nutrition content? It cannot just be a one-size-fits-all knowledge system because people are different depending on their context such that a single recipe cannot apply everywhere.

Western countries are interested in specific commodities not everything that can really lift masses out of poverty. There is no way, a country serious about lifting its farmers out of poverty can dream of doing so through growing sugar snap, flowers and other commodities demanded by the West. The West looks at different countries where particular commodities can be produced economically to meet their needs.

Having exhausted their natural resources, Western countries have invested in developing knowledge that they use to package products required to supplement their own food systems. As African countries promote exports, the demand for those exports are guided by Western countries' desires to meet their nutrition baskets.

This means Africa is basically dancing to the Western agenda in relation to consumption patterns and food systems. That is why the West is cherry-picking African countries in which to produce particular commodities. For instance, in Zimbabwe (blueberries, mange tout peas and others), Kenya (sugar snap, fruits and flowers, etc.), Ghana and Ivory Coast (Cocoa) and so on.

Western countries are interested in specific commodities not everything that can really lift masses out of poverty. There is no way, a country serious about lifting its farmers out of poverty can dream of doing so through growing sugar snap, flowers and other commodities demanded by the West. The West looks at different countries where particular commodities can be produced economically to meet their needs.

Africa's medical and health space is facing the same predicament Africa is just a market for knowledge generated in the West as Western countries are interested in finding a market for their knowledge by exporting their medical syllabus to Africa. Western countries have realized that they no longer have their own natural resources on which to apply their old and new knowledge.

In Africa they have several options and can look at several diseases like Ebola, Cholera, Malaria and others. They use their knowledge to get natural products from diverse herbs and trees used to make pharmaceutical products through hidden scientific formulae. When the knowledge is converted into products it comes back as finished products. Africa is only buying back its own knowledge extracted from Africa.

As if that is not enough, the West then takes an academic route and starts training doctors and pharmacists as well as bringing X-ray machines and other medical equipment. By doing so, the West is basically developing distribution channels for its knowledge. African countries are not developers or inventors but implementers of other people's knowledge. The Western industrial revolution has moved beyond manufacturing to embedding knowledge into goods and services.

During the COVID19 era African countries, including industrial ones like South Africa are clamouring for equitable distribution of vaccines developed in UK and USA yet they have been doing nothing on the research and vaccine development front. African policy makers have not taken time to look and learn how ordinary people are innovating using concoctions of local herbs to combat the pandemic.

In spite of being custodians of local and indigenous health systems for time immemorial, African herbalists are largely neglected. African governments are not even trying to enhance the development of vaccines through working with local herbalists. African policy makers remain blind to the fact that the Western agenda is to develop a market for Western knowledge because all Western countries have exhausted their natural resources.

What is more important foreign currency or food?

Africans have not developed and packaged their knowledge consistent with their own food systems. If you search information about an apple, you get tonnes of information including nutritional compositions, allergies and others. But the same has not been done for indigenous fruits like mawuyu. Africans are running for grapes, ignoring their own muzambiringa to extinction.

Matamba and diverse edible natural fruits are not being developed so that knowledge is embedded in ways that turn them into exportable products. African countries are being persuaded to grow blueberries for the sake of earning foreign currency.

What is more important foreign currency or food?

It is now very clear that the external agenda has suppressed the development of African food systems. The West no longer has adequate natural resources like land, fresh water and favorable climatic conditions not polluted by industrial fumes to be able to produce diverse foods that meet their consumption preferences. They go to Africa dangling foreign currency as an incentive.

African countries are exploiting and plundering their land, water, labor, immunity and other assets for the sake of foreign currency. What is stopping African countries from converting their natural resources like minerals, wild life and abundant tourism potential into sources of better nutrition?

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Summer crop management Tips

By Wendy Madzura, Head of Agronomy Services Seed Co

Zimbabwe

In light of the lucrative summer season that farmers have been having it goes without saying that the prospects of a bumper harvest are looming. However this hope can only come to fruition if farmers are able to employ Good Agronomic Practices to unlock the genetic potential of the crops established.

During this time of the year farmers who managed to establish their crops at the recommended time under rain fed production have crops that are at different stages of growth with most crops being at pollination and the late vegetative stage. However there are farmers with crops that are in the early vegetative stage owing to late establishment.

In this installment we will discuss the agronomic principles that will make the difference between getting a bumper harvest and getting low yields.

Fertilizer management plays a pivotal role in providing the nutrient contents desired by the crop to undergo its critical stages of development. At germination and crop emergence, a crop establishes itself using basal fertilizers especially when the rates applied were guided by soil analysis results.

At around three to four weeks, the crop is ready to grow vegetatively and build its crop stand (statue) in preparation for the reproductive stage where flowering and physiological maturity occurs. It is critical for farmers to avail the right amounts of nitrogen based fertilizers at the beginning of the vegetative stage to allow the crop to reach its full potential.

In maize production there are two main sources of nitrogen fertilizer, Ammonium Nitrate (AN, 34.5%) and Urea (46%). The farmer's choice between the two should be done with the full understanding of the fertilizer to be used. AN tends to leach below the root zone when applied during periods of persistent rainfall. When this happens the nitrogenous fertilizer may be washed below the root zone thereby resulting in an unhealthy,

stunted looking crop.

As a result of this, farmers are encouraged to split apply AN fertilizer to reduce the incidence of leaching.

Urea on the other hand is very unstable and tends to get lost into the atmosphere through volatilization and as a result farmers should use urea on

wet, swampy soils, during periods of persistent rains. Farmers should cover urea slightly with a bit of soil to reduce its loss into the atmosphere through volatilization and thereby ensure its effective use.

The use of foliar fertilizers is encouraged as it avails macro and micro- nutrients to the crop that complement the efforts of the standard fertilizers applied to the crop. Farmers should seek guidance from fertilizer experts on the best type and time to apply fertilizers to their crops.



Picture above shows different weed control scenarios with the recommended one on the far right (IDEAL)

Another yield limiting factor is weed pressure. Weeds can account for yield losses of up to 50% to 100% if left unmanaged or if poorly managed. Weed control can either be manual/ mechanical or chemical. The most efficient and modern form of weed control is chemical control (the use of herbicides).

It is interesting to note however that some farmers have wrongfully judged herbicides as agents of soil destruction when the actual challenge is the failure to understand the principles of effective herbicide use which are:

- Crop and herbicide suitability (Type of crop)
- Weed spectrum (grasses, broadleaves, surges)
- Stage of growth of the weeds (seedling stage, three to five leaf stage of weeds is ideal)
- Rotation plan (type of crop to be established)
- Dilution rates (volume of spray as stated on the label)

In a bid to combine operations farmers at times tend to mix herbicides in one tank mix but this should be done upon consultation with the agrochemical suppliers as some products



Picture above shows Fall Army Worm and its different stages of growth and damage

may not be compatible. In an effort to maximize on the leaf area as well as health of the crop, farmers should scout their fields regularly to enable timeous control of problematic insect pests before economic threshold levels are reached. If insect pests are not controlled on time, they can significantly reduce the surface area for photosynthesis thereby affecting PRODUCTIVITY.

One of the most problematic insect pest in maize production is the Fall Army worm which has wreaked havoc in past seasons and currently farmers are concerned about the prevalence of this insect pest in their fields. The Fall armyworm should be controlled when it is in its 1st instar of development because at this stage it can be controlled by a wide range of insecticides, however the challenge is that most farmers tend to notice the severity of this insect pest when it has reached the fourth instar of development.

During the 4th instar the Fall Army Worm will be fully grown and hidden deep inside the maize funnel thereby making it difficult to control. When the Fall Army worm enters the funnel it produces "frass" that covers the funnel preventing the insecticide from reaching it. At this stage farmers are encouraged to spray using a high volume spray to penetrate into the funnel.

Insecticide selection for Fall Army Worm should also be done in consultation with agrochemical specialists as there is a wide range of options that can be used. An example of an effective active ingredient is Emamectin benzoate which may come in different trade names so be sure to always read and understand the label, least you purchase products with different trade names and yet the active ingredient is the same.

In addition to this farmers should always be on the lookout for diseases as they pose a significant threat to the crops ability to reach its full potential and ultimately the yields. The use of hybrid seeds with inbuilt resistance or tolerance to serious disease can

significantly reduce the cost of disease control and thereby increase the profitability (ROI). Another way to effectively manage diseases incidences before they become significant is to scout regularly in a systematic way that ensures that the whole field is covered. Farmers can opt to use preventative fungicides especially in crops like soya beans to reduce the incidence of rust. Once a diseases has been noticed farmers should use systemic curative fungicides before the disease spreads across new plants

The 2020/21 farming season is unique in the sense that the rainfall can persist for days on end and this increases chances of water logging conditions in the fields that may affect crop growth. As a result farmers should work to ensure that drainage is maximized in the fields and for those farmers establishing horticulture crops or sugar beans, establishment of the crops should be done on ridges or raised beds to manage drainage. This is particularly true for the establishment of sugar beans.

Sugar beans is one of the crops that farmers can establish from mid - January to mid - February and this season this period has coincided with periods of excessive moisture hence farmers should manage drainage for effective production.

In conclusion, the 2020/21 farming season can be a double edged sword. On one end the rains have brought great hope to the farming prospects of rain-fed agriculture while on the other end the persistent rains have posed challenges in crop establishment, excessive leaching of nutrients and water logging crop stress.

As a result farmers are implored to adjust their cropping programmes to maximise on the positive attributes of the season by working on drainage and the application of additional nitrogenous fertilizers when leaching occurs. In farming, there are a thousand reasons for low yields, but only two reasons for high yields: Getting the right germplasm (SEED) and practising GOOD AGRONOMIC PRACTICES (GAP's).

Wendy Madzura is Head of Agronomy services Seed Co Zimbabwe

'NO TILL farming will increase your productivity'

Maricho Magazine had a conversation with Gabriel Carballal (GC), a farmer from Uruguay, South America, who has been practicing 'No Till farming' for more than 20 years. Here are excerpts from our conversation with GC.

By Gabriel Carballal

Maricho: Share with us about your farming technique?

GC: This system is called NO TILL. You plant the crop without tilling the soil nor using any equipment that disturbs it. It is a game changer since you do not need to have tillage equipment, large tractors to pulling it or long hours for making the tillage done on time. Since we started we saw a big change in machinery investments. Back in the 80s, for planting 1000 hectares you needed 4 to 5 times more investment in machinery than today. We can do with only one tractor what needed to be done with three those days.

Maricho: How is the No Till farming technique practiced?

GC: We usually apply herbicides that kill weeds before planting. After a period of time we are able to plant our crop (depending on moisture and weather forecast). It works a lot better when you can achieve a rotation of crops. After a crop harvest you only have to apply glyphosate or some pre-emergent herbicide and then plant.

No wasted time and moisture in plowing, harrowing.

Planting is a major part of the technique and has to be done with extreme precision. You need an adapted planter able to cut the residue, open a narrow row, put the seed in the row, firm it and close that row. I believe that the planting operation is responsible for 60-70% of the result. That and weed control. Planting a field with weed will decrease population, lower the moisture and create a friendly environment for insects. So these two steps are really important. Of course harvest is important too. But the most important part of harvest is to leave the residue in the soil well spread.

The residue contains nutrients and taking that out of this system is really bad. Those residues will decompose slowly giving back part of the nutrients to the soil plus a lot of organic matter at the same time they cover the soil reducing evaporation and erosion. So it is extremely important to leave the residues in the field, very well spread.

Maricho: What is required for this concept to be effective?

GC: You need great efficiency in weed control, time, patience and also a lot of knowledge of each and every environment. There are no two similar systems. So knowing the soil, the environment, weather is very important to succeed with this farming practice. Over the years you should know the technique and the soil behavior and that makes this a lot easier. Controlling weeds, planting well, taking care of the crop nutrition, adding what it needs, monitoring insects, diseases and weeds (and acting if necessary) and harvesting on time, leaving the straw in the field, that makes this system effective and maximizes production while lowering costs.

Maricho: How has No Till farming improved your yield and productivity?

GC: A lot! We save a lot of time and money at the same time we improve yields, predictability and above all, our soil. We are building soil while increasing the income. It is a win win win scenario. And resilience is probably the best advantage. We used to plow our soils back in the days and never knew if we were going to be able to plant.

Too much rain, not enough rain, equipment breaks, machinery costs, time wasted, all those were issues that made us not to plant or do it late. Now we can effectively know when we start and the final result. Yields increased over the years and we can say that we have a 2-4% increase in a long term analysis. In 20 years, that is a lot of extra grain.

Maricho: What impact has the concept had on agriculture in Uruguay?

GC: Here in Uruguay, 94% of all agriculture is done under this system. So is not only known but also proved and put into practice. We started with NO TILL back in the early 90s. Today nothing would make me go back. In fact, 20 years ago we sold all our tillage equipment.

The only way to discover this practice is using ourselves. And the advantage today is that we have accumulated 30 years of information and experience. So if someone wants to start, the way is going to be a lot easier than the one we walked.

Maricho: What lessons may you share with farmers in Zimbabwe?

GC: I believe that NO TILL will increase your productivity for sure. But even more important is the increase of predictability. Resilience is SO important today.

This system allows to plant on time (no more delays because of no moisture or too much moisture, no more delays due to mud that complicates planting or harvesting), saves water (you can cut evaporation up to 70% comparing to traditional

tillage methods), less inputs (after some years, after reaching a balance you can apply less fertilizer for the same yield or the same fertilizer for more yield, same as with herbicides) and more time for spending in other labours or processes.

Once you discover this you do not want to go back. Of course, patience is needed (it takes a couple of years to achieve that balance) and you have to be open minded to change something you and your ancestors were always doing. But the reward is so big that the first thought is: "why did I waste so much time!" Believe me.

This is a big step forward. And of course, all our knowledge is at your disposal. It is smart to use other farmers' experiences to enhance ours!



Pic Credit: Gabriel Carballal



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How a visionary in Rwanda is growing potatoes in the air

“
I was amazed by this soilless technology. It prevents diseases and increases productivity. After the week-long trainings, I was convinced that this was going to be good.”

Innovative aeroponic systems help tackle some traditional challenges for agriculture



water: aeroponics. Aeroponics is a climate-friendly way of planting in which roots are suspended in the air and grow in a humid environment. No soil is involved. Instead the plants are sprayed with water and nutrient solution. This technique enables farmers to control humidity, temperature, pH and water conductivity inside a greenhouse.

Meet the pioneer

When Apollinaire Karegeya found out about aeroponics, he recognised that it could increase food production and do so in a sustainable way. Apollinaire comes from a family of potato

Agriculture is embedded in the culture of the people of Rwanda. In fact, about 67 percent of Rwandans are employed in agriculture, with arable land covering over 1.56 million hectares of the country.

But with Rwanda's population set to rise from 10.5 million in 2012 to 16.9 million by 2032, demand for food will likewise soar. At the same time, the amount of arable land is likely to diminish with the country's cities steadily expanding. Agricultural innovations, that focus on ensuring higher productivity in smaller spaces, is needed if Rwanda's agricultural sector is to continue meeting the food needs of the country. Enter a new way of growing food without soil and less



*Caption: In aeroponic systems, seeds are "planted" in pieces of foam stuffed into tiny pots, which are exposed to light on one end and nutrient mist on the other.
©FAO/Teopista Mutesi*

farmers, who have always practised traditional farming. But with low crop productivity due to the climatic conditions, he knew the difficulties of providing a secure source of food for his local community. Apollinaire was hungry for new skills and knowledge that he could use to improve his farm.

“I started going to government partners who were working with the farmers in the country. One day one of the government partners offered me a training opportunity in Europe. That is when I first encountered aeroponics,” Apollinaire says.

“I was amazed by this soilless technology. It prevents diseases and increases productivity. After the week-long trainings, I was convinced that this was going to be good.”

Innovation, innovation, innovation!

With further support from the government and its partners, Apollinaire began farming potatoes through greenhouse aeroponics in 2015 and has been a pioneer of the aeroponic system in Rwanda ever since.

Through aeroponics, he now multiplies potato seedlings, some of which he then plants on his farm to grow potatoes and others which he sells to other farmers to plant on their farms. Apollinaire grows about 2 500 plantlets in his greenhouse, which produces potatoes in 2.5 months.

“Since it is not rotational farming, I grow three times a year. When the nutrients are well regulated, you can be assured of the yield. This wasn’t the case with growing in open fields where you’re at the mercy of nature,” he says.

In aeroponic systems, seeds are “planted” in pieces of foam stuffed into tiny pots, which are exposed to light on one end and nutrient mist on the other. @FAO/Teopista Mutesi. When Apollinaire first started using this technology, he still had a lot to learn.

“Tubers grown from aeroponics are kept for four months before they can be transferred to gardens. I lacked storage facilities, and along the way some potato seedlings would rot,” said Apollinaire.

In 2018, FAO, with funds from the European Union, implemented a project to improve the livelihoods of small producers engaged in the roots and tubers value chains. It aimed at making production more efficient and linking smallholders to domestic and regional markets.

Through the project, Apollinaire was trained in improved potato storage techniques and how to work with financial institutions to boost his new business further. He learnt to keep the potato seedlings in boxes when they are ready to be moved to soils, so that they get enough air as they wait to be picked up by buyers.



Caption: Apollinaire inspects the plantlets in the greenhouse. One plantlet produces between 30 – 50 potatoes. @FAO/Teopista Mutesi

Convincing Rwandans about the new way of farming

Growing food without soil is new to many Rwandans, so Apollinaire also faced the challenge of changing mindsets. With help and training from FAO, he began to use the media including radio, television, newspapers and web sites to spread the word.

“The training opened my eyes to use community radios to raise awareness about my business and also the aeroponics systems. From then, the demand for my seedlings grew exponentially. I receive many farmers asking me to help them set up the aeroponics system,” he said smiling.

Now, he is so overwhelmed with customers that he is trying to encourage more people to adopt aeroponic methods and produce seedlings for Rwandan farmers. Apollinaire has also trained his 20-year-old son in aeroponics, as well as 42 other farmers in Rwanda. As more farmers hear about the new farming techniques through Apollinaire’s media outreach, he believes it will increase food production. Eventually, farmers will be able to use aeroponics to grow other kinds of crops, such as vegetables.

“The Rwandan population is increasing. We have to think of technologies to increase the amount of food we produce. New innovations are changing the image of agriculture. More youth are attracted to engage in agribusiness because it’s no longer that backbreaking sector,” he said.

With populations increasing and cities expanding around the world, innovative farming methods are exactly what’s needed to reinvigorate the agriculture sector. By encouraging more farmers to follow in Apollinaire’s footsteps, we can increase food security in a climate-friendly, sustainable way for all. **Source - FAO**

A Bezos-backed plant-based milk made with AI, cabbage, and pineapple is now available at Whole Foods – see how it's made

NotCo's plant-based NotMilk line, which includes a whole milk and a 2% reduced-fat milk, is now available at Whole Foods stores across the US. The NotMilks are made with the help of Giuseppe, NotCo's artificial intelligence algorithm. Unlike nut and oat milks, the NotMilks are made with ingredients like pineapple, cabbage, chicory, and coconut.

"We have seen the plant-based growth trajectory accelerate in the current pandemic scenario as people increasingly looked for healthier and more sustainable alternatives to their diets," CEO and founder of NotCo Matias Muchnick told Business Insider in an email interview.

NotCo, a self-described "food-tech" company, has rolled out its vegan whole and 2% reduced-fat milk at over 450 Whole Foods across the US. Many popular alternative milk makers have been relying on items like nuts or oats to serve as the base of their vegan milks. NotCo, however, has taken a different approach to develop its non-dairy milk.

Instead of creating a milk with a single food profile, like almond milk or oat milk, NotCo's milk uses a mix of non-traditional ingredients that were in-part decided by the company's artificial intelligence program named "Giuseppe."

These ingredients include cabbage, peas, and pineapple.

"In the case of NotMilk, the unexpected combination of pineapple and cabbage brings the dairy taste notes that we are used with regular milk," Matias Muchnick, the CEO and founder of NotCo, told Business Insider in an email interview. "Chicory and coconut help with the texture and peas bring up the protein so that we have a balanced product for people to have in their diets."

According to NotCo, this variety gives the NotMilks a taste and texture that rivals that of "real" milk without using dairy products. This authenticity in flavor and feel is an important aspect of the alternative milk as the company says 33% of vegan milk purchasers in the US end up buying dairy milk again due to a "compromise in taste."

This is also why the NotCo team – which recently announced an \$85 million funding round with investors like Bezos Expeditions and L Catterton – decided to stray away from the popular "nut milk" route.

"More and more consumers are looking for including healthier and more sustainable products in their diets, but the alternatives in the market miss something – whether that be look, taste or texture," Muchnick wrote. "But NotMilk has it all."



Caption: NotMilk by NotCo

NotCo's goal is to "disrupt" three sections: eggs, dairy, and meat.

NotCo currently has two types of vegan milk in its product line: the NotMilk whole and NotMilk 2% reduced-fat. According to Muchnick, the alternative milk has already started selling out at several Whole Foods Markets across the country, noting that each variety is seeing sales.

NotCo's Giuseppe technology was also used to create the company's other products – including the NotIceCream, NotBurger, and NotMayo – and NotCo will continue to "explore" different food products with the help of artificial intelligence.

The company's NotMeat line is already being used in Papa John's vegan pizza in Chile, and by Burger King in the Rebel Whopper in the UK.

Right now, the NotMilk is the company's most popular product offering, but Muchnick is expecting to also see the NotBurger grow in popularity now that it's been unveiled in Brazil, Chile, and Argentina.

"We have seen the plant-based growth trajectory accelerate in the current pandemic scenario as people increasingly looked for healthier and more sustainable alternatives to their diets," Muchnick wrote.

The company is also planning to expand to other retailers, restaurants, and the fast-food industry in the "near future," according to Muchnick.



Caption: NotCo's 2% reduced fat NotMilk. NotCo

The crossroads between environmentally conscious food products, food science, and artificial intelligence. According to NotCo's website, the NotMilk uses 92% less water, 74% less energy, and emits 74% fewer emissions than regular dairy milk.

"We believe that replicating animal products we all love to eat but made from plants gives us all an opportunity to reduce our environmental impact without even realizing it," NotCo wrote in its frequently asked questions page.

According to Muchnick, two NotCo teams, the "AI Chef Team" and the "Food Science" team, use Giuseppe, which is named after Italian painter Giuseppe Arcimboldo.

The AI Chef Team is in charge of trialing the new prototyped formulas to create a product that's "sensorially similar" to dairy milk, while the Food Science team focuses on the "functional and molecular properties of ingredients" by testing the different ingredient mixes in their laboratory.

The company's AI Team also created software that helps analyze the ingredients Giuseppe proposes in order to "optimize the design of their experiments," according to Muchnick.

These experiments then help the artificial intelligence algorithm to "further understand the large landscape of food science," Muchnick wrote.

"As our artificial intelligence continues to evolve its cognitive skills, we will continue to improve our processes even further, getting new products faster to market and entering more categories in the near future," Muchnick wrote in the interview.

Source: Business Insider





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How to manage risk in Agriculture Part 2



By Prosper Mukaro

Managing risk starts with identifying the most important risks you face; understanding the potential impacts and likelihood of undesirable outcomes; and, identifying and taking possible steps to mitigate or lessen the impacts.

In this article we take a look at some of the common risks farmers face in Zimbabwe and the possible risk management strategies that can be implemented.

Financial Risks

These are risks which relate to a possibility of losing money on your farm and as a result, one ends up with insufficient financial resources to meet expected obligations. These risks may also emanate from generation of lower than expected profits from the farm operations. The most common sources of financial

risks emanate from production and marketing risks which I described in the previous article (If you did not read it, order your copy of Maricho November issue). Furthermore, these risks may be caused by higher interest rates, lack of adequate financial reserves, increased input costs, unfavourable fluctuations in exchange rates, higher cash demand for family needs and excessive borrowing.

So how can you manage financial risks?

1. Planning is very important, a farmer needs to develop a strategic plan.
2. Control key farm expenses – consider other suppliers and alternative inputs.
3. Conduct a trend analysis to assess changes in farm profits.
4. Communicate and renegotiate agreements with suppliers and loan terms with lenders.
5. Control or defer unnecessary family and household expenditures.
6. Evaluate the possibility of expanding or contracting different enterprises.

Legal and Environmental Risks

Legal risks in farming mainly emanate from failure to fulfil business agreements and contracts. Failure to meet these agreements usually results in high costs being incurred by the farmer.

Another source of legal risk is tort liability, thus, causing injury to another person or property due to negligence. Legal risks are closely related to environmental liability which may arise from pesticide use, water quality and erosion.

Conflicts between farmers, government and pressure groups around environmental issues have been recorded in Zimbabwe.

So how can you manage Legal and Environmental risks?

1. Purchase a proper insurance policy which adequately cover

- farmer's liability.
- 2. Understand business contracts and agreements – ask questions if you are not sure.
- 3. Develop good relationships with neighbours and address their concerns.
- 4. Embrace good agronomic practises to limit environmental risks.
- 5. Understand and follow government regulations related to your farming operation.

Human Resource Management Risks

These are risks which emanate from the way individuals associate at the farm and their relationships with each other. These relationships include family members, farm employees and customers.

Main sources of human resource risks include divorce, death, or disability. The impact of any of these events can be devastating to a farm. Human resource risks also include the negative impacts emanating from the lack of human management skills and poor communication.

So how can you manage Human Resource Management risks?

1. Open clear lines of communicate with employees and family members.
2. Recognise and reward good performance.
3. Provide adequate training for employees – formalised programmes may help your safety record and improve performance.
4. Review wills, trusts, and powers of attorney.
5. Initiate estate transfer and business succession planning.
6. Consider health and life insurance needs.

It is unlikely that everyone can understand all the areas of risk faced by a family farm. If you do not know the answer or find it difficult to initiate risk management planning on your own, get assistance from agronomists, insurance agents, bankers, attorneys, and other service providers.

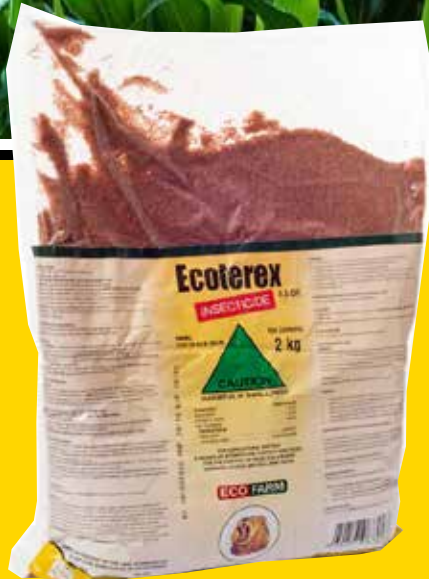
I conclude with the words of Hunter S. Thompson who says “So we shall let the reader answer this question for himself: who is the happier man, he who has braved the storm of life and lived or he who has stayed securely on shore and merely existed?”

While it is true that with good risk management practices a farmer can brave the storm and make a fortune, it is also important to note that the growth of the agriculture sector as a whole is dependent on good risk management practises.

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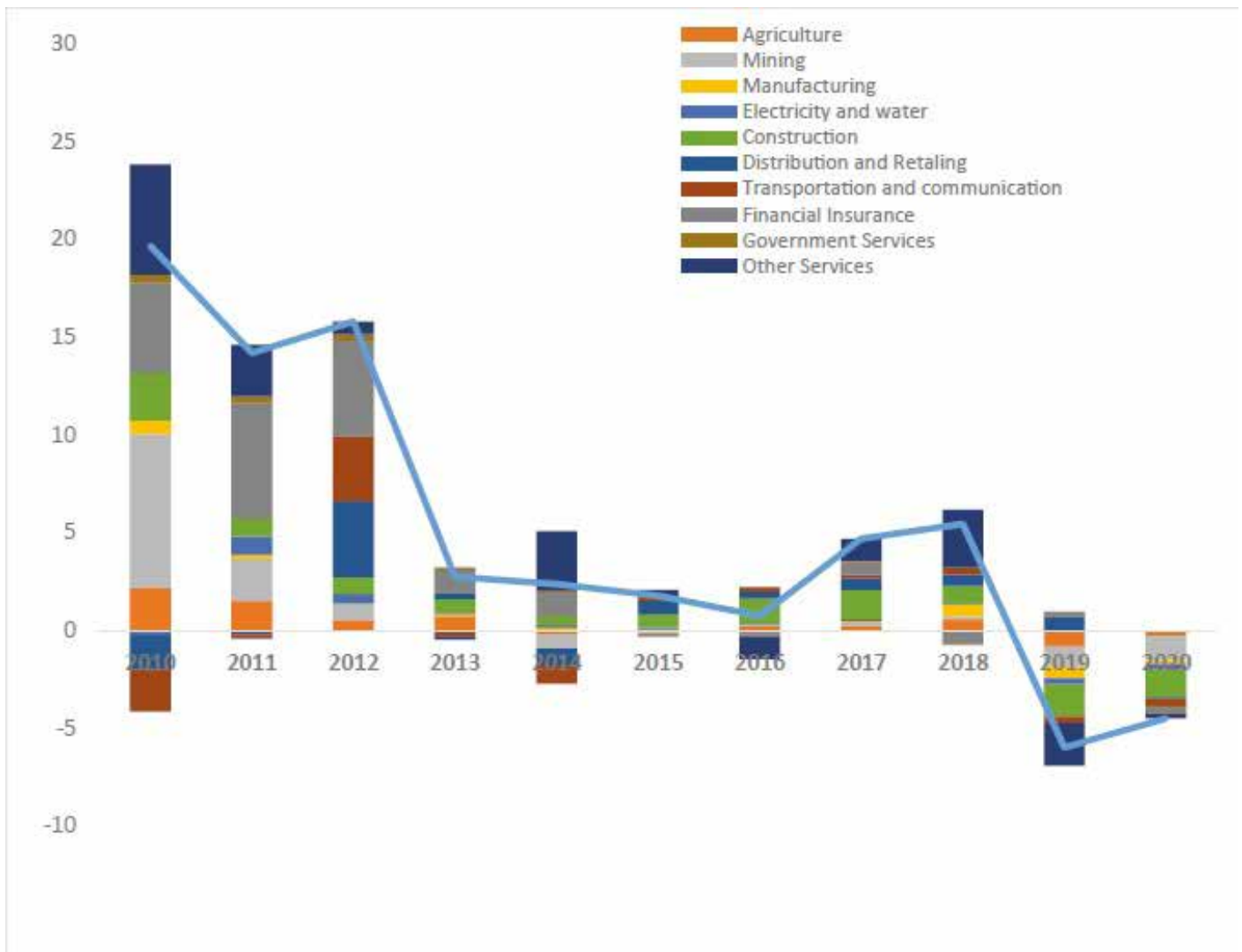
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UNPACKING THE NATIONAL DEVELOPMENT STRATEGY 1: 2021-2025 (NDS1)



The National Development Strategy

1: 2021-2025 (NDS1) is the successor to TSP and is the first 5-year Medium Term Plan aimed at realising the country's Vision 2030. The Strategy will build on the success of the TSP, notably entrenching macroeconomic stability, necessary for economic recovery and growth, and

conferring new opportunities for wealth creation, innovation and enterprise development.

The NDS1 is the culmination of extensive and structured stakeholder consultations through fourteen (14) Thematic Working Groups, and the consolidation of the policy proposals and strategies arising from

extensive, across the board stakeholder consultations.

The objectives of The NDS1 are- to:

1. Strengthen macroeconomic stability, characterised by low and stable inflation, as well as exchange rate stability;

2. Achieve and sustain inclusive and equitable Real GDP growth;
3. Promoting new enterprise development, employment and job creation;
4. Strengthen Social Infrastructure and Social Safety nets;
5. Ensure sustainable environmental protection and resilience;
6. Promote Good Governance and Corporate Social investment; and
7. To modernise the economy through use of ICT and digital technology.

Through the broad based stakeholder consultative process, the NDS1 National Priorities were identified as: Economic Growth and Stability; Food Security and Nutrition; Governance; Moving the Economy up the Value Chain & Structural Transformation; Human Capital Development; Environmental Protection; Climate Resilience and Natural Resource Management; Housing Delivery; ICT and Digital Economy; Health and Well-being; Transport, Infrastructure & Utilities; Image building and International Engagement and Re-engagement; Social Protection; Youth, Sport and Culture and Devolution.

The NDS1 is underpinned by the Integrated Results Based Management (IRBM) system, which inculcates a culture of high performance, quality service delivery, measurement, goal clarity, continuous improvement and accountability across the public sector.

The successful implementation of the NDS1 is preconditioned on a number of key success factors. Among them is the pace of global recovery from the COVID-19 pandemic, local economic recovery on the back of firming international mineral prices and agriculture recovery.

On the domestic front, consolidating macroeconomic stability during NDS1 period will be critical in creating certainty and confidence in the economy by anchoring exchange rate and inflation. During the NDS1, priority will be to deepen fiscal and monetary coordination, ending all quasi fiscal activities, curbing

all unbudgeted expenditures and strengthening the foreign exchange system.

The successful implementation of the NDS1 requires public sector transformation which comprehensively addresses all aspects of the existing silo mentality while building collective accountability. In this regard, Government will upscale the change management strategy and fully implement the Whole of Government Approach.

During the implementation of the NDS1, cross cutting issues such as gender, youth, people living with disabilities, arts and creative industry, environment and information communication technology will be mainstreamed in all Thematic Working Programmes in order to ensure that the aspirations are realised within the context of the NDS1.

THE NDS1 MACROECONOMIC FRAMEWORK

The economy experienced sustained recession in 2019 and 2020, with GDP estimated to have contracted by -6% and -4.1% respectively. Accounting for the economic contraction, were significant output losses in agriculture, mining, manufacturing, tourism and electricity generation. The decline in output reflects mainly the negative effects of prolonged drought episodes, Cyclone Idai experienced in March 2019 and the impact of the COVID-19 pandemic.

The 2021 -2025 Macroeconomic Framework is premised on the adoption and swift implementation of bold policies and programmes aimed at achieving economic transformation through the creation of a thriving private-sector led, open and competitive economy, with sound macroeconomic policies anchored on fiscal discipline, monetary and financial sector stability, a business friendly environment which promotes both foreign and domestic investment.

The macroeconomic objectives for the five-year period of the NDS1 are:

- Achieve an average annual real GDP growth rate of above 5%;

- Maintain fiscal deficits averaging not more than 3% of GDP in line with SADC targets;
- Achieve and maintain single digit inflation;
- Increase international reserves to at least 6 months import cover by 2025;
- Establish a market determined and competitive foreign exchange rate regime;
- Maintain public and publicly guaranteed external and domestic debt to GDP at below 70% of GDP;
- Maintain a current account balance of not more than -3% of GDP;
- Create at least 760,000 formal jobs over the five-year NDS1 period;
- Improve infrastructure development and investment in energy, water, sanitation, roads, health, education, housing and social amenities; and
- Accelerate value addition and beneficiation of agriculture and mining production.

Average GDP growth rates of above 5% over the NDS1 period (2021-2025), will be a pre-requisite for the country to reach upper middle income status by 2030.

Increases in agriculture production and productivity, especially by smallholder farmers will ensure food and nutrition security, enhanced income, increased opportunities for value addition and the development of agro-business value chains.

Enhancing investment in mining towards exploration, beneficiation and value addition of minerals including levelling the field to accommodate small scale miners will create more jobs and increase foreign currency earnings for the country.

Maintaining prudent fiscal management, guided by the principle of living within our means will be key in ensuring macroeconomic stability and building the internal resilience of the economy.

The NDS1 seeks to consolidate the gains made so far on the monetary policy front, with major outcomes being currency and price stability. The following will be the Monetary Policy targets:-

- Reduce inflation to single digit of between 3% - 7% by 2025 in line with the SADC Macroeconomic Convergence Target;
-
- Align reserve money growth to levels consistent with low and stable inflation as well as exchange rate stability; and
-
- Eliminate quasi-fiscal operations.

The NDS1 will sustain a market clearing foreign exchange rate regime and sequence measures to ensure the Zimbabwe dollar as the dominant legal tender by 2025.

During the NDS1 period, the foreign exchange system will be strengthened and this will be complemented by building international foreign exchange reserves of at least 6 months of import cover.

In order to realise improved financial sector stability, the RBZ will strengthen the prudential supervisory policy framework, implement Financial Sustainability Standards, ensure banks maintain adequate capital levels, fully implement the Basel III Accord, and ensure an efficient National Payments System.

To foster operational synergies and strengthen operational efficiency, Treasury and the RBZ will establish a liquidity management committee responsible for liquidity and cash-flow management; synchronisation of liquidity injections and withdrawals; enhancing information sharing and the two institutions.

In light of the high concentration of primary commodity exports, Government, during the NDS1 period, will focus on value addition and beneficiation. Investment in value addition will transform Zimbabwe's economic structure from one highly dependent on the export of minerals and agricultural raw materials to an economy trading high value processed goods.

External debt arrears clearance will be considered in line with progress made with Government's engagement and re-engagement with the international community.

The successful negotiation of a debt and arrears clearance programme with external creditors will open new lines of credit for the economy.

In order to reduce fiscal risks emanating from State Owned Enterprises (SOEs), Government will, expedite SOEs reforms targeting commercialisation, improved governance, provision of services at viable prices, full or partial privatisation, outright disposals and amalgamation of some of the SOEs into existing Government Departments.

Economic Growth And Stability

Economic growth and stability is a prerequisite for sustainable development, which contributes to improved livelihoods for all. Sustained economic growth creates certainty and confidence

in the economy. The overall success of the NDS1 is, therefore, premised on realising increased economic growth and stability. Key priority areas under Economic Growth and Stability are:-

1. Macroeconomic stability;
2. Stable monetary policy and financial stability; and
3. Sustained, Inclusive Growth.

Production and productivity in key locomotive (anchor) sectors: agriculture, mining, manufacturing, and tourism will be critical in achieving the overall goal of sustainable economic growth. This will catalyse economic growth in other sectors of the economy, including the Micro, Small and Medium Enterprises (MSMEs) sectors and the semi-formal activities that are ordinarily at the margins of the economy.

Strategies for Agriculture

The agriculture sector has potential to drive pro-poor economic growth and sustainable development. Key to unlocking the potential is resolving the security of tenure on the land in order to attract investment.

Further, measures will be put in place which will create conditions for bankability of agricultural projects.

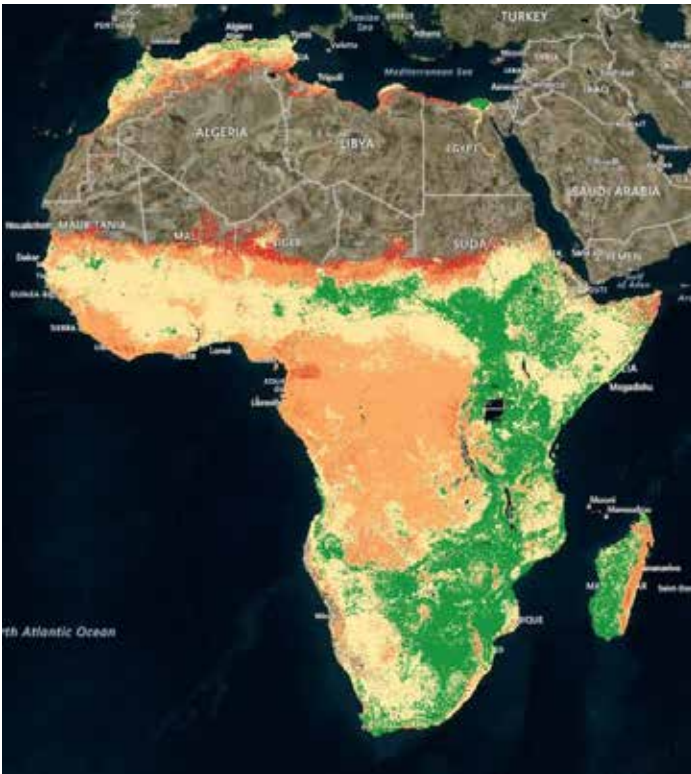
Equally important will be restructuring of Agribank into a Land Bank, and expansion of contract farming to other crops and livestock as well as strengthening existing contract farming arrangements.

Further, Government will incentivise banks to lend to agriculture and persuade them to move away from the current practice where most banks are investing in non-productive short term instruments.

In order to drought proof agriculture, irrigation rehabilitation and expansion, promotion and adoption of research that improves productivity of seed and animal varieties, upscaling of climate smart agriculture practises such as Pfumvudza/Intwasa, and capacitation of extension services will be prioritised.

Further, to improve predictability in the marketing of agricultural produce, the strategy under the NDS1 will be to operationalise the commodity exchange, supported by a well-functioning regulated warehouse receipt system.

Soil fertility map will be life changing for African farmers



Caption: A map charting soil fertility every 30 metres across the whole of Africa has been developed by a group of international scientists

The Scottish Farmer

A LANDMARK map detailing soil fertility across the whole of Africa will be a game-changer for the world's poorest farmers.

For every single field on the continent, vital information such as the acidity, organic content, and nutrient levels of the soil is now available which will help advise farmers in a number of different areas, such as yield forecasting, crop suitability and fertilizer application.

Africa will now have access to more detailed soil information than many European countries, including the UK.

It is hoped that this will be an important step towards tackling major human health challenges caused by food grown in poor quality soil, including the estimated 1.1 million child deaths caused each year by malnutrition.

It also marks the first time an entire continent's soil has been studied to this level of detail and raises real hopes for much improved harvests - and subsequently, the health, livelihoods and food security of more than a billion people.

It was produced by iSDA, a social enterprise founded by three research institutes - Rothamsted Research, World Agroforestry and the International Institute of Tropical Agriculture.

CEO of iSDA, Dr Jonathan Crouch, said: "For the first time, farm level soil data is now available for the entire African continent.

"With ever growing demand for food, it is critical that we find ways to increase productivity in sustainable ways that also allow millions of smallholders to improve their livelihoods," he explained.

"If we know the current status of essential soil nutrients, we can maximize productivity, profitability and environmental benefits."

From the Tunisian coast, all the way to the Cape - some 5,000 miles away - the iSDA soil map charts the continent's 3.4 million square miles of potential agricultural land in unrivalled detail at roughly 24 billion locations.

Due to their extreme old age, unforgiving climates, and decades of unsustainable management, large areas of Africa are heavily depleted of nutrients, strongly acidic or low in organic carbon. Poor soil fertility has long been recognised as a major contributor to Africa's high incidences of child mortality, stunting, and wasting.

The new map charts soil fertility every 30m and will help to target nutrients where they are most needed. Many African farmer's fields are far smaller in size than those in Europe and the 30m resolution of iSDAsoil finally lays the foundation for individually tailored, field level advice for smallholders – a significant improvement on the 250m resolution available previously.

Soil scientist and Rothamsted's Professor Steve McGrath, added: "In the UK we only have national coverage at a scale of 1000m. Even though we have had this data for many years, it has never

really been used, and because we know now that there is so much variation in soil properties within individual fields, it means this resolution of soil data is virtually useless for farm-level decisions."

In addition to improving health and livelihoods, iSDAsoil will also be of use in the battle against climate change by, for example, optimizing soil carbon capture and increasing soil quality and resilience.

Lead Data Scientist at iSDA, Dr Matt Miller, concluded: "Soils are fundamental to life on earth, but knowledge about African soil has been incomplete and out-dated. In order to continue to feed the fast-growing population sustainably, there is an urgent need to generate accurate, up-to-date soil health information to support agricultural development, environmental sustainability and fight climate change."

International lawyers draft plan to criminalise ecosystem destruction

Plan to draw up legal definition of 'ecocide' attracts support from European countries and small island nations

By Owen Bowcott

International lawyers are drafting plans for a legally enforceable crime of ecocide – criminalising destruction of the world's ecosystems – that is already attracting support from European countries and island nations at risk from rising sea levels.

The panel coordinating the initiative is chaired by Prof Philippe Sands QC, of University College London, and Florence Mumba, a former judge at the international criminal court (ICC).

The aim is to draw up a legal definition of "ecocide" that would complement other existing international offences such as crimes against humanity, war crimes and genocide.

The project, convened by the Stop Ecocide Foundation at the request of Swedish parliamentarians, has been launched this month to coincide with the 75th anniversary



Caption: Smoke rises from an illegally lit fire in an Amazon rainforest reserve. It is envisaged that the offence would come into force in instances of mass, systematic or widespread destruction. Photograph: Carl de Souza/AFP/Getty Images

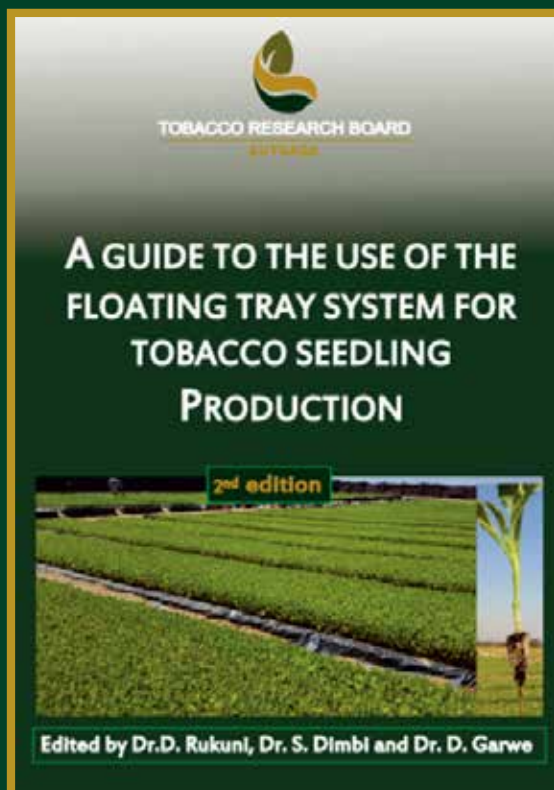


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of the opening of the Nuremberg war crimes trials of Nazi leaders in 1945. Several small island nations, including Vanuatu, in the Pacific and the Maldives, in the Indian Ocean, called for “serious consideration” of a crime of ecocide at the ICC’s annual assembly of states parties in December last year.

The French president, Emmanuel Macron, has also championed the idea and the Belgian government has pledged support. The shadow justice secretary, David Lammy, has also called for ecocide to be incorporated into law.

The international criminal court, which is based in The Hague, has previously promised to prioritise crimes that result in the “destruction of the environment”, “exploitation of natural resources” and the “illegal dispossession” of land. An ICC policy paper in 2016 said it was not formally extending its jurisdiction but would assess existing offences, such as crimes against humanity, in a broader context. There have been no formal investigations or charges of this type so far.

Sands said: “The time is right to harness the power of international criminal law to protect our global environment ... My hope is that this group will be able to ... forge a definition that is practical, effective and sustainable, and that might attract support to allow an amendment to the ICC statute to be made.”

Mumba, a judge at the Khmer Rouge tribunal and former supreme court judge in Zambia, said: “An international crime of ecocide may be important in that individual/state responsibility may be regulated to achieve balance for the survival of both humanity and nature.”

Jojo Mehta, the chair of the Stop Ecocide Foundation, told the Guardian: “In most cases ecocide is likely to be a corporate crime. Criminalising something at the ICC means that nations that have ratified it have to incorporate it into their own national legislation.

“That means there would be lots of options for prosecuting [offending corporations] around the world.” Mehta said one challenge for the drafting panel would be to define at what point an ecocide offence would come into force. Chopping down a single tree on a village green would not be sufficient, she explained.

“It would have to involve mass, systematic or widespread destruction,” she added. “We are probably talking about Amazon deforestation on a huge scale, deep sea bottom trawling or oil spills. We want to place it at the same level as atrocities investigated by the ICC.” The 13-strong legal panel of experts from around the world include Tuiloma Neroni Slade of Samoa, who is also a former ICC judge. They are planning to complete their work early this year.

Source: The Guardian

Are Africa’s ageing dams doomed?

By Laura Angela Bagnetto

Large-scale dams on the African continent used for irrigation or flood control are coming up to a critical age. The Kariba Dam straddling Zimbabwe and Zambia is a key example, according to a new report by the UN University Institute for Water, Environment and Health. And while climate shocks could impact the dams, ageing is also a major concern.

A well-built, well-maintained, well-designed structure can last for quite a while, maybe more than 100 years,” says Vladimir Smakhtin, director of the UN think tank on water UNU-INWEH, and co-author of the report. “We have cases of dams all over the world which are operating in this way.”

According to the research, there are currently 2,000 large dams in Africa, with a quarter of them in South Africa. They are the fewest and youngest of any continent.

Large dams – those taller than 15 metres and holding more than 3 million cubic metres of water – have a major impact on the people and the environment, and this must be carefully considered if a dam is to be decommissioned.

Repairs to Kariba

Case in point is Kariba Dam, a 128 metre-tall dam which stores 180 cubic kilometres of water straddling Zimbabwe and Zambia on the Zambezi River.

Kariba Dam, which began operation in 1959, is now in the process of being repaired.

Work on its should be completed by 2023. It needs to be continually maintained as an investment in its hydroelectricity capacity, says Smakhtin.

A well-built, well-maintained, well-designed structure can last for quite a while, maybe more than 100 years,”

Its construction was quite controversial at the time, as 15,000 people were removed from the area and they became what one anthropologist called “development refugees.”

Although large dams can be called into question, water storage on the African continent is essential, says Smakhtin, especially in countries where agricultural growth varies depending on rainfall if there is no dam.

Dams can also be used for hydropower, like Kariba, but Smakhtin predicts that this will change in the next 20-30 years due to the new renewable and environmentally friendly types of energy, including solar power.

Deactivating a dam not an option—yet

It would be too risky to decommission a dam such as Kariba, as there are a number of other dams, and thousands of people living around the dam and downstream, says UNU-INWEH Director Smakhtin.

“The world doesn’t have experience of how to decommission, let alone remove such structures-- it’s too risky,” he told RFI, adding that smaller dams have been decommissioned globally, just not ones of this scale.

“In the case of Kariba Dam, it will definitely be a risk for the downstream communities. The societal impact of large dam removal in developing countries is very different to those which are in the north,” he adds,



Caption: Kariba Dam wall renovations to the pool below, January 2020. @ JonGT/CC4.0

maintaining that Kariba remains an important energy supply for the region.

Climate change challenges

A large dam built at least 50 years ago would be constructed under pre-climate change conditions, and may not necessarily be operating in the conditions it was designed for, says Smakhtin.

“That creates additional risk or uncertainty-- at the very least at how it will behave under conditions of a huge unexpected flood. It’s really unpredictable,” he says, adding that dam management takes this into consideration during operations. If the rain pattern changes, and in many cases, it has, it

can affect erosion of a dam structure and even accelerate the deterioration process, because it brings more silt and sediment into the dam.

“If more sediment goes into the dam, then the dam will be filled with sediments quicker and lose its functionality quicker,” he says.

“And if the temperature continues to increase, then you are losing water faster, so it’s less efficient,” he adds.

Source: RFI

To feed a growing world, we need to change our food systems now

By Louise Fresco

This article is part of the Bold Actions for Food as a Force for Good

- Major, far-reaching sustainability transitions are needed to provide a growing world population with nutritious, safe, healthy, affordable and sustainable food;
- To achieve large-scale sustainability transitions, we

need coordinated action based on undisputed scientific information – disseminated through a trusted platform that informs government decision-making;

- The 2021 Food Systems Summit provides a unique opportunity to drive global action to make food systems inclusive, climate-adapted, resilient and supportive of sustainable peace.

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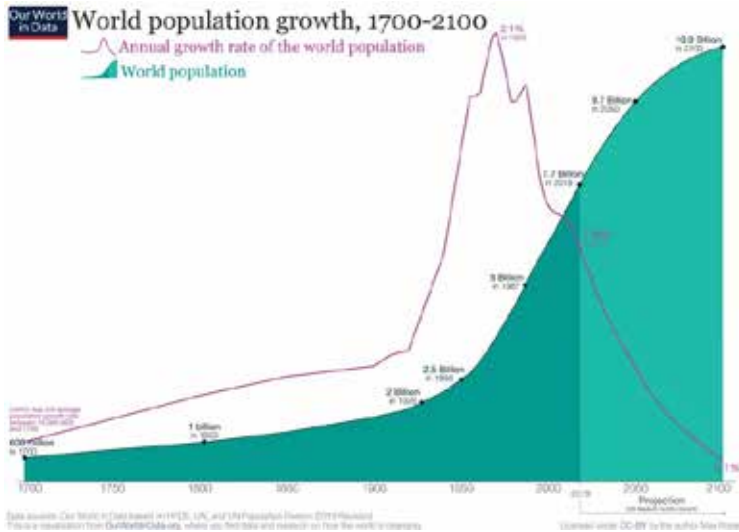
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availability of nutritious, safe, affordable and sustainably produced food for the world's growing population.

Most food-insecure people live in areas characterized by instability and severe poverty. New ways have to be found to increase the productivity of land and water while decreasing emissions and halting the destruction of habitats and ways of life. It is imperative that the manifold transitions needed are tailor-made and based on scientific evidence.

The production of food and agricultural products is extremely diverse, involving many different commodities and technologies depending on ecological and socioeconomic settings. This must be taken into account. According to HLPE, there are also five main groups of interacting factors that may act as a barrier to innovation in this area: governance, economic, knowledge, social and cultural, and resources.

Because food is an integral part of cultures and so closely linked with tradition, values and emotions, solutions to food system failures are subject to intense debate and controversy. There are

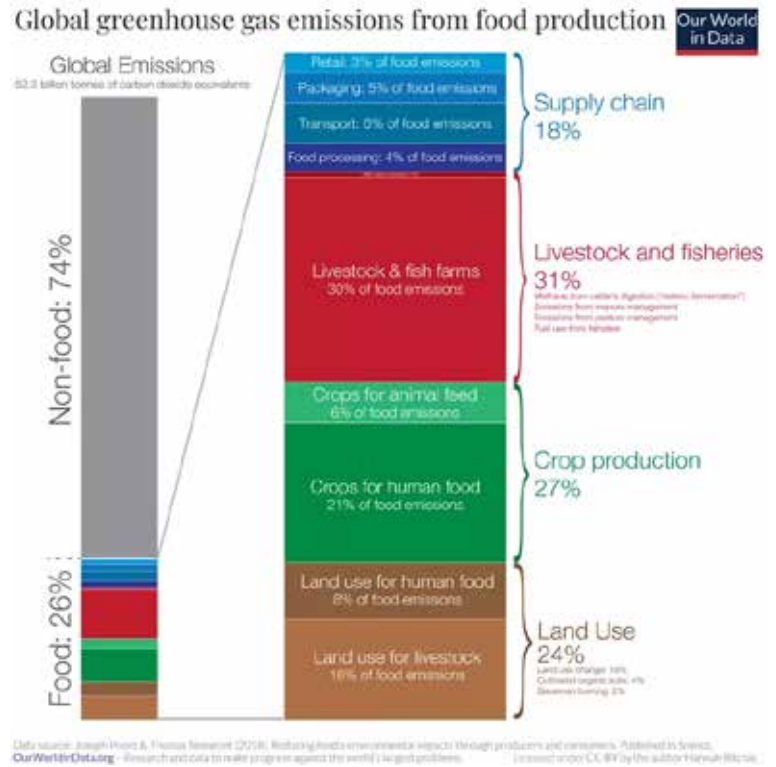


Caption: Future world population growth

Food systems: from concept to policy

Systems thinking has gained prominence in the agriculture and food sectors in recent years, fuelling discussions amongst both scholars and policy-makers about the unsustainability of modern food systems. Béné et al define four different sets of narratives about the failure of the food system:

- Inability of the system to feed the future world population;
- Inability of the system to deliver a healthy diet;
- Inability of the system to produce equal and equitable benefits;
- Unsustainability of the system and its impact on the environment.



Caption: Global greenhouse gas emissions from food production

polarized views on issues like fertilizers, genetic modification, animal welfare and so forth. There is also confusion and uncertainty about facts, such as, how much agriculture and food may contribute to greenhouse gas emissions, climate mitigation (carbon capture) and adaptation. Moreover, public confidence in science-based solutions seems to be in decline.

At a national level, this complexity, confusion and polarization often lead to a policy stalemate and a distorted institutional landscape; no country has developed a comprehensive agricultural and food policy. At the same time, no country can expect to take national policy measures in isolation because imports and exports, emissions and technology always affect other countries as well.

Global governance of food systems

Agriculture is not just about food, but also about other public goods like natural resource management, climate change, trade regimes, competition for foreign direct investments, international research and innovation, public health and food safety and stability. Achieving SDG2 must go hand-in-hand with achieving other SDGs and therefore requires new thinking about the governance of agriculture and food systems.

In that spirit, a broader, system-wide partnership is needed with the private sector, financial institutions, civil society organizations and academia. A shared understanding of where we are and need to go with our global food system, what technologies and policies are available and a degree of agreement on concerted action is essential. These will create a level playing field for solutions that are truly best in class and can be shared for the benefit of everyone.

To get there, a truly multi-stakeholder approach is crucial. The private sector, including farmers, plays a dominant role in the (re) shaping of food systems. Roles and relations vis-à-vis present institutional arrangements, such as the Committee on World Food Security (CFS), the scientific bodies of the Rio Conventions and the CGIAR system, are to be worked out. Next to member countries and international organizations, national public organizations and private sector organizations representing industries, foundations and NGOs would need to be involved.

The UN Food Systems Summit 2021

The 2021 UN Food Systems Summit will provide a unique and timely opportunity to review the international and national food systems and design appropriate governance structures. The 2021 conference will aim to align stakeholders around a common approach for strengthening our food systems: a framework that will serve as a foundation for concerted action. Preferably, such a framework should be set out in an arrangement that is powerful enough to keep stakeholders aligned and acting together.

It is crucial to underpin this process with a scientific and technical advisory body, similar to the subsidiary bodies of the Rio Conventions. While many reports about food and agriculture have appeared in the last decade, there have been no attempts to pull together the commonly accepted science and proven technologies.

An intergovernmental scientific and technical advisory body for agriculture and food systems has already been suggested in different fora. Food and agriculture policy could benefit a lot from a better evidence-base.

The road to the 2021 summit provides an opportunity to review the global governance structure for food systems and define the role of evidence-based knowledge in the transition towards sustainable food systems. To feed the discussions towards and during the summit, case studies from a number of countries can inform participants on what is meant and which interventions seem promising and suitable in impact and scalability.

The recent rise in hunger, under-nourishment and obesity call for a renewed global effort to lay the foundation for concerted action, based on undisputed scientific information. An evidence-based movement aimed at building consensus as the cornerstone of future agriculture and food systems, accompanied by effective institutional arrangements, must lead the way.

Source - World Economic Forum



Pic Credit: Gabriel Carballal

Why small farms are key to the future of food - and how we can support them



Caption: IFAD/G.M.B.Akash

BY GILBERT F. HOUNGBO

- Small-scale farmers and rural populations are disproportionately among the poor and hungry.
- But they are also the best hope for increasing land productivity and crop diversity to feed a growing world.
- Here are five ways we can support them and create sustainable and inclusive food systems.

In the 25 years since Clayton Christensen coined the term “disruptive innovation,” much has been written about the benefits of shaking up established business practices. Even before the current pandemic, there was a growing recognition that our food systems, too, needed to be reimagined. Today’s food systems must feed 7.8 billion people without compromising future productivity or the health of our planet. Yet they must also fairly reward and recognize the work

of the millions of people at their base, in particular small-scale producers.

What is the urgency?

Hunger is both a result of conflict and a cause. It is bad for human health, economic growth, peace and development. Last year, 690 million people went hungry. Under-nutrition stunted the growth and future prospects of 144 million children. Climate change has affected our rivers and oceans and helped agricultural pests and disease multiply.

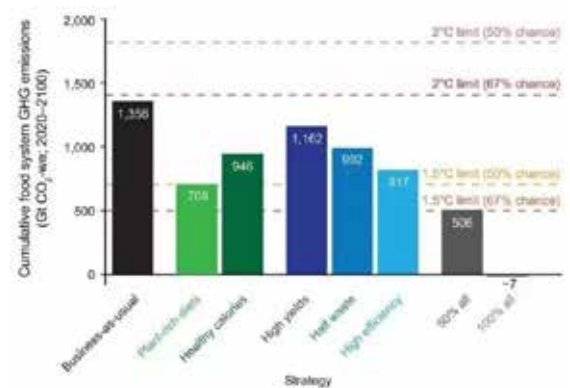
This was before the impact of the COVID-19 pandemic, which may push another 132 million people into hunger. Small-scale farmers and other rural people are disproportionately represented among the numbers of the poor and hungry.

Demand for less variety and more processed foods are shaping Global food

systems. There has been a 75% loss of plant genetic diversity on farms in the past 100 years. Just four crops - wheat, rice, maize and soybean - provide two-thirds of human caloric intake. With fewer species and varieties, our food systems are more vulnerable to pests and disease.

Meanwhile, our current system of food production uses about 75% of the world’s accessible freshwater. It is responsible for 20% to 30% of all greenhouse gases. It is a primary contributor to biodiversity loss. And one million species are threatened with extinction - including pollinators, without which humans would be extinct.

Why should we care about small farms?



Caption: Emissions will take Earth’s temperature past a 1.5°C rise in the 2060s, unless we transform our food systems. © Science Magazine

Small-scale farming systems already grow 50% of our food calories on 30% of the agricultural land. When access to inputs

and conditions are equal, smaller farms tend to be more productive per hectare than much larger farms. Family farmers have a vested interest in protecting the fertility of their soil and the long-term productivity of their land. They are also more likely than larger farms to grow a wide variety of crops, contributing to agro-biodiversity.

IFAD's experience shows that when given the opportunity, small-scale food producers are quick to invest and grow their business. Even in situations as complex as the Sahel, these investments yield results.

Last year, on a visit to Mali, I met a young farmer and entrepreneur named Nouhoum Sidibé. Nouhoum had been saving his money to migrate to Europe when he heard about an IFAD-supported project aimed at empowering young women and men in rural areas. With a loan and training, Nouhoum was able to start a poultry business.

He began with just 10 chickens. Today he is raising 3,500 chicks five or six times a year and employs seven people. In a country where average salaries are \$1,500, his annual income is more than \$12,000. He is investing in his business and community instead of saving up to leave.

Every year, IFAD-supported projects raise the production of 15 million small-scale producers and increase the value of sales of another 16 million, significantly raising the income of 20 million rural people.

Creating a virtuous circle

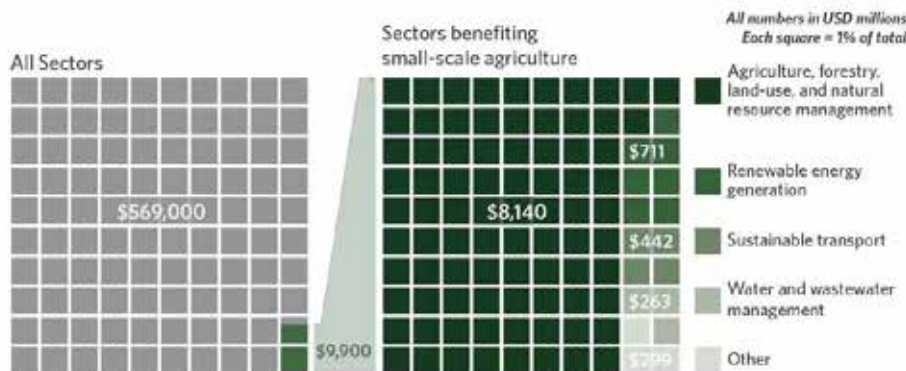
Rural and urban societies and economies alike benefit from prosperous and productive small farms. This creates jobs and wealth for their communities, reduces pressure on young people to migrate, and contributes to more stable and peaceful societies.

When small-scale farmers earn more, they inject their incomes directly into the rural economy, creating growth and diversification. Almost every example of large-scale national poverty reduction was kick-started by rising incomes among small-scale farmers.

What can we do to catalyse this virtuous circle?

First, we need to make markets work for small-scale farmers. Even in advanced economies, only a tiny fraction of the retail price of food reaches the farmer. The situation is even worse in low- and middle-income countries.

Small-scale farmers need to be able to get their goods to market and to earn decent incomes from selling them. This means investing in storage and transport infrastructure to reduce waste and enable market access. And, it means investing in digital technologies so that farmers can access market information –



Source: CPI analysis based on Global Landscape of Climate Finance 2019

Caption: Share of annual climate finance in small-scale agriculture 2017/2018 rounded in USD million.

especially important during times of pandemic. Second, public and private investment is needed to link rural and urban areas. This includes better roads, electricity and internet connectivity. Investments are also urgently needed to help small-scale farmers adapt to climate change.

Third, we need to empower women and youth to unleash their potential. This includes protecting their rights to land and assets and ensuring they have better access to markets, finance and technology. Fourth, we need to invest in research and innovation that benefit small-scale farmers; today, agricultural research tends to neglect them. This research needs to be accompanied by technical advice, training and ICTs.

Fifth, small-scale farmers and their organizations need to be linked to relevant policy and planning processes – especially those around food systems in both rural and urban areas. Among other benefits, this would create opportunities for small-scale farmers to sell their products to people in large towns and cities. As well as creating new income-earning opportunities, their involvement would contribute to meeting food and nutrition needs in cities.

Making small-scale farmers a priority

Small-scale food producers must be at the centre of next year's global food system summit convened by the UN Secretary-General António Guterres. This means putting agriculture – and the needs of small-scale farmers – high on the global political agenda and high on the list of recipients of global investments.

Thriving small-scale farmers and sustainable and inclusive food systems contribute to a brighter future for rural and urban populations alike across the planet.

This article also appears on the World Economic Forum as part of the Bold Actions for Food as a Force for Good.

Young agri-entrepreneur shines in rural Zimbabwe



While agriculture forms an integral part of Zimbabwe's economy, many young people still think of it as back-breaking labour that offers little economic benefit. However, things are slowly changing, a growing number of young people are starting to see agriculture as a viable career option.

Twenty-eight-year-old Terence Maphosa is among a new generation of agri-entrepreneurs who are invigorating the agriculture sector with their innovative initiatives. A political science graduate from the University of Zimbabwe, Maphosa's dream was to land a white-collar job in the city after finishing college.

A year and a half after graduating from college,

circumstances pushed Maphosa to start breeding and selling indigenous chicken breeds popularly known as roadrunners at his rural home in Mhondoro-Ngezi, about 170km from the capital Harare.

Roadrunner is a colloquial name for a free-range exotic breed of chicken that scavenges for food. Their meat is tougher and is considered by many to be tastier than broilers.

His breeds include the Black Australorp, Koekoek, Light Sussex, Kuroila and Jersey Giant. While many young people in Zimbabwe view agriculture as the domain for the less educated and consider rural to urban migration as the only ticket out of poverty, Maphosa has made a name for himself in the village.

Apart from rearing exotic chicken, Maphosa is also involved in crop farming – but he focuses on corn, sunflowers, sorghum and soya crops as a means to reduce the costs of buying feeds.

Indigenous chickens have gained popularity among Zimbabweans as they offer a healthier organic option and a business opportunity.

Unlike broilers, the birds are cheaper to rear as they thrive on natural foods such as grains, worms and insects. Maphosa's success in agribusiness has caught the attention of many young people on social media where he regularly posts about his day-to-day life.

"A lot of youngsters are now appreciating farming, and slowly we are getting there," he told Xinhua.

"The reason why our generation doesn't see farming as something lucrative is because of our background.

When growing up, we were taught to go to school, to be doctors, to be nurses, to be lawyers, to be engineers, nobody pushed us to be farmers. So apparently, they did not push us to be practical, they pushed us to work those white-collar jobs," he said.

Thanks to farmers such as Maphosa, a resurgence of interest among young farmers is happening, more and more young people are starting to see agriculture as a viable career path.

"People are now showing the desire and hunger to go into farming, specifically in my field, the roadrunner business," he said.

Maphosa said agriculture's image is changing, youth are now turning to farming and value addition of farm produce.

"The way we are doing things, I wouldn't deny we are making farming look cool, like being proud of your surroundings, you influence the next person to say let me try this," he said.

Through Maphosa's social media posts, young people at home and abroad are being motivated to venture into agribusiness.

His Twitter account has gained a significant following, and his name has become a subject of discussion on Twitter.

Maphosa's simple and authentic rural life, and his appreciation of traditional Zimbabwean food has also attracted the admiration of many.

With more educated youth such as Maphosa joining farming, youngsters are beginning to view agriculture as an intellectually stimulating and economically sustainable career.

Like most developing countries, agriculture remains the mainstay of Zimbabwe's economy.

Attracting young people to rural agriculture is vital since nearly 60 percent of Zimbabwe's population lives in rural areas. In addition, agricultural activities provide employment and income for 60%-70% of the Zimbabwe's population, supplies 60% of the raw materials required by the industrial sector and contributes 40% of Zimbabwe's total export earnings, according to the Food and Agricultural Organisation.

Agriculture also contributes approximately 17% of the country's gross domestic product. With people below the age of 35 constituting more than 50% of the country's population, and given the country's high youth unemployment rate, the agricultural sector offers huge potential for job creation.

The Zimbabwean government has over the years taken various initiatives to support youth in agriculture.

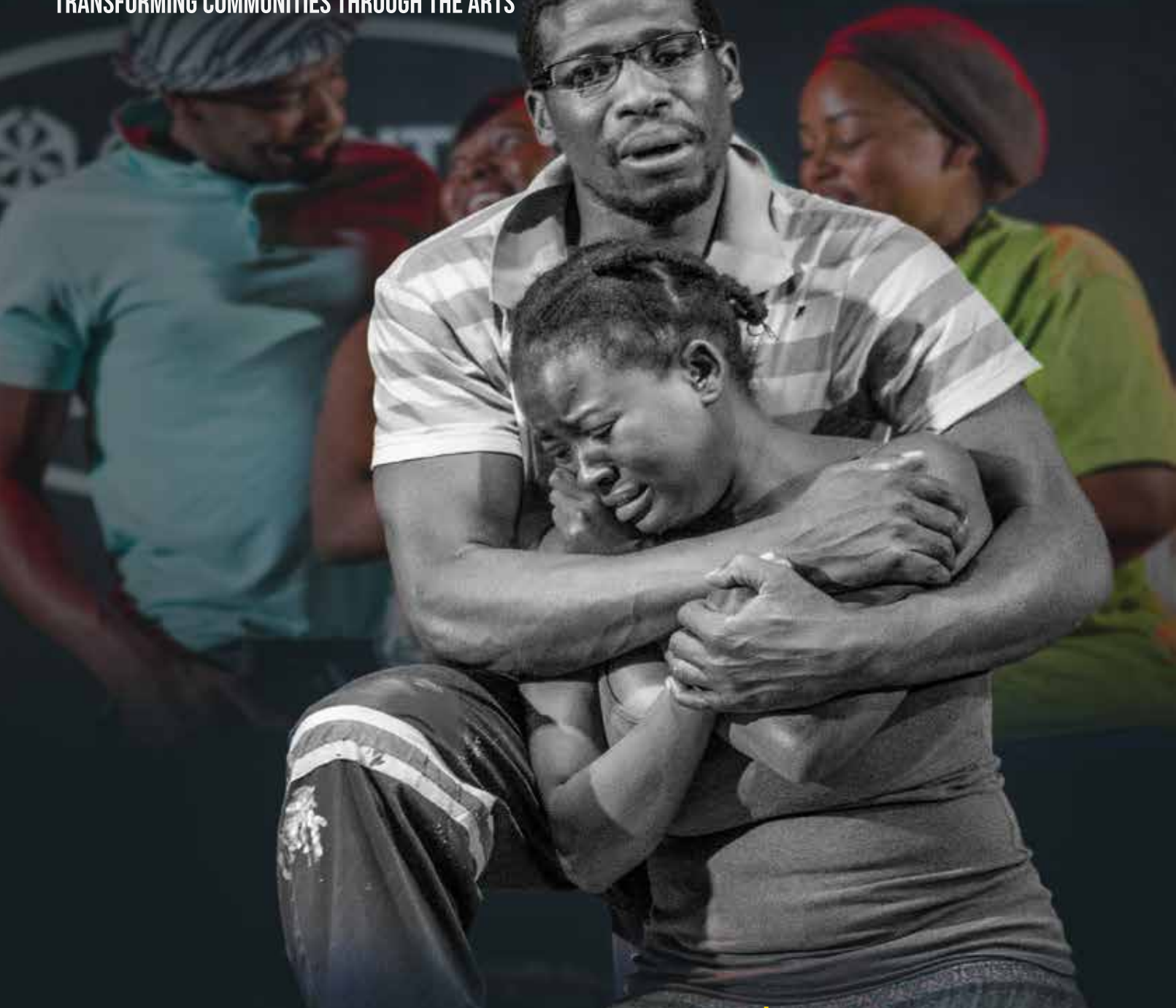
Government sees the inclusion of the youth, in the agricultural sector as key in its efforts to plug the country's food supply gap and to achieve food security at both household and national level.

Source— Xinhua

"The reason why our generation doesn't see farming as something lucrative is because of our background. When growing up, we were taught to go to school, to be doctors, to be nurses, to be lawyers, to be engineers, nobody pushed us to be farmers. So apparently, they did not push us to be practical, they pushed us to work those white-collar jobs,"

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Finding strengths in local food markets amid the pandemic

Since March 2020 when COVID19 first showed up in Africa, mass food markets have continued to play their critical functions although policy support has continued to be directed to processing companies and supermarkets.

In 2021, COVID19 did not just confirm the importance of a strong immune system but has also revealed the strengths of local food markets. Local food markets have continued to be centers of knowledge integration between farmers, traders and the majority of consumers.

Market indicators should not be over-looked

The mass market uses its convening and distribution power to influence the demand for nutritious commodities. When that feedback gets to farmers, it triggers production of appropriate nutrition at the production level. If a farmer wants to know what is being demanded at particular periods s/he asks the market. The mass market is the only place a comprehensive nutrition basket from a district or province can be found consolidated – telling a food story about a district or province's food basket.

Individual communities may produce specific commodities but not all commodities needed to form a complete food basket. Some crops may not grow in livestock regions, meaning such regions may only have livestock-based nutrition. One district may be suitable for particular fruits only, the other small grains and another livestock but it is the mass market that can bring all these commodities together into a complete food basket. That is why market indicators are critical and should not be over-looked.

Effects of indiscriminate lockdowns

By not sufficiently paying attention to the roles and functions of mass food markets, government measures like lockdowns and other restrictions have constrained people's access to nutrition.



Where potatoes, tomatoes and diverse kinds of fruits were easier to move from high production zones to high consumption zones, lockdown means these commodities rot in production zones when they are badly needed in cities and other high consumption zones.

If measures can be put in place to move medications and other necessities, why cannot policy makers see the importance of innovating ways of moving food from farming areas to cities

and dry regions where food is badly needed? Failure to put in place strong supply chains is a disservice to both producers and consumers.

Whose role is it to facilitate the movement of food through the mass market?

In most African countries food has been considered one of the essential services during the COVID19 era. However, there has not been clarity on who should provide exemption letters for actors in the mass food markets. Expecting the police or local authorities to issue exemption letters to farmers who

Unlike formal markets, African mass markets are better positioned to maximize the benefit of the food they handle from diverse production zones and import destinations. These markets are providing long-term and short term solutions to food availability and access.



want to take commodities to the market assumes local authorities and police understand agriculture and dynamics surrounding different commodities.

The other assumption is that farmers are the ones who take commodities to the market irrespective of volumes yet in reality the market is often the one that goes out to fetch commodities from production zones through traders. In such cases, traders do not have specific institutions responsible for issuing them

exemption letters.

The Ministry of Industry and Commerce and government marketing authorities do not understand the informal food industry enough to know who is a genuine trader and who is not to be able to issue relevant exemption letters.

Unless brokers who work in the market are given the power to issue exemption letters, the movement of food is significantly constrained, forcing traders and transporters to travel at night using unorthodox routes that avoid road blocks and curfews. This further exposes the traders and their customers to the pandemic.

Unlike formal markets, African mass markets are better positioned to maximize the benefit of the food they handle from diverse production zones and import destinations. These markets are providing long-term and short term solutions to food availability and access.

Through mass food markets, farmers, traders and transporters are not just providing food but eradicating poverty and malnutrition. It is becoming critical and possible for African countries to build nutrition baskets for low income earners toward avoiding cases where poor people end up associating some commodities with rich people.

If they know how much of a carrot one should eat from a nutrition perspective, most poor people would consume the right quantities of carrots.

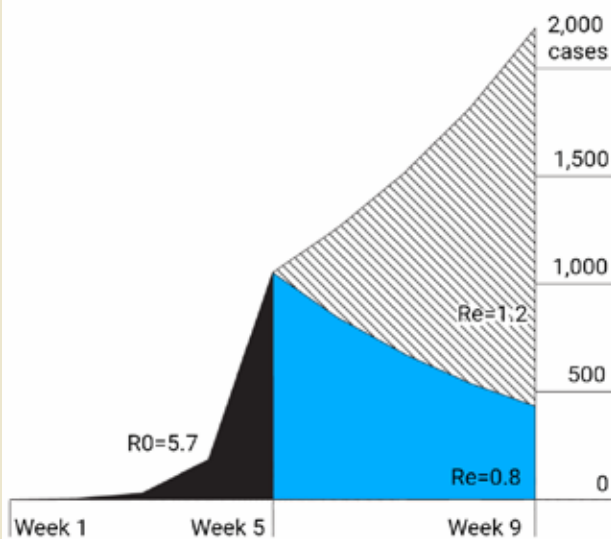
This is how mass markets become an entry point in promoting nutrition literacy unlike the current scenario where nutrition information is largely academic.

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Why Vaccines Might Not Be Able to Eliminate Covid-19

Explosion to Elimination A model of how it can work

- Early in the outbreak in Wuhan, each person with the virus infected an estimated 5.7 others. This is called the basic reproduction number, or R_0 .
- To end the outbreak, the R_e must stay below 1, for example 0.8, until there are no new cases.
- ▨ Social distancing and other measures can reduce the effective reproduction number, or R_e , for instance to 1.2.



Source: Los Alamos National Laboratory (Wuhan R_0 and serial interval)
Note: Based on a serial interval of roughly a week

By Jason Gale

The road to eliminating Covid-19 is long and paved with uncertainty. Many countries are counting on vaccines to build sufficient immunity in their populations so that SARS-CoV-2 isn't able to find susceptible people to infect, causing transmission of the coronavirus to slow and eventually stop.

But even with the rollout of highly effective vaccines, immunization coverage may not reach that level -- the so-called herd immunity threshold -- anytime soon. For one thing, it's not known what level of immunity is required and whether vaccines will be potent enough to achieve it. There's also the threat of

emerging coronavirus variants that may weaken the effectiveness of immunizations.

1. Can Covid-19 be eradicated?

No. So far, only one human disease -- smallpox -- has been officially eradicated; that is, reduced to zero cases and kept there long-term without continuous intervention measures. Smallpox was stamped out thanks to a highly effective vaccine and the fact that humans are the only mammals that are naturally susceptible to infection with the variola virus that causes the disfiguring, sometimes deadly disease.

Humans are the only known reservoir of poliovirus, yet it still spreads in a few countries, causing paralyzing disease, despite the widespread use of effective immunizations and a 32-year-old global eradication effort. SARS-CoV-2 is thought to persist in nature in horseshoe bats, and has been known to infect minks, cats, gorillas and other animals. Wiping out the virus would require banishing it from every susceptible species, which isn't feasible. In countries that have successfully suppressed Covid-19 cases, disease elimination has been proposed instead.

2. What's elimination?

It's when efforts to suppress an outbreak have resulted in zero new cases of a disease or infection in a defined area over a sustained period. There's no official definition of how long that should be. One proposal is to make it 28 days, corresponding to twice as long as the outer range of SARS-CoV-2's incubation period -- the time between infection and the appearance of symptoms.

Some countries, such as New Zealand, have achieved zero new cases for lengthy periods using border closures, lockdowns and diligent case detection and isolation. During a pandemic, which is an outbreak of a new infection across continents, sustaining elimination of any infectious disease nationwide is challenging, if not impossible, because of the threat of the virus re-entering the country from infected international travelers.

3. Will vaccines eliminate Covid-19?

It's hard to say. It's not known what proportion of the population needs to have immunity to stop the coronavirus from circulating, or whether even the most potent vaccines will be able to prevent

it from spreading. One study estimated that to stop transmission, 55% to 82% of the population would need to have immunity, which can be achieved either by recovering from an infection or through vaccination.

However, herd immunity wasn't achieved in Manaus, the capital of Amazonas state in Brazil, even after an estimated 76% of the population had been infected. Still, there's reason to believe mass inoculations will have a more powerful effect because vaccines appear to elicit stronger and more durable protection than a prior infection.

4. How effective will vaccines be?

There's good evidence that the shots made by Pfizer Inc.-BioNTech SE and Moderna Inc. are very effective -- as much as 95% -- at preventing recipients from developing Covid-19 itself. However, data haven't been released on their ability to prevent people from developing asymptomatic infections or transmitting the virus to others.

The gold standard in vaccinology is to stop infection as well as disease, providing so-called sterilizing immunity. But it's not always achieved.

The measles vaccine, for instance, prevents infection so that vaccinated people don't spread the virus, whereas the vaccine for whooping cough does a good job protecting against serious disease but is less effective at stopping infection. Encouragingly, a study of Moderna's Covid vaccine in monkeys suggested that it will reduce, if not completely prevent, onward transmission of the virus.

Clinical trials using AstraZeneca Plc's vaccine indicate it may be less than 60% effective at stopping infections -- making it unlikely to achieve herd immunity even if everyone in a population received two doses.

5. How do variants of the virus factor in?

Researchers have studied the ability of antibodies in the blood of recovered Covid-19 patients to block them. Some analyses have indicated that the variant first detected in South Africa, 501Y.V2, is "more troubling" because of the number and position of key spike-protein mutations and the potential effects on vaccine efficacy. Several drugmakers have begun developing updated versions of their vaccines to thwart the new strains.

A late-stage study conducted in the U.K. and South Africa on an experimental vaccine from Novavax Inc. appeared to support that decision, with interim results indicating the shot offered significantly more protection against the U.K. variant than the South African one.

Modeling by the Institute for Health Metrics and Evaluation in Seattle predicts that, in a worst-case scenario in the U.S., widespread transmission of the South African variant and pre-pandemic levels of mobility among the vaccinated could result in about 654,000 Covid-19 deaths by May 1. Without transmission

"Higher levels of immunity are needed with a more contagious variant and during the winter months, and vaccine hesitancy is an obstacle to achieving herd immunity,"

of that variant, the forecast drops to 595,000 deaths. It predicts only 38% of Americans will be immune by May 1 and that herd immunity is unlikely to be a factor in slowing transmission in the coming months, even with vaccination campaigns ramping up.

"Higher levels of immunity are needed with a more contagious variant and during the winter months, and vaccine hesitancy is an obstacle to achieving herd immunity," the institute said in a statement Jan. 28 -- the same day the U.S. confirmed its first two cases of the South African variant.

6. Do Covid-19 vaccines have to prevent infection to curb cases?

No. Vaccines don't have to be perfect to have a public health benefit. New Zealand vaccinologist Helen Petousis-Harris points to rotavirus and chickenpox as examples of diseases that have been "virtually eliminated using vaccines that are very good at preventing severe disease, quite good at preventing any disease, but that do not completely prevent infection in everyone."

Since SARS-CoV-2 spreads through respiratory particles from an infected person's throat and nose, a vaccine that reduces the amount of virus in the respiratory tract or reduces the frequency an infected person coughs may decrease the likelihood of it being transmitted to others and lower the effective reproduction number (R_e), which is the average number of new infections estimated to stem from a single case.

Mike Ryan, head of the World Health Organization's emergencies program, told reporters Jan. 25 that rather than focusing on eliminating SARS-CoV-2, success should be seen as "reducing the capacity of this virus to kill, to put people in hospital, to destroy our economic and social lives."

7. What if Covid-19 isn't eliminated?

David Heymann, chair of the WHO's Strategic and Technical Advisory Group for Infectious Hazards, warned at the end of 2020, "it appears the destiny of SARS-CoV-2 is to become endemic." Viruses that are endemic continuously circulate in the community, often causing periodic spikes when disease characteristics and human behavioral patterns favor transmission.

Examples include norovirus, the notorious cause of gastroenteritis on cruise ships, and the myriad of viruses, including four coronaviruses, that cause the common cold, especially over the winter.

8. What might the implications be?

It's unknown how things will evolve, but researchers have begun to spin out scenarios. People who have survived Covid-19 and those vaccinated against it will probably be protected against the disease for some time.

It's likely that re-exposure to the virus or a booster shot of the vaccine will bolster their protection. As more and more people develop immunity in this way, the virus will find those who are not yet immune, so long as herd immunity is not established to protect them.

That will mean that people who can't get vaccinated -- because their immune systems are compromised, or they have allergies to vaccine ingredients, or they are too young (none of the vaccines authorized in Western countries have been approved for children) -- will remain vulnerable.

Some scientists have predicted that, once the endemic phase is reached and primary exposure to the virus is in childhood, SARS-CoV-2 may be no more virulent than the common cold.

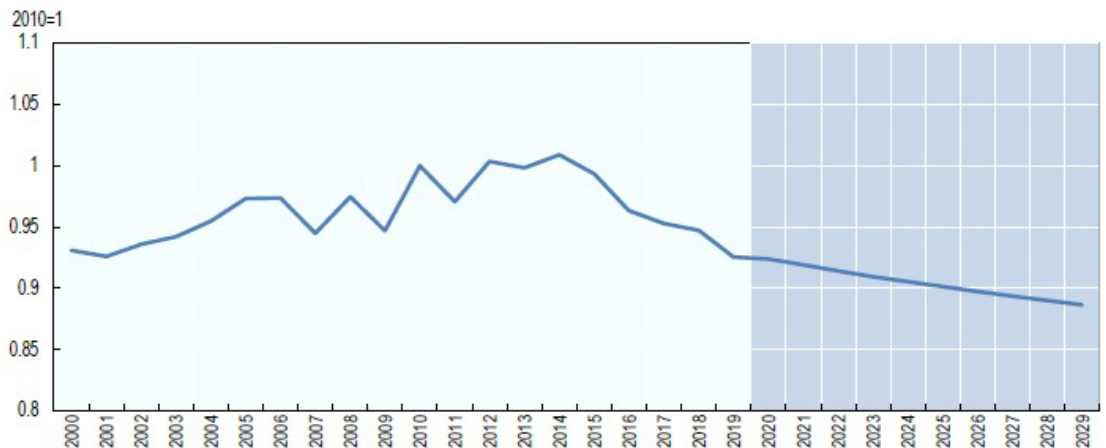
The Reference Shelf

- The University of Edinburgh's Devi Sridhar and Deepti Gurdasani detail the difficult lessons learned from a largely uncontrolled Covid-19 epidemic in Manaus, Brazil.
- The University of New South Wales' Anita Heywood and Raina MacIntyre explain disease eradication, elimination, and suppression, and what elimination of Covid-19 would look like. MacIntyre also presents principles of vaccine programs for Covid-19 control.
- Related QuickTakes on how vaccine hesitancy threatens to delay the pandemic's end, why delaying the second shot of a Covid-19 vaccine is messy, why the mutated variants are so worrisome, how the coronavirus is transmitted, the vaccine rollout, whether you can be forced to get vaccinated, coronavirus treatments and the unanswered questions about the virus.

(Updates with Novavax study and Institute for Health Metrics and Evaluation projections in section 5.)

Source- Bloomberg

World agricultural markets face range of uncertainties due to the COVID-19 pandemic-report



Source: OECD/FAO (2020), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>.

StatLink <https://doi.org/10.1787/888934141779>

Maricho Reporter

Agricultural and fish production in the Sub Saharan region is expected to grow by 21% over the next ten years in net value added terms, implying that per capita production in the region will continue the decline that started in 2015, according to new edition of the OECD–Food and Agriculture Organisation (FAO) Agricultural Outlook.

The Agricultural Outlook 2020-2029 is a collaborative effort of the Organisation for Economic Co-operation and Development (OECD) FAO. It brings together the commodity, policy and country expertise of both organisations and input from collaborating member countries to provide an annual assessment of prospects for the coming decade of national, regional and global agricultural commodity markets.

While the core baseline projections have not been modified to reflect the unexpected conditions created by the current COVID-19 pandemic, they provide a useful starting point for evaluating potential impacts.

The latest report provides a comprehensive medium-term baseline for agricultural commodity markets at national, regional and global levels, along with an initial scenario which explores the impact of COVID-19. This preliminary analysis suggests that dramatically lower economic growth in 2020 could contribute to a further drop in agricultural commodity prices, at least in the short run.

The Sub Saharan region is anticipated to add some 329 million people by 2029 compared to the 2017-19 base period, growing at over 2.5% p.a., and while almost two thirds of that addition will be urban, 55% of the population will still live in rural areas by 2029. Economies in the region typically have a high dependency on resource commodities, including agriculture, oil and metals. Agriculture, fish and forestry account for about 16% of GDP, and this is expected to around 13% by 2029.

The region is an agro-ecologically diverse, land abundant region, accounting for 14% of global cropland and 21% of pasture. Nonetheless, the agricultural sector in many countries faces land shortages given high population density in rural areas, such that most available land is concentrated in few countries and/or is largely under forest cover.

The region thus produced only 7% of the global value of agricultural and fish production in 2017-19. By contrast, given its sizeable consumption requirements, the region consumed 37% of global roots and tubers, 21% of global pulses but just 7% of global cereals.

Compared to other regions, Sub-Saharan Africa's consumption of sugar and vegetable oil also remained low, both at only 7% of global use. Overall, Sub-Saharan Africa's self-sufficiency for major food commodities is decreasing, as the region's population is expanding quickly, beyond the pace of growth in domestic supply.

Crop production is projected to account for over three quarters of total production, while the share of livestock products will gain marginally to 16% and the share of fish production will decline to under 8%.

Food and feed staples, namely coarse grains, pulses, roots and tubers, will be the main sources of growth for the region. Each of these are commodities for which the region's global market share will rise over the outlook period.

By 2029, the SSA region may account for over 40% of global roots and tubers output, 8% of coarse grains production and 20% of pulses output. Support to the cotton sector, paired with area expansion in West Africa will sustain cotton production, which is projected to grow by nearly 40% by 2029 at regional level.

Area harvested is expected to expand by more than 4 Mha by 2029. Due to cropping intensification (such as double cropping) this net growth is expected despite a small reduction in agricultural land use. The expansion of rice cultivation in the region, notably in Nigeria, is expected to be based upon multiple harvests per year. Inter-cropping is also common in soy producing regions of South Africa, obtaining multiple crops from the same plot of land.

In other parts of the region, the ongoing expansion of agricultural land use is constrained by various sources of uncertainty, including land fragmentation trends, conflict in land abundant countries, and the presence of other competing uses such as mining and urban sprawl.

Average cereal yields across the region are projected to grow 16% over the outlook period, about the same rate as the last ten years. Yields for major crops in the region will continue to increase, based on investments in locally adapted improved crop varieties, and optimised management practices.

Rapid growth in yields will help narrow the region's gap with yields achieved in the rest of the world, which on average are more than twice those achieved in Sub-Saharan Africa. Although productivity improvements will be central to output growth in the medium term, fully closing the yield gap is challenged by the limited use of inputs, irrigation and farm infrastructure.

Livestock production is projected to expand by 25% over the next ten years, with the fastest increases coming from poultry and milk production. The region will add 1.1 Mt of new bovine meat output, based on a 17% increase in animal numbers and 5% increase in productivity by 2029; by then the region will have 18% of the global bovine herd. Ovine meat production will grow faster over the next decade; the region will increase its share of global production by 1% to 14% by 2029.

Meat production will be based primarily on larger herds, grazing on diminishing pasture area, while feed use will remain stable, growing in line with average meat production over the next decade. For poultry meat, greater feed intensity will support increased production as the supply chain modernises in countries such as South Africa and Zambia.

Based on these production projections, direct greenhouse gas (GHG) emissions from agriculture are expected to grow by a large 18% by 2029 compared to the base period. Sub-Saharan Africa will account for 44% of the global increase in direct emissions from agriculture and will reach a share of 17% of global direct emissions by 2029.

Consumption

Population growth remains by far the main driver of total consumption growth for major food commodities.

With rising calorie use, and a rising population, the region's share of global food calorie consumption is anticipated to rise from about 11% in the base period to 13% in 2029, constituting one of the largest sources of additional demand for the global agricultural sector.

For many commodities, including cereals, pulses, sugar, vegetable oils, per capita consumption levels are currently the lowest in the world. Substantial growth in these commodities is expected in the coming decade.

Calorie intake is nonetheless expected to remain the lowest in the world, adding 75 kcal/day over the outlook period, to reach about 2 510 kcal/capita per day in 2029, compared to the projected world average of 3 014 kcal/day. An increasing share of calories will come from cereals, vegetable oils and sugar, while meat and fish consumption will not rise in per capita terms over the next decade, thus limiting gains in vital nutrients.

The region concentrates most of the world's poor and undernourished individuals, necessitating improvements in availability, accessibility and utilisation of food supplies. Roots and tubers, followed by cereals, are the main sources of feed for the region's livestock sector. However, total feed use in the region is low, accounting for only 4% of global feed consumption.



How to control ticks at farm level

By General Beven Mundida

Every farmer is aware of the negative impacts of ticks on livestock health, productivity and value.

Ticks bite, suck blood (which is their only food) and in the process spread disease causing microorganisms among them viruses, protozoa, spirochete and rickettsia which subsequently multiply and result in fatal illnesses.

Main economic losses caused by tick infestation result from reduced production, cost of treatment and reduced value of skin and hide.

Small as some may appear, ticks are voracious blood feeders and heavy tick infestation can have depriving consequences on their hosts including slowing down growth rate, wasting and reducing milk production in dairy herds.

Ticks exhibit a variety of host-contact patterns that are defined by their life cycles. One host tick species will spend all their life stages namely larva, nymph and adult on a single host's body; two host and three host will use two and three host animals respectively to complete their life cycle.

It is important to know this as it not only informs the control strategies but also the disease spreading dynamics of various ticks.

Exotic animals are more prone to tick borne diseases compared to indigenous cattle and every care should be taken to protect them from ticks especially where indigenous herds are kept alongside exotic animals. In such settings ticks can easily spread infections across the breeds.

How are ticks spread?

Ticks normally wait for their hosts to pass by so that they can cling onto them and walk upwards to their preferred sites, attach and suck blood.

How are ticks controlled?

Various control methods and strategies are used to control ticks. They aim to prevent contact between ticks and to remove or kill ticks in contact with livestock.

Tick proof buildings:- This approach is used especially where



exotic high value animals are kept and involves the construction of tick proof housing. Cracks on walls and floor are used by ticks as hiding and breeding places. Building structures without cracks and crevices makes such structures un conducive for ticks and greatly reduces infestation. An Acaricide tunnel around the housing can further minimise livestock tick contact by creating a barrier around the structure.

Quarantine:- Animals introduced into a farm must be quarantined for sometime as they are sprayed with acaricides to kill all stages of ticks carried by the animal before they are mixed with the resident stock.

Manual removal:- This method is applied where the number of infestation is low and animals are few. To remove the whole tick and with minimal disturbance to the animal, hold the tick close to the animal's body and twisted anti-clockwise.

The removed ticks are then killed by burning. This method though enjoyable to the animal; poses the risk of human being getting in contact with deadly pathogens like the Crimean Congo Hemorrhagic Fever virus.

Dipping or spraying with acaricides:- Acaricides can be applied either by dipping (in cattle dips), washes (by hand), spraying (by knapsack sprayers), pour-on, spot-on or by injections.

Dipping is a costly operation and is only desirable when a large number of cattle are involved or where a tick eradication programme is in place.

The frequency of dipping depends on the species of the tick present in an area in order for the cycle to be effectively broken.

Hiding sites that may escape the dip or the wash

There are preferred sites for certain tick species on body parts of the animal which are not effectively treated by dipping or spraying. The inner parts of the ear, areas between teats, the tail bush, offer hiding sites for certain tick species and may not be reached by the acaricide.

Hand dressing:- These sites need special attention from the farmer. The selective application of acaricide to these sites is known as – hand dressing. It is normally done as a supplement after dipping.

The acaricide is applied with a cloth, sponge, or even a hand spray, and either standard dip fluids are used, or an acaricide in an oily or greasy medium is used. Hand dressing can also be practiced on individual animals to control ticks which occur in small numbers.

Dipping precautions

Dips should be roofed to avoid concentration or dilution of the dip through evaporation or rain.

Always dip animals in the morning to minimise livestock from drinking the dip (animals to be dipped should not be thirsty) and for the acaricides to perpetrate better. Do not dip young, tired or injured animals.

Dung lowers the concentration of dip and its level should be continuously monitored.

After swimming through the dip wash; let the animals drain properly before they go out to pasture fields, to minimise chances of the insecticide polluting the feed, fodder, or other items.

The dip must have a good design that allows the excess acaricide to safely drain back into the dip wash area. Take precaution and wear protective clothing.

People handling acaricides and assisting in either dipping, washing or spraying must wear masks, gloves, gumboots and apron to protect themselves from poisoning. Inhalation or skin contact with acaricides must be minimised. Don't smoke or eat during this exercise and thoroughly wash your hands with soap after handling acaricides. You may need to have an antidote (atropine sulphate injection) nearby to treat acaricide poisoning.

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Wife, husband team up to serve their community with health services, information

Many village health workers here have indirectly recruited their husbands, children or extended family members into their quest and drive for a healthier community.

By Farai Mutsaka

In Chipinge and across Zimbabwe, village health workers are the frontline, serving hundreds of thousands of people disseminating basic health services and information. Their dedication is rubbing off, and many family members are also learning from them and spreading the message about COVID-19 and other health issues to others in their communities.

In their tiny living room in rural Chipinge, Village Health Worker Prisca Gwenzi (50) unlocked a metal box and took stock of the medicines within. Her husband, Caiphas Mtisi sat on an old sofa, holding a pen in one hand and scrolling an exercise book with a register of beneficiary details.



“There are times when people come here in their numbers with their babies. I will be there to welcome them, telling people to wash their hands at the entrance and ensuring that they maintain social distancing and they keep their masks on. I cannot do her actual job because she is the trained one, I am just a layman helping out,” said Mtisi, adding that he was very pleased

“She is the expert, I am the assistant,” said the 54-year old, grinning.

Outside, some women sat on the verandah as the rains pounded, waiting to be tested for malaria.

Gwenzi has been a VHW for the past 10 years after receiving training at Mt Selinda Mission Hospital. Her commitment to serving the community has influenced her husband who has turned into a strong advocate for children and women’s health issues and rights.

Apart from helping his wife with domestic chores when she is busy with people in need of health services, he also moves around the community promoting health among his male peers who are often reluctant to take health issues seriously.

The wife-husband team is an example of how skills imparted to VHWs are having positive downstream effects in rural communities where health promotion is constantly vital for populations that are vulnerable to diseases but lack quick access to health facilities or information.

Many village health workers here have indirectly recruited their husbands, children or extended family members into their quest and drive for a healthier community – expanding the network

of information dissemination agents. In Mtisi's case, he is always at hand to ease the workload for his wife, Gwenzi.

"There are times when people come here in their numbers with their babies. I will be there to welcome them, telling people to wash their hands at the entrance and ensuring that they maintain social distancing and they keep their masks on. I cannot do her actual job because she is the trained one, I am just a layman helping out," said Mtisi, adding that he was very pleased and supported Gwenzi when she was to attend VHW COVID-19 training.

"She can go for days and I don't mind being alone, I know she will be getting valuable training that the community and I will benefit from. I accepted my role as her helper the day she was chosen to do this job," he said.

In the packed room, solar batteries, lights and a panel competed for space with health informational charts, books, boxes of masks and sanitizer and a small television.

The solar items are used to light a down pole and metal sheets shade outside when pregnant women with labour pains knock in the dead of the night and have to wait for an ambulance or receive urgent attention at the couple's home.

"I don't know how I would manage without him. He is my pillar of support," said his wife, Gwenzi.

Gwenzi is one of dozens of VHWs providing critical first-line help to villagers in the area. They are supported with resources such as allowances and bicycles as part of the Zimbabwe Idai Recovery Project (ZIRP) implemented by UNICEF and funded by the World Bank.

UNICEF is working in 9 districts affected by the 2019 Cyclone Idai in critical areas of reconstruction including health, education and WASH sectors. In the health interventions, the focus has



been on accelerating the revitalization of basic health service provision to enhance increased access to health services and strengthening community-based primary health care systems to deliver primary health care services.

affected districts through ensuring the provision of essential medical supplies, equipment and other health commodities including for VHWs, as well as strengthening community engagement and participation in the health system.-

These include referral system in cyclone-

Source: UNICEF



Joburg residents help feed the hungry with pavement vegetable gardens

His garden in Talbragar Avenue, Craighall, attracts a lot of interest from a nearby taxi rank and busy roads. And from an elderly neighbour.

"I started planting after renovating the house," said O'Sullivan. "Rubble on the pavement destroyed the grass and it was actually the builder's idea - he had one on his verge.

"The trick here is that the pavement soil is full of insects and ants but in a box the vegetables are safe. I also planted marigolds, which the nursery said would stop the insects getting into the box. And it works.

"People have raided this lot - and I'm happy that they take. Sometimes when I pull up to the house and people see me they get embarrassed but I always encourage them to carry on - that's what it's there for.



Caption: Henrietta Holman outside her home in Northcliff, Johannesburg.



Caption: Isaac Morwasehla and David O'Sullivan in Craighall, Johannesburg, where they have turned their pavement into a community vegetable patch.

By Alex Patrick

Food to share. That is the message written on the carefully constructed community vegetable patch on a verge in Northcliff, Johannesburg.

Henrietta and Seymour Holman have worked hard for the past three years to put food on the tables of neighbours and passers-by. But their little vegetable garden in Acacia Road has never been more valuable than now, when food security is threatened in the midst of the lockdown.

"We want to feed the community," Henrietta said. "Our idea was to hopefully cause a ripple effect in the community and have several other pavement gardens."

The couple live opposite Northcliff Primary School and Henrietta said the school has also planted its own garden with a note which reads "Inspired by Mrs Holman".

"The municipality owns the verge and we are obligated to keep it neat. People usually mow the lawn and plant flowers but my husband suggested we use it to help the community. If we could all plant a little garden it would make a huge difference in the world," said Henrietta.

On the menu this month are carrots, onions, spinach, aubergines, cauliflowers, chillies and herbs. "We're busy growing pumpkin - someone raided the whole lot!"

A fellow pavement vegetable grower, radio personality David O'Sullivan, is cultivating quite a patch - when he's not running the Kaya FM Breakfast Show.

"All I have at the moment is spinach and cabbage. I keep replanting, because if I don't I get a lot of knocks on the door.

There is a little old lady down the road who comes regularly with her plastic packet - she usually comes to the door to complain that I'm not growing what she wants. She's been asking for lettuce and onions," he laughed.

Yoga instructor Dominique Rowberry was excited when her neighbour planted avocado trees on his pavement as a complement to her roadside vegetable garden on Panners Lane in Riverclub, Johannesburg.

But she has not been able to tend to her garden during lockdown.

"We are so paranoid at getting arrested outside our home due to the lockdown regulations that we haven't been able to tend to our garden. My boyfriend did mow the lawn, but quickly so he wouldn't get a fine. So now we have a neat lawn and an overgrown veggie patch.

"We have a lot of tomatoes and some very small spinaches . even when I plant other vegetables people seem to strip the spinach and leave the rest. I have also had requests for herbs but I haven't planted that yet."

Rowberry started a Facebook page, Pavement Vegetable Gardens of Johannesburg, to connect pavement gardeners.

Source: Sunday Times

"We want to feed the community," Henrietta said. "Our idea was to hopefully cause a ripple effect in the community and have several other pavement gardens."



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